UNIVERSITI TEKNOLOGI MARA

EESEE 2024

9TH ELECTRICAL ELECTRONICS SYSTEMS ENGINEERING EXHIBITION 2024

VOLUME 1

ELECTRICAL ENGINEERING STUDIES
COLLEGE OF ENGINEERING
UNIVERSITI TEKNOLOGI MARA
JOHOR BRANCH
PASIR GUDANG CAMPUS

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FOREWORD BY THE
PROGRAM CHAIR

Greetings from the Electrical, Electronic, and System Engineering Exhibition 2024. As Program Chair, I am delighted to offer this collection of extended abstracts that highlights the outstanding projects that our final semester students of Diploma in Electrical and Engineering (Power) and Diploma in Electrical Engineering (Electronics), at Universiti Teknologi MARA Cawangan Johor, Pasir Gudang Campus.

The platform is for the students to present their project as it is a critical turning point in their academic careers, which are the result of years of effort and commitment and a major step toward earning their diplomas. This year's project themes focus on the Internet of Things (IoT) including Industrial Revolution 4.0. These books highlight our students' exceptional work, which shows off not only their technical proficiency but also their ability to engage meaningfully with professionals and other students. You will come across a wide range of projects in this long abstract book, each highlighting a special fusion of technical skill and creativity. I kindly invite you to browse these pages, which celebrate the accomplishments of our future professionals. Welcome once more to the Exhibition of Electrical, Electronic, and System Engineering. I hope the knowledge found in these pages helps to motivate and clear the way for the upcoming generation of creative engineers.

Warm regards,

Noor Hafizah Khairul Anuar
Program Chair

FOREWORD BY THE
HEAD OF ELECTRICAL ENGINEERING STUDIES

Assalamualaikum W.B.T and Salam Sejahtera.

Electrical Engineering Studies (PKE), UiTM Johor Branch, Pasir Gudang Campus is actively involved in developing projects for final year students. These students will have the opportunity to present their work to industries, UiTM staff and students in the 9th ELECTRICAL ELECTRONICS SYSTEMS ENGINEERING EXHIBITION 2024 (EESEE 2024). This is an annual event organized by PKE for final-year students, and for the first time, all projects are collected and assembled in one book. This event will not only complete their project presentation requirements but will also help them gain confidence in presenting their work to others. This event is designed to demonstrate PKE students' capacity to complete modern electrical engineering projects, such as an IoT-based project. EESEE 2024 has successfully gathered 170 projects from two diploma programs: Diploma in Electrical Engineering (Electronic) and Diploma in Electrical Engineering (Power). Finally, as a member of the management team of PKE, UiTM Johor Branch, Pasir Gudang Campus, I'd like to extend my heartfelt gratitude to all final-year students who attended this event. My heartfelt thanks to the organizer for making this event a huge success. From all accounts, this event was a huge success, and we look forward to more amazing ideas from final-year students. Thank you.

Dr. Nur Amalina binti Muhamad
Head of Electrical Engineering Studies
Universiti Teknologi MARA Johor Branch
Pasir Gudang Campus

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Diploma in Electrical Engineering (Electronic) CEEE111

1. AUTOMATED FAN AND LIGHT SYSTEM BASED ON TEMPERATURE MEASUREMENT

Ahmad Amir Afif Bin Mohd Zamri, Noor Hafizah Khairul Anuar

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Abstract

The utilization of fans is more convenient compared to air conditioners due to factors such as simplicity, affordability, and effectiveness in temperature regulation as well as power consumption. This project presents a modern approach to home climate control, focusing on the widespread use of wall or ceiling fans in a household. The project enhanced the traditional usage of fans and light by incorporating smart features such as automated switch activation depending on room occupancy and temperature regulating condition. The speeding of fans increases during the high temperature and will decrease automatically during low temperatures. The project contributed to a user-friendly and energy-efficient solution, especially for children, elders, and disabled persons to optimize their manual adjustment of light and fans controlling. The integration of technology in climate control systems contributes to energy conservation and aligns with efforts to address environmental challenges posed by global warming.

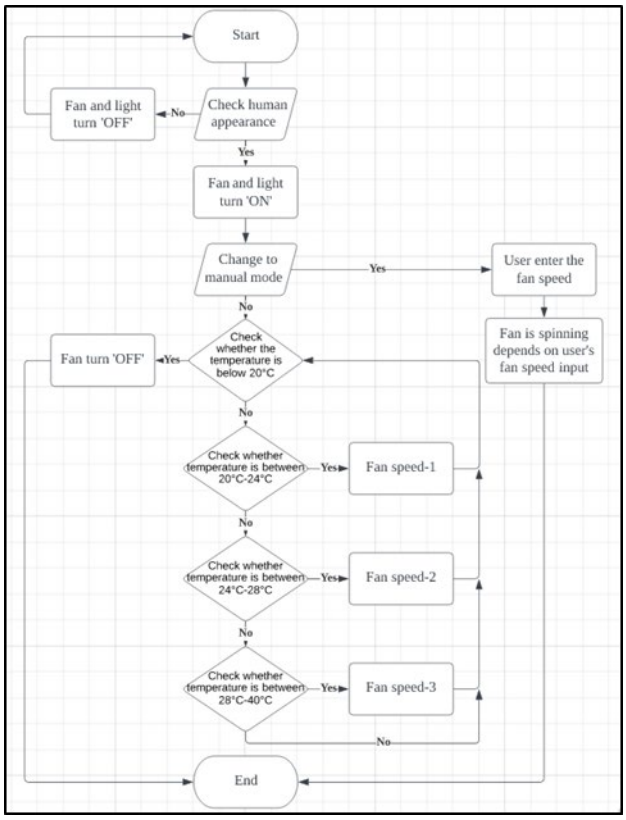
Keywords

climate control, global warming, temperature sensing, automation, automated fans controller

Product Description

The project utilizes two units of motion sensors, and a temperature sensor controlled by a microcontroller. One unit of motion sensor installed at the entrance door to detect the motion of user enter or leaving the room then send the signals to the other motion sensor. The other motion sensor used to detect the occurrence of user inside the room which will be able to automatic switch on/off the light and fan. The temperature sensor used to monitor the temperature inside the room which will be able to control the speed of fan to operate at the appropriate speed inside the room. This product also can be controlled manually via Wi-Fi module and blynk application. The connection uses a Wi-Fi device, which is paired with an app on the mobile phone. From the app, the system can be switched to Sleep Mode which the light will be always turned off.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Flowchart of this project

Member Biographical Data

Ahmad Amir Afif graduated from SPM in the year 2020 from SMK Tinggi Batu Pahat (HSBP) with various involvement in extracurricular activities such as joining robotic competitions for the English and Science Club. Currently pursuing a diploma in electrical engineering (electronic) with an excellent grade. He had mastered the process of designing printed circuit boards (PCB) during his diploma. Currently furthering electronics as the main elective.

Noor Hafizah Khairul Anuar received a B.Eng in Electrical Telecommunication from Universiti Teknologi Malaysia (UTM) in 2008 and an M.Sc in Electrical Telecommunication Engineering and Information Technology from Universiti Teknologi MARA (UiTM) in 2012. She is currently pursuing her Ph.D. in Electrical Engineering at Universiti Teknologi Malaysia (UTM) in sensor development, instrumentation, and machine learning. She is a lecturer at the Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA, Johor.

2. ENHANCING URBAN TRAFFIC FLOW WITH ARDUINO TRAFFIC MANAGEMENT SYSTEM

Aidid bin Zamri, Fazlinashatul Suhaidah binti Zahid

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Abstract

This assortment of electronic parts provides a flexible toolkit for constructing interactive and sensor-driven projects. The kit includes the Arduino Mega as the main controller, vital sensors such an IR sensor module, humidity sensor, and ultrasonic sensor. Accompanying the real-time data display on the LCD screen is an auditory feedback buzzer. Enhancements to project customization include 1k resistors, an LED traffic light module, and a 10mm white LED. Practical extras like a Holder with DC Plug, a 9V Battery for power, an Uno Cable for connectivity, and a Breadboard for prototyping are all included in the box. This extensive assortment serves both novice and expert users, providing a plethora of opportunities for imaginative electronic experimentation with Dupont cables and a variety of connections.

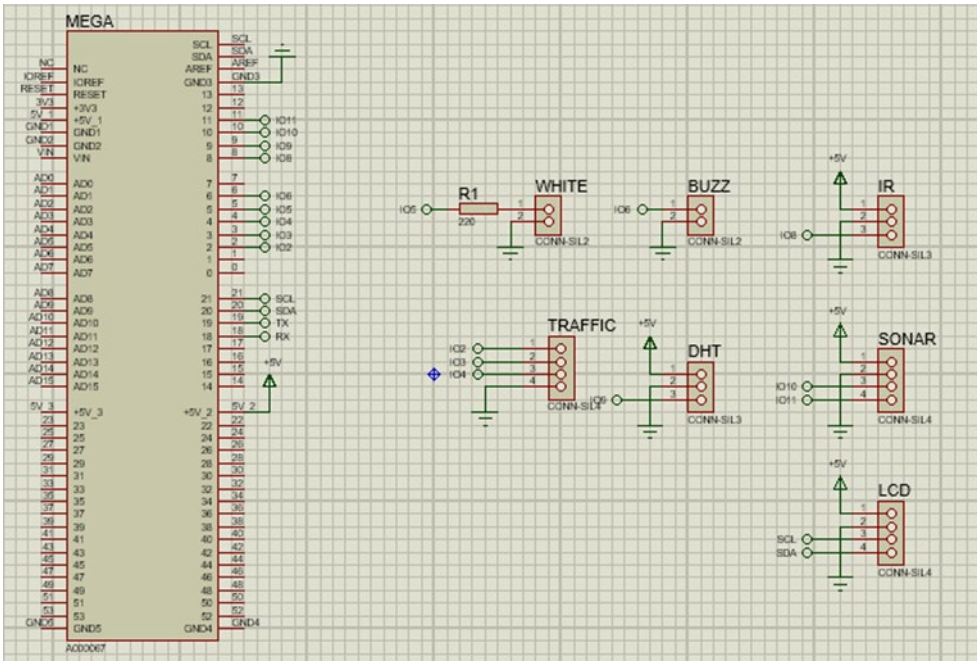
Keywords

Arduino Mega, IR sensor module, humidity sensor, ultrasonic sensor, Liquid Crystal Display

Product description

Presenting the electronics kit, which has the solid Arduino Mega at its core. Explore sensors such as infrared, humidity, and ultrasonic, in addition to a basic LCD and buzzer for feedback. Use resistor, an LED traffic light, and a 10mm white LED to customize projects. Maintain power with the 9V battery and holder. Display Dupont cables guarantee versatile connectivity.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Aidid bin Zamri is currently pursuing his diploma Electrical Engineering (Electronic) major at College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus. He has been studying for a diploma for 2 years and a half. He is interested in Communication Engineering, a field that focusses on supporting systems that transfer information from one place to another .

Fazlinashatul Suhaidah Zahid is a practice lecturer and researcher with 7+ years of experience teaching courses on undergraduates' level. Her research group focuses on the fabrication and integration of dimensional materials particularly graphene, carbon-nanotube (CNT) and other 2D materials into humidity sensor and organic solar cell applications as well as polymer nanocomposites.

3. IOT BASED ALCOHOL SENSE ENGINE LOCK AND GPS

Aiman Rafiq Bin Hassannudin, Madam Nor Diyana Binti Md Sin

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Abstract

Driving under the influence of alcohol is one of the type of accident that usually occurs when someone drink which resulted in various damaged like human life and property.The reason this is happening is because the intoxicated driver believed they were sober enough to operate a vehicle when they were not.In another sense, preventing a drunk individual from operating a vehicle is difficult.With the emergence of automated system,alcohol sense detector can be improve by using Internet of Things(IoT).The internet of things, or IoT, is a network of connected computing devices, mechanical and digital machines, objects, or persons who can exchange data over a network without interacting with other people or computers.Therefore ,in this current scenario.This technology can identify accidents.For detection, a GPS and GSM module identifies the scene of the occurrence and notifies the appropriate parties through text message..This study proposed alcohol sense engine lock and GPS by using IoT technology.The aim of this study divided into 2 parts.The first one is the hardware development that consists of 3 inputs which are alcohol sensor, GPS antenna and switch that will be activated when the sensor detects a specific amount of alcohol on the driver's breath by incorporating with Arduino Uno as the main controller. The second part is to display the information and gives notification about the dunk driver using a mobile.Here , thissystem will help and preventing the driver from driving and at the same time can reduce the losses of the life and properties.This research aims to further current efforts to prevent accidents system developments with the goal of putting it into practice in real life to improve traffic safety.

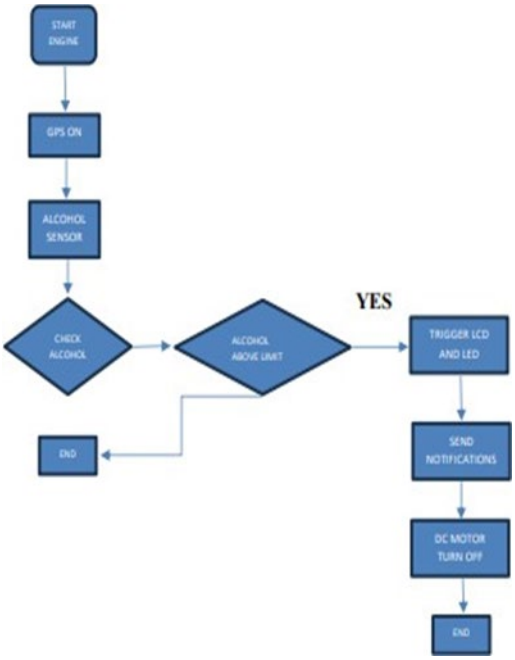
Keywords

Alcohol detection,Track detection,Sending SMS,LCD display

Product description

The system that about to introduce is mainly on breath analysis process, where the MQ-3 sensor that is used will keep check on the driver breath continuously, if the sensor senses any kind alcoholic gas in the driver breath, it will signals the micro controller to turn off the power supply (dc motor)to engine. After the engine turn off, the micro controller will send the Global Positioning System(GPS) location using GPS module to the vehicle through Short Message Service(SMS) using SIM900 to the closest person of the driver. Hence, the system will reduce the number of road accidents and causalities due to drunk driving in the future.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Aiman Rafiq Bin Hassannudin,21 years old electrical student that studies at UiTM Pasir Gudang.He is interested in electrical studies and has experience in working at 99Speedmart for about 2months.

Nor Diyana Md Sin is a senior lecturer in the Electrical Engineering Studies of the Universiti Teknologi MARA (UiTM), Malaysia. She received her PhD in Electrical Engineering (Nanoelectronics) from the Universiti Teknologi MARA (UiTM), Malaysia in 2014. She earned her degree in in Electrical Engineering with honors from Universiti Teknologi MARA (UiTM). Her research interest are in the area of sensor, metal oxide semiconductors, nanotechnology and nanodevices.

4. FARM WATER QUALITY MONITORING SYSTEM

Akmal Hafiz Bin Samsir, Dr. Zakariah Yusuf

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Abstract

The increasing issue of water pollution is a significant concern, affecting both the environment and our health. This project introduces the Farm Water Quality Monitoring System, aiming to tackle the issue of food poisoning caused by contaminated produce from substandard water sources. The core focus lies in the creation of a monitoring system accessible through mobile phones, utilizing contemporary technologies. The scope of project involves the simulation of the system's circuit using Proteus 8 professional software, the design and development of a prototype, and subsequent testing. Three important parameters, namely temperature, pH, and turbidity, are monitored using dedicated sensors. Data from these parameters are displayed in real-time on an I2C LCD screen, complemented by LED lights and a buzzer to notify users of the water's quality condition. The integration of a NodeMCU ESP8266 enables data transmission through a WiFi network.

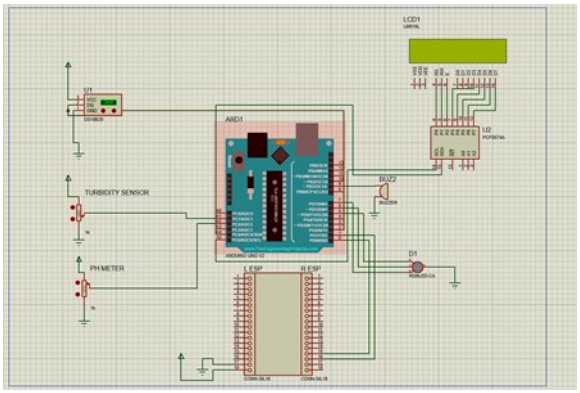
Keywords

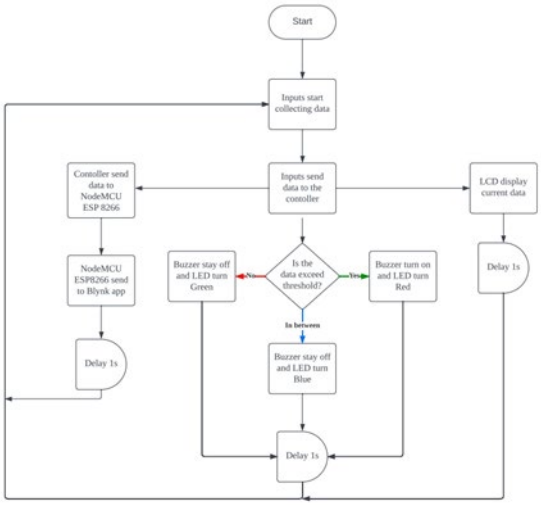
Farming system, IoT, water quality monitoring, sensors, NodeMCU ESP8266, Proteus 8 Professional software

Product Description

The Farm Water Quality Monitoring System is a cutting-edge solution ensuring safe farming practices. Equipped with temperature, pH, and turbidity sensors, it utilizes Proteus 8 for precise circuit simulation. An I2C LCD display presents real-time water parameters, while LED and buzzer alerts provide instant notifications. With NodeMCU ESP8266 enabling Wi-Fi data transmission, users can monitor remotely. This innovative system not only enhances agricultural efficiency but also addresses the pressing issue of food poisoning, aligning with its mission to create impactful, problem-solving technology for everyday challenges.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.





Member Biographical Data

Akmal Hafiz, an aspiring electrical engineering student, was born on February 12, 2003, in Batu Pahat, Johor. Currently pursuing a diploma at UiTM Pasir Gudang, he excels in power systems and digital electronics. Akmal's passion for innovation is evident through his involvement in the university's activities. Outside the lab, Akmal enjoys exploring the intersection of technology and sustainability.

Zakariah Yusuf presently serves as a lecturer at the School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA (UiTM) Cawangan Johor, Kampus Pasir Gudang. He earned his Diploma, Degree, and Masters in Electrical Engineering from UiTM Shah Alam in 2004, 2008, and 2012, respectively. In 2018, he successfully completed his Ph.D. in Electrical Engineering with a focus on Control Systems at Universiti Teknologi Malaysia (UTM). With a decade of professional experience, he has gained expertise in diverse industries, including process control engineering, automotive, and power system project management

5. TOTALCAR SAFETY SUITE : HEAT AND SMOKE

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Abstract

In recent years, vehicular safety has evolved beyond conventional measures, embracing technological advancements to mitigate risks and ensure passenger well-being. This project introduces automotive safety by implementing a real-time temperature sensor system within vehicles. The proposed sensor system aims to monitor and regulate interior temperatures, safeguarding occupants from hazardous thermal conditions and enhancing overall driving comfort an overview of the proposed car safety temperature sensor system, outlining its objectives, functionalities, potential benefits, and implications for enhancing vehicular safety.

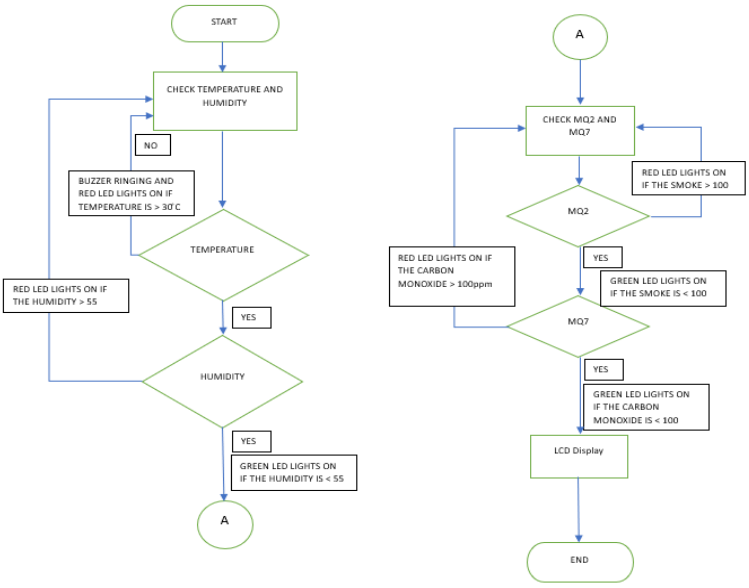
Keywords

Temperature and humidity sensor, Car safety, Smoke sensor, Internet of things (IoT), sensor

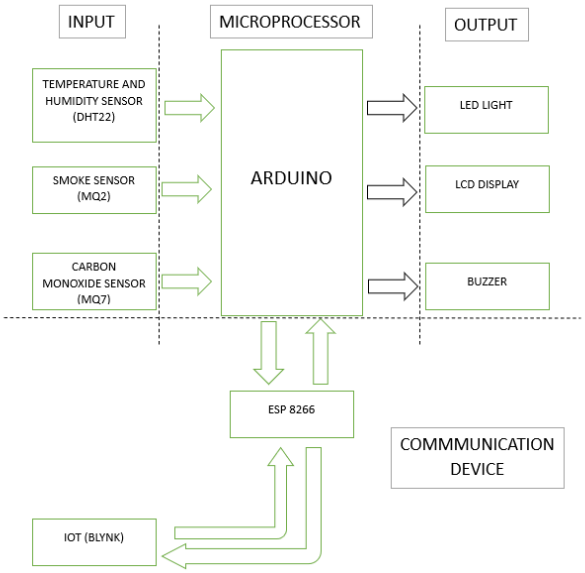
Product description

The TotalCar Safety Suite project utilizes Arduino UNO as its microcontroller. The system receives information from a mobile phone through the Wi-Fi module and can be monitored using Blynk. This system significantly enhances monitoring effectiveness to prevent potential risks associated with extreme temperature environments inside cars. Its primary focus is on preventing heat-related illnesses, safeguarding sensitive electronic components, and preserving perishable goods during transportation by enabling remote monitoring via mobile phones.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Flowchart



Block Diagram

Member Biographical Data

As an Electrical Engineering student major in electronics, currently studying Diploma in UiTM Pasir Gudang and would like to experience more about electrical engineering.

Siti Musliha Ajmal Binti Mokhtar obtained her Diploma in Engineering (Electronics & Electrical) from Universiti Industri Selangor (UniSEL) Selangor and Bachelor of Electrical & Engineering (Hons) Engineering from Keio University, Japan. After working for a year as process engineer in Konica Minolta Glass Tech (M) Snd. Bhd, she continued to complete her master degree in Electronic Engineering from UiTM Shah Alam. She worked for a while as system solution engineer at Panasonic System Network (M) Snd Bhd before switching to academia as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. She completed her PhD in Advanced Energy and Manufacturing from University of South Australia (UniSA), Australia. Her main research interests are analog & digital circuit design, thin film coating, electrochemistry and microneedle for on-skin application.

6. SAFE DRIVING SYSTEM WITH IOT

Alif Zulhakim Bin Aizu, Hanunah Binti Othman

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Abstract

Modern technology has revolutionized many industries, most notably driving safety. By using cutting-edge technology to provide early warnings and enable prompt responses to possible road hazards, the alcohol and blind spot detection system helps prevent accidents. The two main factors that lead to traffic accidents are blind spot collisions and drunk driving. Effective safety measures are essential due to the rising number of vehicles on the road and the growing concern over traffic accidents. The proposed safe driving system incorporates ultrasonic sensors and an MQ-3 Gas Sensor breathalyzer as input ports. Through controlled tests and user sessions, it establishes a smart hardware system that identifies areas for improvement and assesses system accuracy, efficacy, and user acceptance. To alert the driver, the output port of the system uses an LCD, a buzzer, LEDs and an Internet of Things using smartphone application. The software part involves circuit simulation using Proteus 8, to ensure the output align with system requirement. The importance of proactive driver safety measures can change transportation environment. A successful execution is anticipated to heighten driver confidence, lower accident rates, and improve road safety, with the system consisting of both software and hardware components.

Keywords

Alcohol detection, Blind Spot Detection, Ultrasonic sensors, Alcohol sensor, LCD display

Product Description

The project employs an ESP8266 microcontroller integrated with an alcohol sensor, ultrasonic sensors for distance measurement, LEDs, a buzzer, and an I2C LCD display. Utilizing the Blynk IoT platform, the system monitors alcohol concentration, distances in the right, left, and back directions, and a digital sensor state. Real-time data is transmitted to the Blynk mobile app for remote monitoring. The LEDs and LCD provide visual feedback and warnings based on predefined thresholds and sensor states. The inclusion of an external serial data parsing mechanism suggests flexibility for testing and integration with external devices.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.

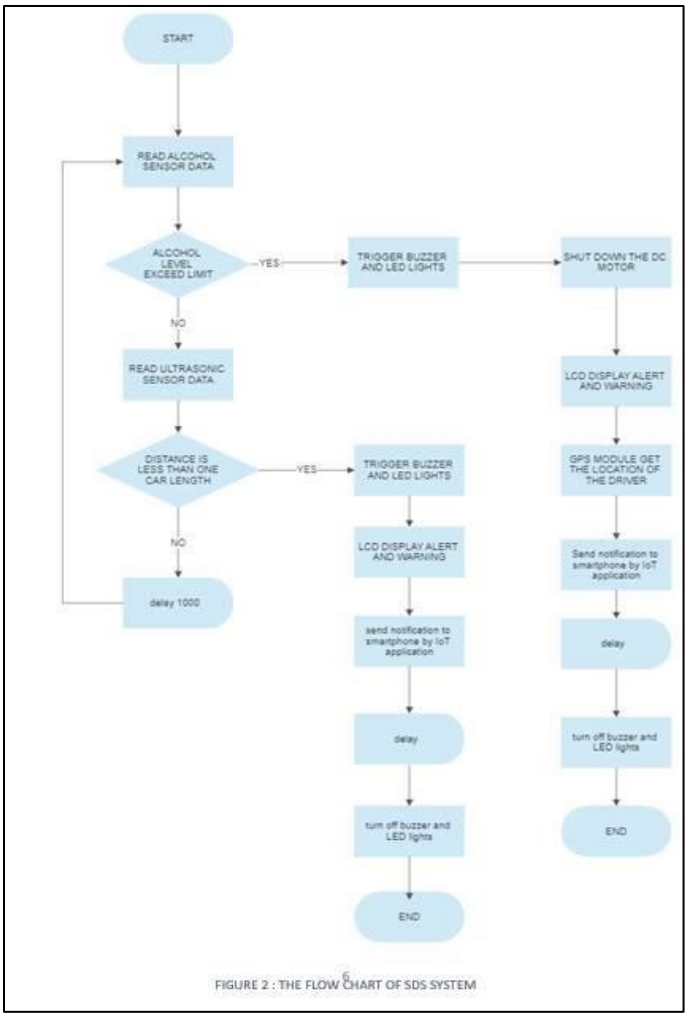

FIGURE 2 : THE FLOW CHART OF SDS SYSTEM

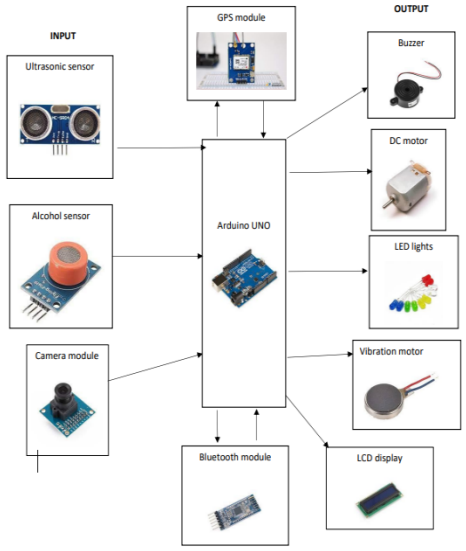

FIGURE 1: THE BLOCK DIAGRAM OF SDS SYSTEM

Member Biographical Data

Alif Zulhakim Bin Aizu born in Kuala Lumpur, a 21-year-old electrical engineering student at UiTM Pasir Gudang, excels with a 3.09 CGPA. Engaged in extracurriculars like robotics and blends academic prowess with hands-on experience.

Hanunah Binti Othman graduated from Universiti Kebangsaan Malaysia (UKM), Bangi, Selangor, with a Bachelor (Hons) in Electrical, Electronic and System Engineering and a Master of Engineering (Communication and Computer Engineering). Formally worked as a lecturer in Electrical Engineering Studies (PKE), Universiti Teknologi MARA (UiTM) at Shah Alam Campus from year 2000 to 2014. She is currently employed with the Communication Engineering Department at PKE, UiTM Johor, Pasir Gudang Campus. She has taught over ten courses. Her areas of expertise include Mobile and Wireless Communication System, Privacy in Mobile Location-Based Services (LBS) and Circuit Theories & Analysis.

7. SMART SENSORY HOME TECHNOLOGY

Amar Muqri Bin Hairul Arifin, Dr. Khairul Kamarudin Hasan

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Abstract

In the dynamic realm of home automation, conventional switches undergo a creative reinterpretation through innovative studies. The primary objective is to design an efficient automated switch system for home appliances, enabling users to control them effortlessly via their smartphones using the power of Bluetooth technology. This groundbreaking initiative integrates sensor-based processes into our homes, offering a transformative understanding of daily routines. The envisioned self-running smart home system, operating on the Thinker Cad and Proteus platforms, has the potential to revolutionize appliance interactions. Imagine the convenience of fans, TVs, and lights seamlessly activating upon entering a room, syncing with your movements. Central to this system is an array of sensors detecting human presence, swiftly connecting with a Bluetooth module to transmit information to the user's smartphone. Programmed with Arduino, this prototype identifies human movements, ushering in a new era of home automation where users effortlessly integrate technology into their daily routines without a second thought to traditional switches.

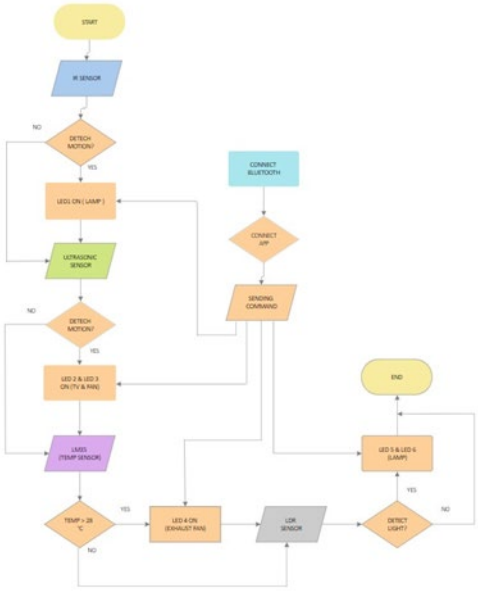
Keywords

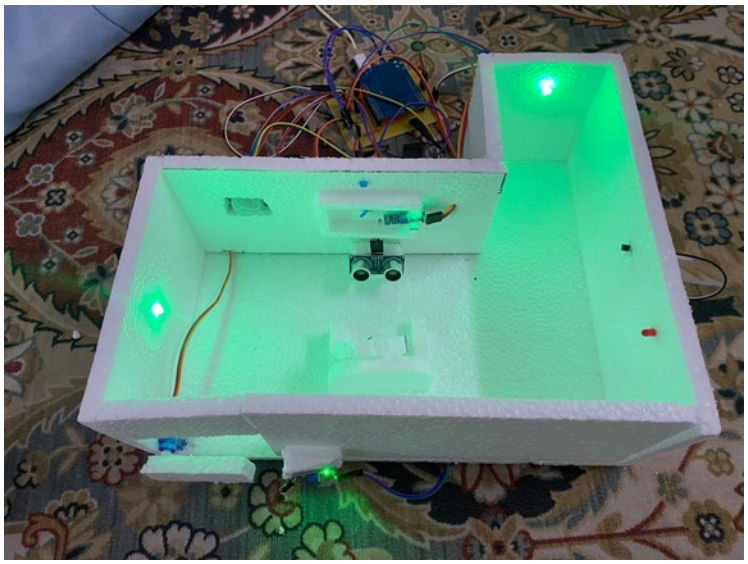
Home Automation, Bluetooth Technology, Sensor-Based Processes, Smart Home System, Arduino Programming

Product Description

Introducing our cutting-edge Smart Sensory Home Technology, a game-changing technology that will change the way we interact with home appliances. This system runs without the use of traditional switches by utilizing modern Bluetooth modules and motion sensors. The fundamental feature of the concept incorporates motion sensors sensing movement and activating LED lights that serve as virtual switches for controlling various home appliances. The integrated Bluetooth module connects securely to a specialized mobile app, providing users with unmatched management and monitoring capabilities. Users may easily operate the system and obtain real-time feedback on the serial monitor by using the app. This novel technique not only improves convenience, but it also fits the concept of a modern, interconnected house. Say goodbye to conventional switches and embrace the future of home automation with our Smart Sensory Home Technology.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.





Member Biographical Data

Amar Muqri is a dedicated individual currently pursuing a diploma in Electrical Engineering with a specialization in electronics at UiTM Pasir Gudang, Johor. With a keen interest in electronic devices, Amar embarked on this educational journey in 2021, envisioning a graduation in 2024. Over the past two years, he has actively delved into the intricacies of electronic engineering, complemented by a Cisco networking education certificate. Amar's enthusiasm extends beyond academics, as he is passionate about discovering new things, particularly in the realms of mechanical and electronic innovations. Fluent in

Bahasa Melayu and possessing an amateur proficiency in English, Amar is committed to furthering his knowledge and skills in the dynamic field of electrical engineering.

Khairul Kamarudin Hasan is currently working with School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA Cawangan Johor, Kampus Pasir Gudang, Malaysia. He received the B. Eng in Electronic Engineering (Electronic Industrial) in 2012, the Msc. Eng degree in Electronic Engineering (System), in 2014 and Ph. D degree in Electronic Engineering from Technical University Malaysia Malacca in 2021. His research interest Wireless Power Transfer, Power Electronic, Control system and Drive.

8. MONITORING DEVICE FOR MUSHROOMS' IDEAL GROWTH BY USING ESP32 MICROCONTROLER FOR FARMERS (MODMUSH)

Ameer Farhan Bin Ahmad Fuad, Masmaria Binti Abdul Majid

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Abstract

This study aims to design a Monitoring Device for Mushrooms' Ideal Growth by using ESP32 Microcontroller for Farmers, called MoDMush. In this project, several sensors will be utilized with the purpose of monitoring the current surrounding condition inside of the mushroom house. These measured parameters will be sent to the microcontroller, and according to the thresholds that were set for each of the sensors through the IoT interface, the ESP32 will respond to the data. Other than that, an IoT platform called Blynk is also implemented in this device. Via a stable internet connection, this platform allows users to monitor the real – time surrounding condition of the cultivation area remotely by merely installing an application in their smartphones. A DHT22 Air Temperature and Humidity Sensor, MQ – 135 Air Quality Sensor and Water will be the input, meanwhile the LCD, LED and Water Spray will be the output in this project. By integrating both hardware and software implementations, this project strives to create an advanced and efficient method of farming. This will in return help to reduce the significant amount of workload required in mushroom cultivation sector as compared to the traditional method of farming. Therefore, it can be said that this project facilitates the workload of farmers, and in conjunction with that, helps to reduce the labor cost required for the mushroom cultivation process.

Keywords

IoT, ESP32, Blynk, Air Temperature and Humidity Sensor, Air Quality Sensor

Product Description

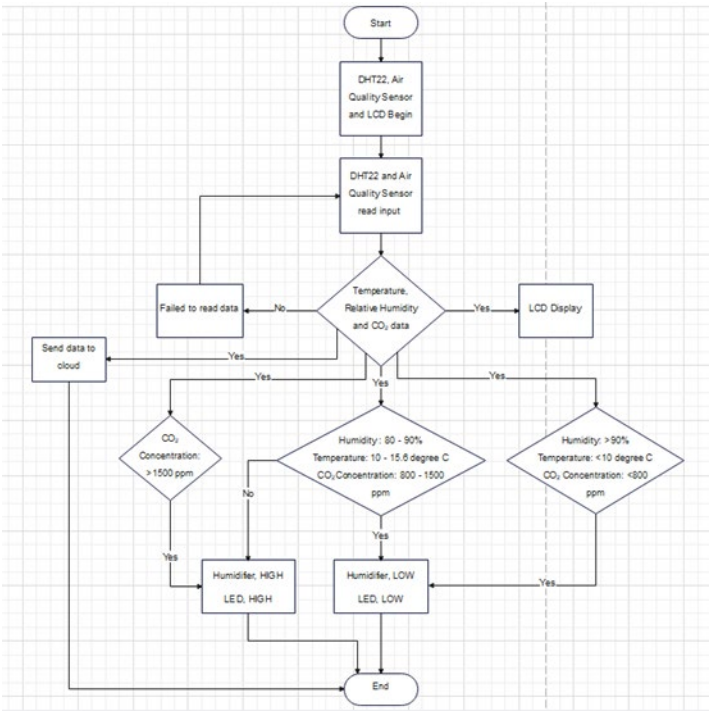
This device takes the traditional method of mushroom cultivation to a whole new level. By implementing Internet of Things (IoT) along with several sensors and displays, a modern way of cultivation process is achieved. An application called Blynk can be easily installed through smartphones to monitor the current condition inside of the mushroom cultivation area. Plus, any abnormalities during the cultivation process will be alarmed to the person – in – charge by the notification that will pop – up through the Blynk application.

Plus, LED is also one of the ways that is used to notify farmers in case any reading crosses the ideal thresholds that were set. A display is provided so that farmers can remotely monitor the conditions and surroundings inside of the cultivation area. Therefore, farmers do not have to attend to the area regularly in order to maintain the ideal condition for the mushrooms.

Air humidifier (water spray) is used as countermeasure to respond to the unusual readings detected inside of the cultivation area, this is to regulate the surrounding conditions, as to conserve an ideal and optimum

growth of the mushrooms. Thus, a time – saving and effective way of farming is guaranteed by the usage of MoDMush.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Ameer Farhan Bin Ahmad Fuad is currently studying Electrical Engineering, majoring in Electronics. He is currently working on his Final Year Project (FYP) to create a new and a modern way of mushroom cultivation, that will ease farmers in terms of their workload and cost required to run the process. He is aiming to positively change the way people look at the agricultural sector, in line with the vast advancement in modern technology nowadays.

Masmaria received B.Eng in Electrical Engineering from Universiti Teknologi MARA (UiTM) in 2006 and M. Eng in Electrical (Mechatronic and Automation Control) from Universiti Teknologi Malaysia (UTM) in 2011. She is currently a lecturer of Electrical Engineering Studies, College of Engineering at UiTM Branch Johor, Pasir Gudang Campus.

9. PLANT CARE WITH EFFORTLESS AND INTELLIGENT IOT WATERING

Ameer Majdi Bin Mohd Hapez, Ts. Dr. Siti Aminah Binti Nordin

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Abstract

This project is being developed to upgrade the existing watering plant system technology due to previous research only focus on the plant and the water quality. Traditionally, manual watering schedules were implemented by the farmers without the systematic real-time monitoring system which does not sustain the environment and sources. As a result, plants are occasionally overwatered or underwatered. This project presents Internet of Things (IoT) plant monitoring system by utilizing soil moisture sensor, humidity sensor and ultrasonic sensor controlled by Arduino UNO. The result of soil condition, humidity level and water level will be displayed on the LCD. Meanwhile, the water level data is present on the Blynk application through ESP8266 Wi-Fi module. The proposed system will be greatly sustaining the environment, reduce the risk and time constrain in the monitoring the plants conditions.

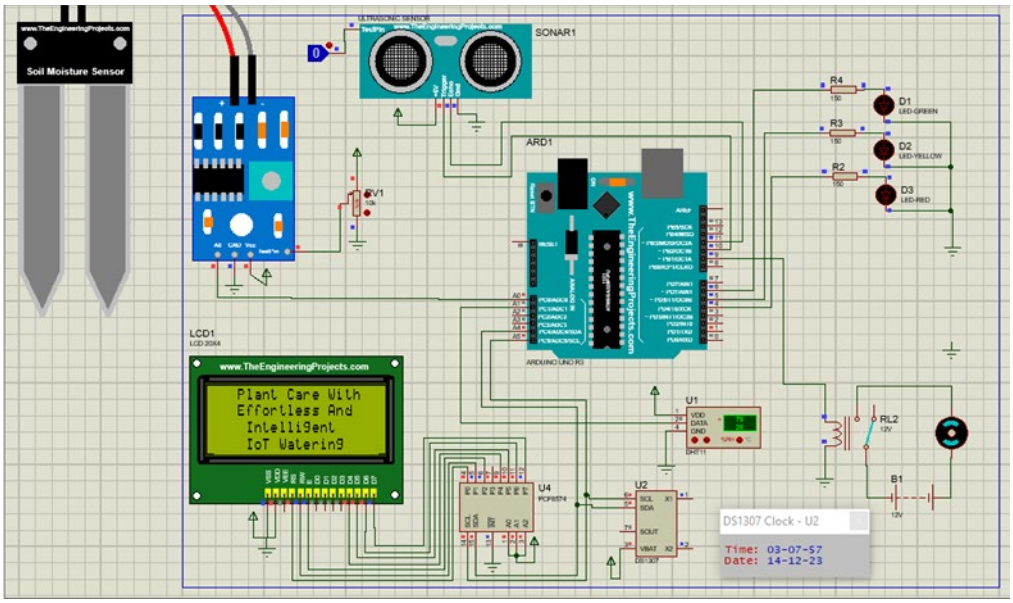
Keywords

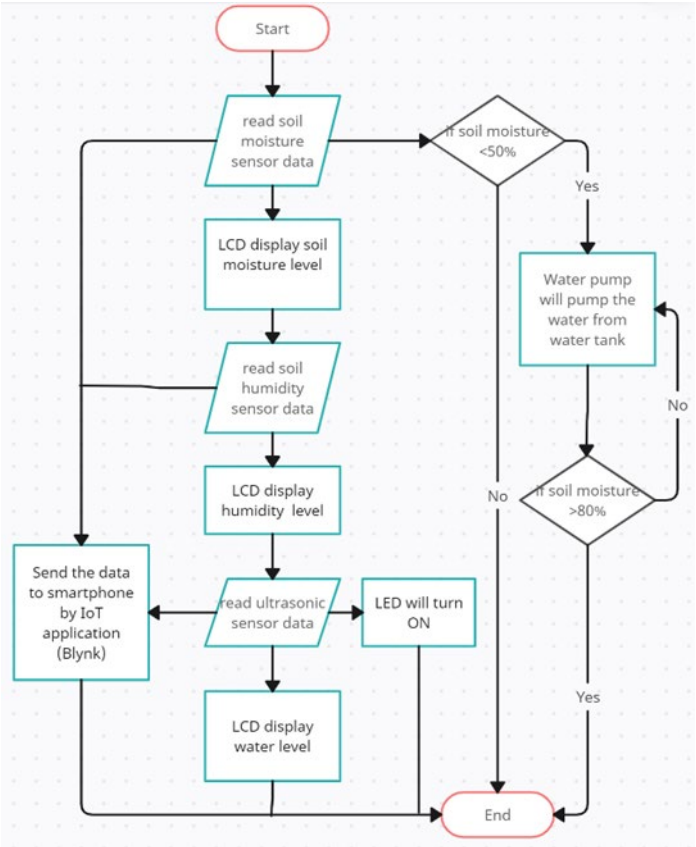
ESP8266, IoT, Blynk application, Ultrasonic sensor, Plant Care with Effortless and Intelligent IoT Watering.

Product Description

The ideal option for simple and intelligent plant care. This innovative solution is intended to improve your gardening experience by effortlessly incorporating cutting-edge technology into your everyday routine. The "Plant Care with Effortless and Intelligent IoT Watering" solution is about more than simply convenience; it's also about environmental sustainability. You may help to make the world a greener and more eco-friendly place by optimizing water consumption and decreasing the danger of overwatering.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.





Member Biographical Data

Ameer Majdi Bin Mohd Hapez is a 21-year-old electrical engineering student at UiTM Pasir Gudang, with CGPA 3.40. He participates in extracurricular activities such as robotics and combines academic prowess with hands-on experience. He was also as a member of the authority in the program carried out in the campus. He can be contacted at email: 2021854436@student.uitm.edu.my

Siti Aminah Nordin is a distinguished senior lecturer currently affiliated with UiTM Pasir Gudang. She earned both her master's and Ph.D. degrees in Electrical Engineering from UiTM Shah Alam in 2014 and 2022, respectively, showcasing her commitment to academic excellence. With a specialized focus in the realm of Electrical Engineering, her research interests are notably centered around microwave filters, antennas, and electromagnetic wave area. Her academic journey and expertise reflect a deep dedication to advancing knowledge and contributing to the field, particularly in areas crucial to modern communication and technology. She can be contacted at email: sitia181@uitm.edu.my.

10. FAILURE ALERT HEAVY VEHICLE AIR BRAKE SYSTEM

Amir Fahmi Bin Romizhi, Dr Muhammad Asraf Bin Hairuddin.

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Abstract

The heavy vehicle air brake system is a crucial safety feature that utilizes compressed air to enable effective braking in large trucks and buses. Brake systems are one of the essential components of vehicles ensuring the safety of roads and passengers as well as accident prevention. Faulty brake systems, however, can cause inevitable accidents. The objective of this project is to detect the level of air pressure in the reservoir tank of an air brake system by using a gas pressure sensor. This project aims to build a prototype of a heavy vehicle air brake system by using Arduino-Nano as a microcontroller. The Failure Alert Heavy Vehicle Air Brake System runs with two inputs consists of Gas Pressure Sensor and Bluetooth which will detect the pressure reading and transfer the data gained, three output which are LED, Buzzer and OLED Display that are solely focusing on display and alerting system for the driver. Simulation findings of a Failure Alert Heavy Vehicle Air Brake System reveal improved response times and reduced risks of accidents by providing timely warnings to drivers when there are malfunctions or failures within the brake system. On personal measures, this system is vital for the safety of road users as heavy vehicles are the main contribute of road accidents in all around the world.

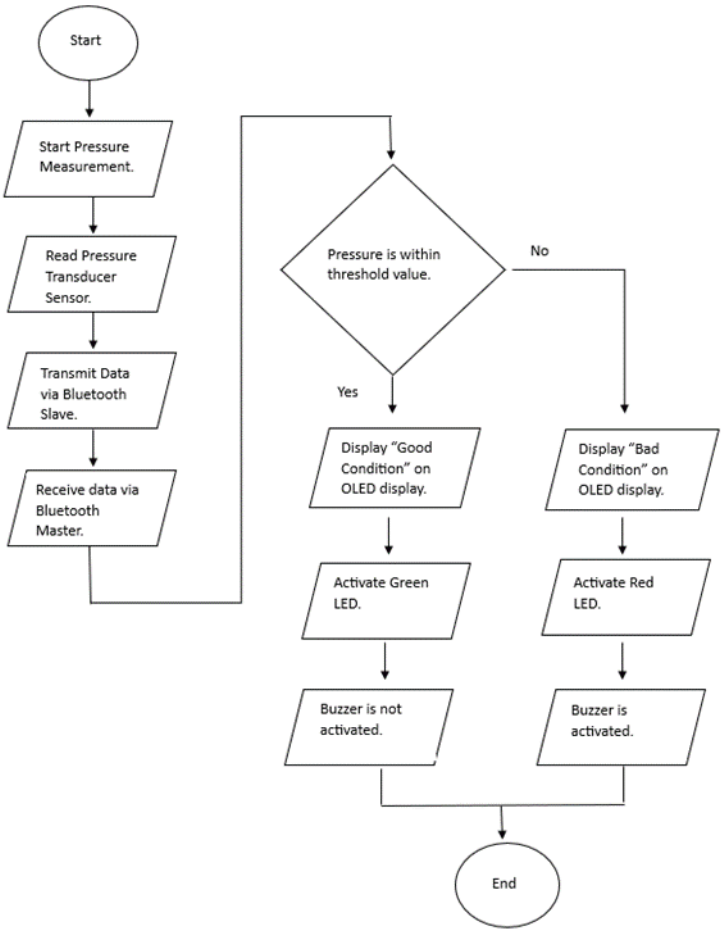
Keywords

Heavy Vehicles, Air Brake System, Air Pressure Detection, Arduino-Nano, Pressure Transducer Sensor, Bluetooth Module

Product Description

This project consists of a pressure transducer sensor to detect the air pressure value in a reservoir tank of an air brake system. The data collected will then be transferred to another device via Bluetooth module and Arduino-Nano. Several output components on the receiving end device such as OLED display, LED and buzzer will react upon accepting data to notify the driver the condition of the air brake system whether it is in a good condition or not. Additionally, the OLED also aids in giving the exact value of current pressure reading inside the reservoir tank.

Photo/ Schematic Diagrams/ Flow Charts/Screenshots/Graphs And Etc.



Member Biographical Data

Amir Fahmi Bin Romizhi is a driven fifth-semester student at UiTM Pasir Gudang who is pursuing a diploma in engineering electrical power. His path has brought him to the apex of his undergraduate experience with an unwavering enthusiasm for invention and a passion for the complex realm of electrical systems. The "Failure Alert Heavy Vehicle Air Brake System" project he completed in his senior year embodies his academic philosophy and demonstrates his dedication to advancing electrical engineering expertise. Born on October 15, 2003, he has spent the past several years laying a strong foundation in fundamental areas like as electronics, control systems, and circuit theory. As his undergraduate career comes to a nutshell, he thinks back on the challenges overcame, the wisdom acquired, and the invaluable support from friends and supervisor. His final year project is more than simply a pinnacle project, it's a reflection of his commitment to learning new things and his readiness to enter the workforce with the skills he's gained from this project.

Muhammad Asraf Hairuddin senior lecturer at the Centre for Electrical Engineering Studies, Universiti Teknologi MARA, Johor Branch, Pasir Gudang Campus. He graduated with a diploma, degree, and a Ph.D. from the Universiti Teknologi MARA in Shah Alam. His research interests include Image Processing, Artificial Intelligence, Deep Learning, and Process Control.

11. HOUSE AREA RFID GATED SYSTEM

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Abstract

This project present the prototype design for House Area RFID Gated System.The objective for this project to offer secure and convenient access control solution.Resident are provided with RFID tags for contactless and user-friendly entry and user-friendly entry.the methodology involves the integration of mechanical and electrical circuit design with the arduino mega as a microcontroller.The component involves in the system is servor motor,buzzer,ir sensor to detect present of car,LCD display,touch sensor to detect the barrier have been hit and the most important component is RFID sensor.The proposed RFID-based gated system not only enhances security but also a convenient and efficient solution for managing access to house area.

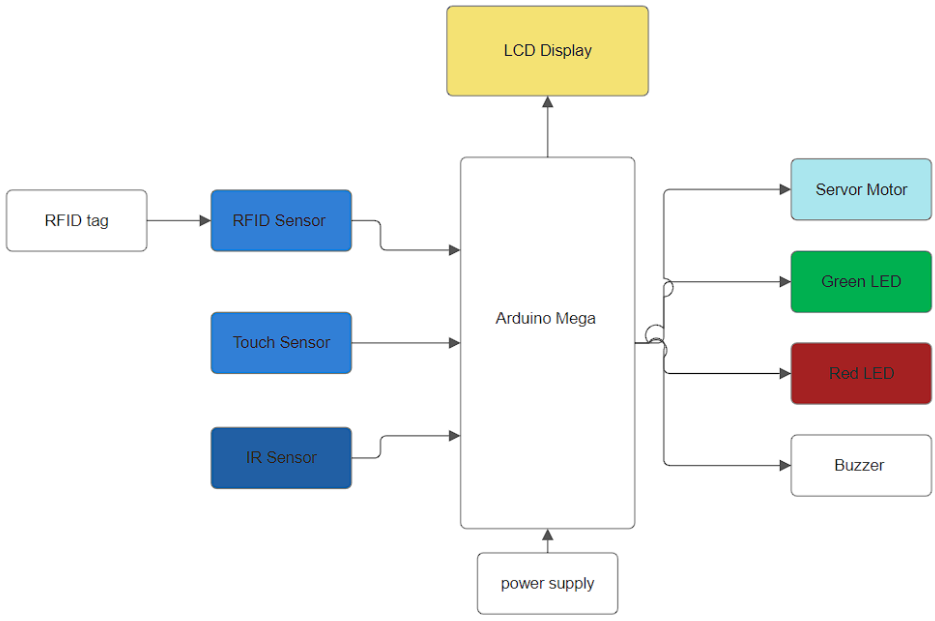
Keywords

RFID sensor,Arduino Mega,security,user friendly,servor motor

Product Description

The house area RFID gated system is new solution to our traditional security system.The system provide user-friendly system and easy access system.The system will give permission to entry to an authorized card only, it will make the house area more secure that traditional method security.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

AMIR HASIF SULAIMAN,born on 8 april 2003 is currently pursued his diploma in electrical engineering major in electronic at UiTM Kampus Pasir Gudang.He is active in extracurricular activities such as Makers club that lead to improve his leader skill.He has conduct a few program that give impact to society.Amir Hasif's interests to further study in electrical engineering at university in United kingdom which is to improve skill and also gain new experience in a new country.

M. ZAIRIL M. NOR received the bachelor's degree in electrical engineering (telecommunication) from Universiti Teknologi Malaysia (UTM), Skudai, in 2009, and the M.Sc. degree in electrical engineering also from Universiti Teknologi Malaysia (UTM), Skudai, in 2013. He is a lecturer in UiTM Johor, Pasir Gudang Campus and currently pursuing their Doctoral Degree (PhD) in Wireless Communication Centre. He has published more than 15 journal papers and technical proceedings on smart antenna systems, microwave devices, and reconfigurable antenna in national and international journals and conferences. His research interest includes smart antenna on communication systems

12. AUTOMATIC PLANT MONITORING, WATERING AND SECURITY SYSTEM FOR HOME GARDEN USING IoT

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Abstract

Home planting activity have been longstanding, and increasingly popular when the pandemic hit humans all around the world where people are prompted to stay at home. As the pandemic slowed down, people resumed their regular lives as usual, leaving the plants unattended. However, proper care is necessary for every plant to be healthy, and this has become quite challenging for the owner who works during the day. Therefore, the goal of this project is to design an automatic plant monitoring, watering, and security system for a home garden. The system uses an Arduino Uno microcontroller as its base, and Internet of Things (IoT) technology of WiFi module to display the plant's state to owner's smartphones. Significantly, it is much easier to for the owner monitor the plant's health.

Keywords

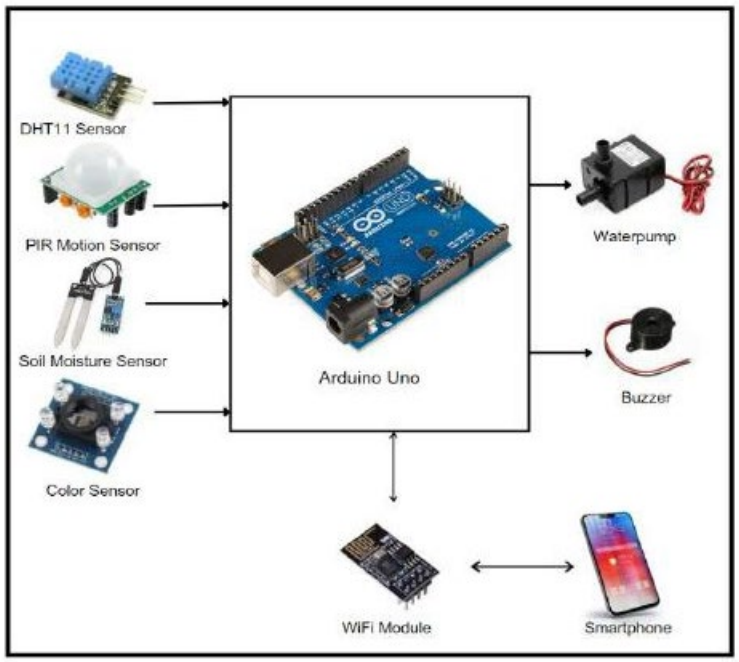
Arduino Uno, ESP32, Internet of Things (IoT), DHT11, Soil Moisture Sensor, PIR Motion Sensor, TCS3200 Color Sensor

Product Description

The soil moisture sensor, PIR motion sensor, DHT11 sensor, and TCS3200 colour sensors were all used by the Automatic Plant Monitoring, Watering, and Security System to sense the moisture content of the soil, detect motion around the plant, and determine the health of the plant based on the colour of its leaves.

This system consists of Arduino Uno as a microcontroller, ESP32 as WiFi Module using Blynk, Soil Moisture Sensor, DHT11 Sensor, PIR Motion Sensor, TCS3200 Color Sensor, Buzzer, waterpump, and LEDs. The values that are detected from the sensors are shown on a mobile application called Blynk, which allows the owner to monitor the health of their plants. Based on the sensitivity of the PIR Motion Sensor, movement around the plant can be detected. The waterpump will dispense the water when the Soil Moisture sensor detected the dry soil. The LED will light up and buzzer will amid the sound as an indicator if PIR Motion Sensor detected the movement around the plant.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Student Biography

Areen Usun, born on 19th August 2003 and stay at Johor Bahru, a student currently pursuing her Diploma in Electrical Engineering major in Electronic at UiTM Cawangan Johor Kampus Pasir Gudang. She has joined a few robotic programs that required hands on skill to assemble the robot and teaching other students about it. She picks things up quickly and can operate both independently and in a team with minimal guidance.

Supervisor Biography

Mrs. Nor Affida binti M.Zin joined UiTM in November, 2013 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering. She obtained her Bach. Degree in Electrical Engineering (Telecommunication) and Masters of Engineering, both from Universiti Teknologi Malaysia, Johor Bharu. She also gained industrial experience as an R&D Engineer in Qimonda (M) Sdn. Bhd. focusing on PCB design for CPU testing equipment. Currently, she is working towards her PhD studies in Energy-Efficient Passive Optical Network.

13. AN AUTOMATED SMART SHOPPING TROLLEY

Dinie Haqeemy Bin Abdul Mu'izz, Nur Asfahani Binti Ismail

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Abstract

In today's increasingly digitized and energy-conscious world, it is crucial to accurately measure and analyse current and power consumption while ensuring the prevention of overload situations. This project proposes an advanced monitoring and protection system that combines cutting-edge technologies to address these challenges. The system integrates advanced current and power monitoring devices with an intelligent overload protection mechanism. The monitoring devices utilize highly precise sensors and sophisticated algorithms to measure and analyse current and power consumption in real-time. The collected data is processed and presented in a user-friendly interface, enabling users to monitor and analyse their energy consumption patterns. The system offers comprehensive insights into the usage of individual appliances and the overall energy profile of the system. This information empowers users to make informed decisions regarding energy consumption optimization and efficiency improvement. Moreover, the project emphasizes the importance of overload protection to prevent damage to electrical equipment and ensure the safety of the electrical system. The system continuously monitors the load on the system and incorporates intelligent algorithms to detect and prevent overload situations. In the event of an impending overload, the system triggers appropriate measures to mitigate the risk, such as automatically shedding non-critical loads or alerting the user to take necessary action. The proposed system stands out due to its high accuracy, real-time monitoring capabilities, and intelligent overload protection. It offers a scalable solution that can be implemented in various applications, including residential, commercial, and industrial settings. By facilitating efficient energy consumption monitoring and safeguarding against overload situations, this project aims to contribute to the sustainability and safety of electrical systems in the modern world.

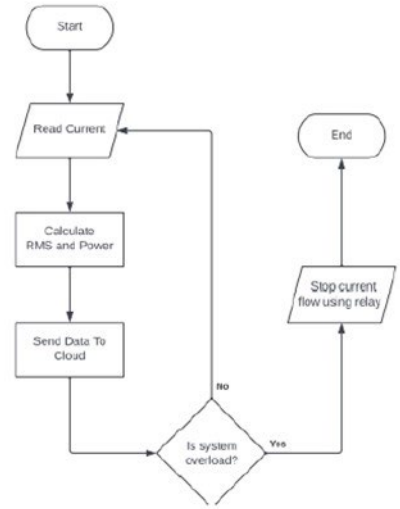
Keywords

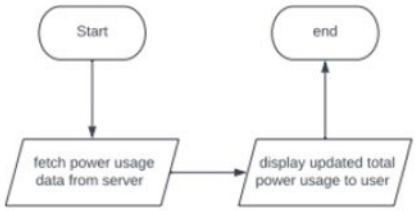
An Advanced Monitoring and Protection System, Overload Protection, Real Time Monitoring, Efficient Energy Consumption, Sustainability and Safety.

Product Description

Advanced technologies and systems that enable precise monitoring and effective management of current and power consumption while assuring protection against overload scenarios are increasingly needed in today's increasingly energy-conscious environment. To meet this need, the "Advanced Current and Power Monitoring Consumption with Overload Protection" project offers a comprehensive solution that combines cutting-edge technology, clever algorithms, and precise sensors. This solution optimizes energy consumption and protects electrical systems

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Dinie Haqeemy Bin Abdul Mu'izz is a Diploma Electric and Electronic student at Universiti Teknologi MARA who has been working on a final year project about an Advanced Current and Power Consumption Monitoring with Overload Protection. He is now on his way to pursuing a B. Eng degree in Electrical Engineering in hopes to further the study into PhD.

Nur Asfahani Binti Ismail joined UiTM in September 2013 as an Electrical Engineering lecturer in the Faculty of Electrical Engineering. She completed her Master in Electrical Engineering from University Tenaga Nasional, in 2013. Her areas of expertise include fibre optic communication, passive optical network, dynamic bandwidth allocation and artificial neural network.

14. WEATHER STATION FOR HOMES AND OFFICES USING THINGSPEAK APPLICATION

Halim Rozman, Ts. Zahari Abu Bakar

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Abstract

The Internet of Things (IoTs) has substantially reduced power consumption, enhanced connectivity, and made data access easier for networked devices. It is widely acknowledged as a dependable technique for improving many industrial business sectors. This article focuses on the usage of IoT in the development of a weather monitoring system. For this project, multiple sensors are incorporated with an Arduino Uno microcontroller board. The objective of this project is to collect, evaluate, and analyse data implementation and visualisation. The primary server is the ESP8266-based Wi-Fi module Nodemcu (12E), which allows access to information via the internet for analysis and scrutiny. A weather station is a device that delivers information about the weather in the area, such as temperature, air pressure, and gas detection. The Arduino Uno serves as the prototype's central component. The NodeMCU is attached to four sensors: a DHT11 temperature and humidity sensor, a BMP180 pressure sensor, and a MQ-135 air quality sensor. The sensor readings are shown on an LCD 16X2 display, which is part of the hardware setup. When monitored data exceed predefined criteria, the system delivers alerts via buzzer to prompt users to take appropriate action. Thingspeak displayed data on the internet.

Keywords

Arduino Uno, DHT11, BMP180, MQ135, ThingSpeak, weather monitoring system

Product description

Sensor Integration

Collects data on temperature, atmospheric pressure, and air quality using numerous sensors.

Remote Monitoring

Provides consumers with the ability to remotely monitor weather and air quality conditions via web-based or mobile applications.

Visual and Auditory Feedback

To provide visual feedback concerning environmental conditions by using LEDs and LCD displays, as well as audio alerts,

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.

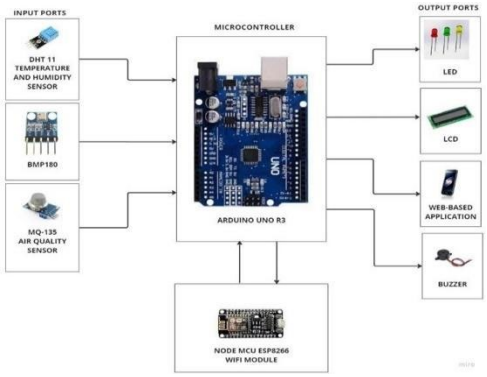

Figure 1: Block Diagram

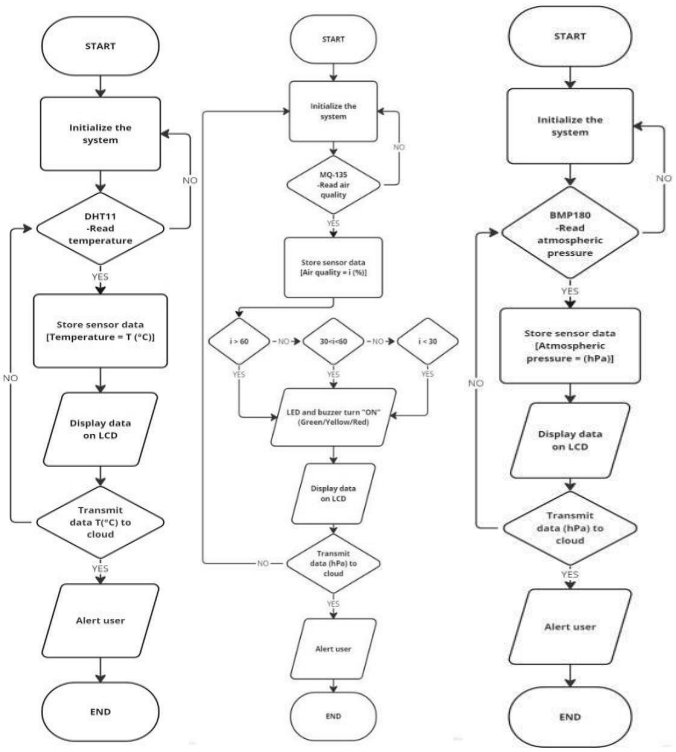

Figure 2: Flowchart of sensors

Member Biographical Data

Halim Rozman is an UiTM Electrical Engineering (Electronic) Diploma student with a CGPA (up to 4th semester) of 3.54 who will graduate in 2024. Experienced in Multisim, Proteus, and the Arduino IDE, he is also an expert in electronic circuit design, as seen by projects such as the Weather Station for Homes and Offices Using ThingSpeak Application. Halim, who is bilingual in Malay and English, hopes to contribute his experience and passion to the field of electronics after graduation.

Zahari Abu Bakar obtained his Diploma in Electrical Engineering (Electronics) from UiTM Pulau Pinang, Bachelor of Electrical (Hons) Engineering and MSc. in Telecommunication and Information Engineering from UiTM Shah Alam. Currently, he serves as a senior lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. His main research interests are e-learning and Machine Learning.

15. WALKING STICK ASSISTANT FOR VISUALLY IMPAIRED PEOPLE WITH IoT

Hanis Syahirah Binti Khairul Azlan, Ts. Kamaru Adzha Bin Kadiran

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Abstract

Visually impaired person have difficulty to interact and feel their environment since they have little contact with surroundings which they intend to move to anywhere busy place.These problems of visually challenged people can be addressed with the technology given by using IoT hardware and link with eachother by using application software on smartphone. This report aims to design a Smart Walking Stick by using Arduino D1 Wemos Microcontroller with a combination of Blynk application.These project explains that smart walking stick also helps to guide visually people without burdening other people too. The model discussed here is convenient and affordable smart walking stick equipped with various of IoT sensors which one of it is ultrasonic sensor.This model will help the visually challenged people to become more alert and also monitor whereabouts of the user to concerned people using tracker location (Blynk application) so that the safety of the user's are guaranteed.The complete model is developed and the performance is reported.

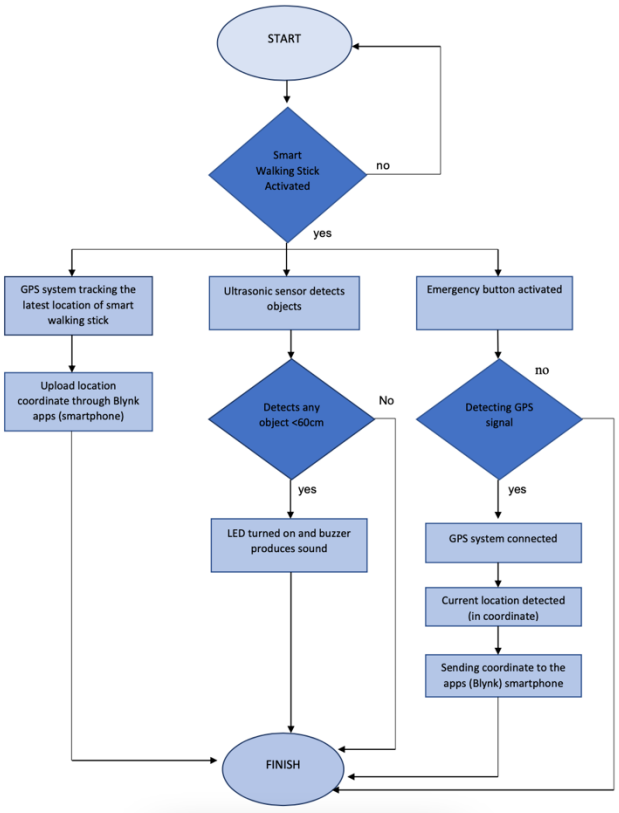
Keywords

Arduino D1 Wemos, ultrasonic sensor, detects, Blynk, IoT

Product Description

This project aims to greatly benefit visually impaired individuals by developing a smart walking stick using an Arduino D1 Wemos microcontroller and an ultrasonic sensor. The primary focus is on creating a prototype that can easily detect obstacles and track the user's location. By incorporating an ultrasonic sensor, the smart walking stick provides clear and understandable instructions, making it a convenient and empowering tool for the visually impaired. Additionally, the device can read temperature and humidity, linking this information to a smartphone app for location tracking. This feature not only enhances safety but also alleviates concerns for guardians, allowing them to focus on their work or lifestyle. The overall impact of this technology is significant, transforming the lives of visually impaired individuals by providing them with a tool that ensures safety, health, and independence, surpassing the need for assistance from others or reliance on traditional methods like a guide dog.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Hanis Syahirah is a dedicated and skilled Electrical Engineering student from Universiti Institut Teknologi MARA (UiTM) Pasir Gudang, specializing in Electronics. With a notable CGPA of over 3.19, Hanis has a strong technical foundation, evidenced by her proficiency in various software and languages like Proteus Professional 8, MATLAB, C++, and Arduino IDE, among others. Hanis also possesses hands-on lab instrumentation skills and a certificate in Introduction of Networking from CISCO.Additionally, Hanis has been actively involved in extracurricular activities, serving as the Exco Multimedia Leader for the Student Sport Club and a volunteer,showcasing her leadership and social engagement.

Ts. Kamaru Adzha Bin Kadiran joined UiTM in July, 2014 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering. Kamaru Adzha Bin Kadiran obtained his Bachelor of Engineering (Electrical - Telecommunications) (Hons) and Master of Engineering (Electrical - Electronics & Telecommunications) from Universiti Teknologi Malaysia (UTM). Currently, he serves as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. His main research interests are e-learning and machine learning.

16. AUTOMATIC NUTRIENT MIXER AND PH LEVEL FOR HYDROPONIC APPLICATION

Hariz Akmal Bin Azizan, Sir Ezril Hisham Bin Mat Saat

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Abstract

This project ia to design and develop Automatic Nutrient Mixer and Ph Level For Hydroponic Application using an Arduino microcontroller. The system aims to address the limitations of current hydroponic systems by providing precise and efficient monitoring and control. The main objectives of the project are to incorporate IoT technology into a hydroponic system and automate nutrient dosing. The methodology involves utilizing an Arduino microcontroller as the central control unit, along with various sensors to monitor parameters such as nutrient levels, pH, and temperature in real-time. The collected data is processed and transmitted to a user interface or cloud platform, enabling remote monitoring and control. A simulation was conducted to demonstrate the successful operation of the system, including pH and TDS -controlled nutrient dosing and DHT11-monitoring temperature. Future work could involve integrating advanced machine learning algorithms to optimize nutrient dosing and implement self-harvesting mechanisms, thereby enhancing plant production and contributing to the development of more efficient and sustainable hydroponic systems for agricultural practices.

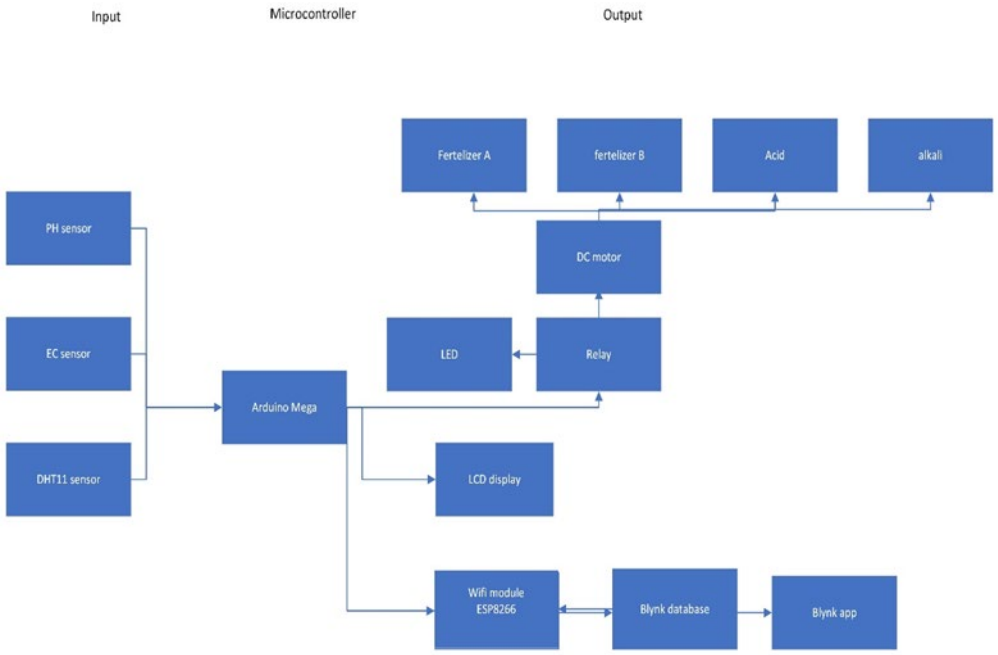
Keywords

Lcd, Ph Sensor, TDS Sensor, Dosing Pump, DHT 11 Sensor, Agricultural

Product Description

This project is a solution designed to elevate the traditional hydroponic system. This innovative device takes the guesswork out of nutrient management, ensuring optimal plant growth and health with precision and efficiency. This product gives users the ability to set PH and TDS levels according to their own preferences with just a click on the Blynk apps. The user does not need to read the PH and TDS sheets, which require a lot of experience to understand.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Hariz Akmal Azizan is currently pursuing a diploma in Electronic Engineering (Electronic) from the University of Teknologi Mara (UiTM) Cawangan Johor Kampus Pasir Gudang. He is taking an elective in electronics and is now in the final year of his diploma. For the future, he is planning to continue studying in the engineering field.

Ezril Hisham Mat Saat earned his Bachelor of Engineering with Honors in electrical engineering from the University Teknologi Malaysia and completed his Master of Science in electrical engineering at Universiti Putra Malaysia. He presently holds the position of a senior lecturer in the Electrical Engineering Department at Universiti Teknologi MARA, Cawangan Johor Kampus Pasir Gudang. His primary research focus lies in the fields of Computer Engineering, Robotics, Embedded System, and the Internet of Things (IoT).

17. IOT PARKING BARRIER SYSTEM POWERED BY SOLAR

Khiron Danial Bin Kamarulzaman, Muhammad Rajaei Dzulkifli

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Abstract

Solar-powered IoT parking barrier system, merging eco-friendly practices with advanced technology for effective parking control. The system incorporates sensors and wireless communication to actively monitor parking spaces. Its reliance on solar energy not only minimizes environmental impact but also guarantees uninterrupted operation, particularly in areas without a power grid. The IoT features empower users to access up-to-the-minute parking availability details via mobile applications, elevating convenience and maximizing the efficient use of parking spaces. This inventive solution signifies a sustainable and intelligent approach to modernize parking infrastructure, providing a scalable and environmentally conscious option suitable for both urban and remote locations.

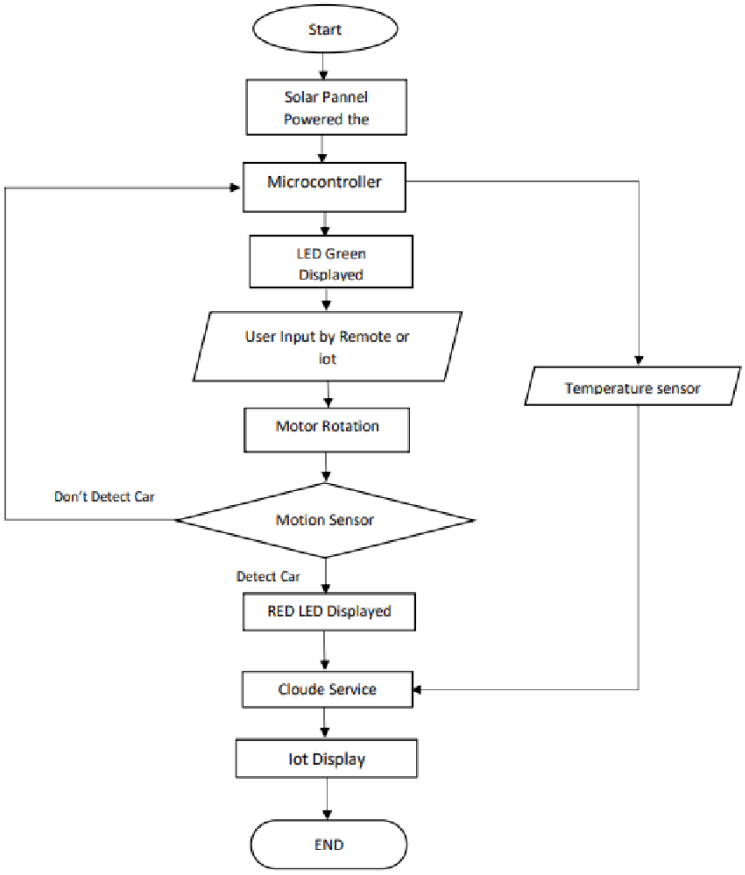
Keywords

ESP32, Servo Motor, Parking Barrier

Product Description

The automated parking system represents an advanced iteration of conventional parking methods. This project incorporates diverse sensors to enhance system reliability and user-friendliness significantly. Users have the capability to manage the system through Wi-Fi-enabled devices, allowing for remote access and control.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Khiron Danial Bin Kamarulzaman is a Diploma Electric and Electronic student at Universiti Teknologi MARA who has been working on a final year project about an automated smart shopping trolley. He is now in his way of pursuing a B.Eng degree in Electrical Engineering in hopes to further the study into Ph,D.

Muhammad Rajaei Bin Dzulkifli is a lecturer in Electrical Engineering Studies, College of Engineering, UiTM Johor Branch Pasir Gudang Campus. He teaches computer engineering courses with research interests in IoT, data analytics, wireless communication and network.

18. AN AUTOMATED SMART SHOPPING TROLLEY

Mikhael Imran Bin Mohd Shukri, Noor Hafizah Khairul Anuar

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Abstract

Despite significant advancements in modern technology, shopping cart design and innovation have remained unchanged. Manually pushing the shopping trolleys lead to collision and inconveniences. In addition, the security and human are at risk for shopping during the night time as well as they may lead to overspending without proper grocery management plan. This paper presents an automated follow me trolley utilizing the Bluetooth, ultrasonic, counting system, and smart lighting system. The ultrasonic sensor utilizes in the following system and anti-collision system. The proposed design was verified by using simulation via proteus software that show the LED turn on during the low- light intensity. Additionally, the motor worked well with the ultrasonic sensors' reactions. Despite the suggested arrangement, a further improvement can be built by including some features, such as a cashier-less system, to ensure sustainability and better labor costs.

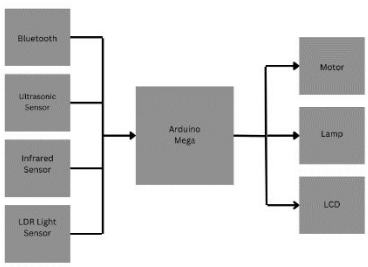
Keywords

Trolley, Bluetooth, Ultrasonic Sensor, Infrared counter, Autonomous

Product Description

The automated shopping trolley is a far more advanced version of the normal trolley. Equipped with a self-driving motors and an infrared counter, the automated shopping trolley pushes its own self whilst avoiding obstacles and people in its path making sure that no accidental crashes happen. The trolley also connects with the user via Bluetooth.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Mikhael Imran Bin Mohd Shukri is a Diploma Electric and Electronic student at Universiti Teknologi MARA who has been working on a final year project about an automated smart shopping trolley. He is now in his way of pursuing a B.Eng degree in Electrical Engineering in hopes to further the study into Ph,D.

Noor Hafizah Khairul Anuar received the B.Eng in Electrical Telecommunication from Universiti Teknologi Malaysia (UTM) in 2008 and M.Sc in Electrical Telecommunication Engineering and Information Technology from Universiti Teknologi MARA (UiTM) in 2012. She is currently pursuing her Ph.D. in Electrical Engineering at Universiti Teknologi Malaysia (UTM) in sensor development, instrumentation, and machine learning. She is a lecturer at the Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA, Johor.

19. IoT INTELLIGENT MONEY BOX

Mohamad Hilman bin Shoib, Dr. Nur Amalina binti Muhamad

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Abstract

Effective money management and instilling saving habits from an early age are crucial for financial well-being. However, the lack of emphasis on saving during childhood and poor money management skills pose significant challenges. In this study, we propose an IoT-based money box system that incorporates automatic recognition of coins and notes. The system enables real-time monitoring of money balance and setting goals for savings. By leveraging IoT technologies, this solution aims to improve money saving habits and enhance financial management skills. Through the implementation of automatic recognition and monitoring features, individuals can nurture better saving practices and maintain a track record of their finances. This research contributes to the advancement of IoT-based approaches in promoting responsible financial behavior and empowering individuals with improved money management skills.

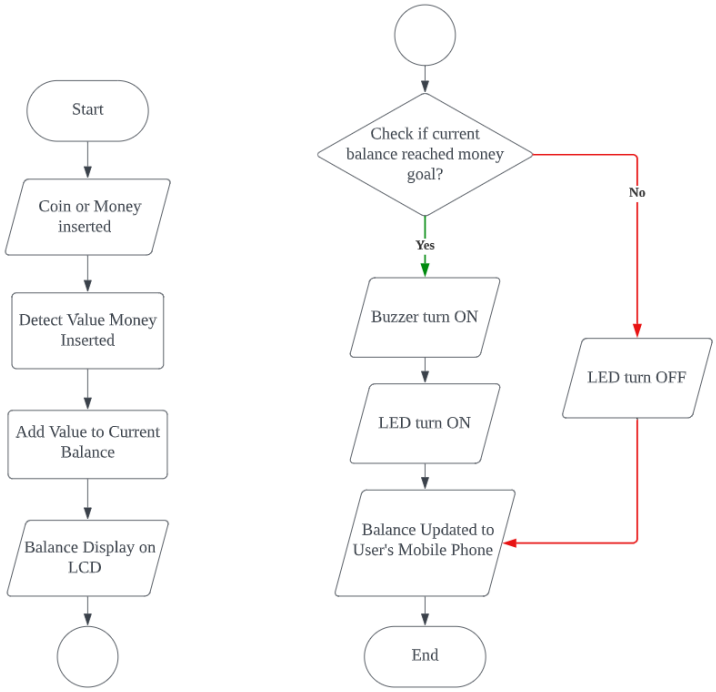
Keywords

IoT, Money Box, Money Saving Habits, Automatic Recognition, Childhood Savings

Product Description

The Smart Savings Companion is more than a traditional money box; it's a comprehensive solution crafted to revolutionize how individuals manage and save money. Through the integration of automatic recognition, real-time monitoring, and goal-setting features, our product plays a pivotal role in advancing IoT-based strategies to encourage responsible financial behavior and empower individuals with enhanced money management skills. Embrace the future of smart savings with the Smart Savings Companion.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Mohamad Hilman bin Shoib, a current Diploma student in Electrical Engineering (Electronic) at UiTM Johor, specializes in Electronics and is undertaking innovative research for his Final Year Project: IoT Intelligent Money Box. He envisions this project as a solution to widespread financial issues. Beyond this, his ambition extends to pursuing a Degree in Electrical Engineering (Electronic), majoring in Electronics, driven by a passion for innovation and technology.

Dr. Nur Amalina Binti Muhamad is currently the Head of Electrical Engineering Studies at Universiti Teknologi MARA (UiTM), Johor branch, Pasir Gudang campus. She graduated Bachelor's and PhD in Electrical Engineering from UiTM. Her expertise is on the fabrication of nanoelectronic devices, semiconductors and advanced materials.

20. INNOVATIVE ENHANCE PARKING WITH SECURITY SYSTEM

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Abstract

Outdoor parking has been a problem since the number of vehicles increasing day by day . This causes the parking slot to be limited especially those who reside at apartment area where they have to park outdoor instead of inside the apartment parking which can increase the risk of the car to be stolen due to lack of security. Thus, this project proposes a smart parking system and security. The aim of this project is to reduce the risk of car from been stolen in an open parking lot, to have an ensure parking, and to prevent any unnecessary double parking from happening. This project uses Arduino Mega together with esp06 module 1 that will act as Wi-Fi module which will be used for Internet of Things (IoT) such as blynk app. Also, this project uses RFID sensor and IR sensor which will control boom barrier to open and close and a buzzer which will produce sound to avoid unnecessary double parking. With the evolution of technology, the development of RFID expands its range of use and is very efficient where it provides a better level of security [4]. With this project, people would not need to worry about car theft, unnecessary double parking, and also save their time in finding outdoor parking as their parking spot is ensured.

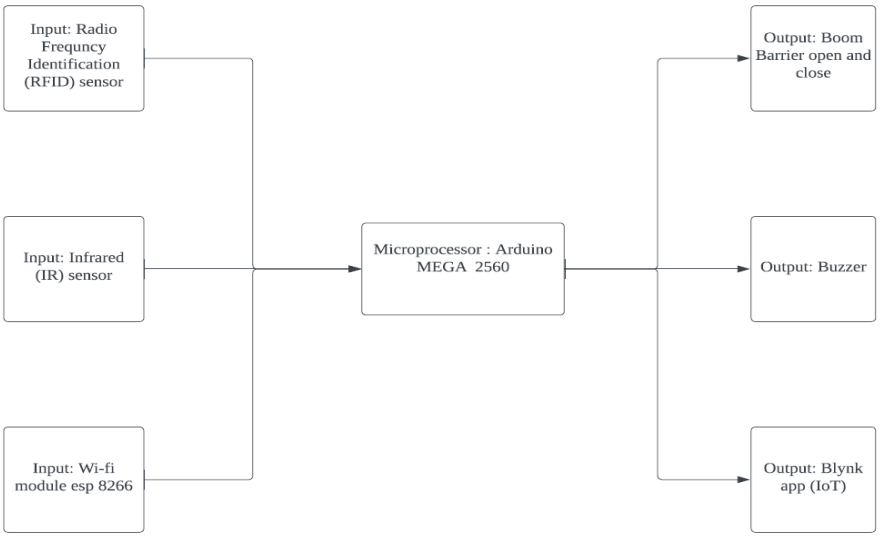
Keywords

Outdoor parking, Security, Car theft, Double parking, Ensure parking.

Product description

The Innovative Enhanced Parking with Security System is designed for outdoor parking areas, specifically targeting residents of apartment complexes. This system features two Infrared Sensors (IR) that detect the presence of a car both within the parking space and in front of it. Additionally, a buzzer is installed on the boom barrier to discourage double parking. Access to the parking area is restricted to users with a valid RFID tag.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Mohamed Ayman bin Mohamed Raffie is currently a final year student pursuing his diploma in Electrical Engineering at Universiti Teknologi MARA (Uitm) Pasir Gudang kampus cawangan johor. Upon completing his diploma, he planned to continue his study in degree in engineering field.

Mrs Norbaiti Binti Sidik was born on April 21st 1977 in Kedah Darul Aman. She got her first education in government primary school Sekolah Kebangsaan Batu Lima in Sik Kedah. She was accepted to further her studies in Arabic high school known as Maktab Mahmud Alor Setar also in Kedah after passing main interview to be one of the lucky student in Maktab Mahmud. Her studies continued in Universiti Kebangsaan Malaysia in Bandar Baru Bangi Selangor right after completed 1 year Science Matriculation Certificate in Pusat Matrikulasi Sains, Ipoh Perak Darul Ridzuan in 1995. She graduated her Bachelor Engineering Degree in Electrical, Electronics and System within 3 years from Universiti Kebangsaan Malaysia, Bandar Baru Bangi Selangor Darul Ehsan and she successfully completed Master Engineering Degree in Communication and Computer also from the same university in 2002. She is very committed, passionate and dedicated in education line who is now a senior lecturer and having experienced more than 10 years in teaching & learning and lecturing in Faculty of Electrical Engineering, Universiti Teknologi MARA, Cawangan Johor Kampus Pasir Gudang, Johor Darul Takzim.

21. IOT SMART FAN

Muhamad Adam Syafi Bin Mohamed Amir, Rozi Bin Rifin

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Abstract

This project addresses the demand for energy-efficient and convenient cooling solutions by creating an IoT- based smart fan with human presence detection, which allows automatic fan speed adjustment based on the presence of person in the room. The goal of this project is to design an IoT-based smart fan that can detect human presence and alter its speed automatically for improved energy efficiency and convenience. This report aims to design a smart fan that will conserve energy using Arduino Microcontroller. If any human presence is detected, the fan will be turned on while maintaining a specific speed according to the room temperature and all of the current status such as 'Motor ON', current temperature and fan speed will be displayed on LCD. Based on the simulation, the simulation shows that this project is convenient for human and electricity usage can be decreased. In my opinion, this project provides everybody a convenient cooling solution as the weather currently is very high and this project could likely decrease the chance of getting heatstroke by a margin. Further enhancements can be investigated for future development, and the system's functioning can be improved.

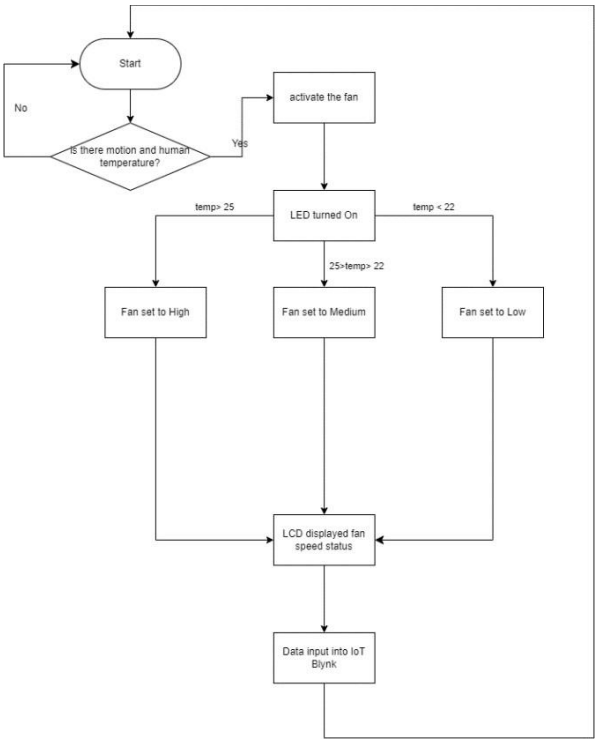
Keywords

smart fan, IoT (Internet of Things), Human presence, Arduino, LCD

Product Description

This creative project combines three input components - a PIR sensor, a DHT11, and an ultrasonic sensor - with three output features - a DC motor, an LED, an LCD, and BlynkIoT. To improve the user experience, the system employs PIR and Ultrasonic sensors to detect human presence and activate the fan for maximum comfort. The fan speed varies dynamically based on temperature readings from the DHT11 sensor, offering a smooth and tailored cooling experience at low, medium, or high speeds. Real-time data is vividly presented on the LCD, providing users with detailed information, and is also uploaded to BlynkIoT for remote monitoring of the fan's operational state. When both motion and ultrasonic sensors detect no longer detect human presence, the system intelligently powers down, emphasizing energy savings and user ease.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhamad Adam Syafi is a hardworking student in the fifth semester of the Diploma in Electrical Engineering program at UiTM Pasir Gudang, with a graduation date of 2024. His scholastic path sparked a strong interest in electrical engineering and electronics, inspiring him to learn more about these dynamic subjects. Muhamad's eagerness to study extends to the Internet of Things (IoT), as evidenced by his Final Year Project, dubbed 'IoT Smart Fan.' This revolutionary idea incorporates cutting-edge technologies, such as motion and ultrasonic sensors, to intelligently modify fan speed based on temperature data, hence improving overall user experience. As he prepares to graduate in 2024, Muhamad is eager to put his talents and experience to use in the field of electrical engineering, driven by a desire for continual learning and creativity.

Ts. Rozi Rifin earned a Bachelor of Engineering in Electronic from USM in 2005 and a Master of Science in MicroElectronics from UKM in 2013. Currently, he serves as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. Prior to joined UiTM, he served 9 years of experience as an engineer, working in different local and multinational companies that focused on various aspects such as Manufacturing, Process and Equipment Engineering, Quality Control, and Cost Reduction within the Integrated Circuit and Photovoltaic Solar Cells Fabrication industry. His main research interests are in Microelectronics, IC and VLSI design, solar cells fabrication, embedded systems and IoT.

22. IOT-ENABLED SWIMMING POOL MANAGEMENT SYSTEM: AN INTEGRATED APPROACH TO MONITORING AND CLEANING

Muhammad Adam Bin Zamsari And Zatul Iffah Binti Abd Latiff

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Abstract

This project utilizes an Arduino UNO microcontroller, sensors, and a WiFi module to construct a real-time monitoring and cleaning system for swimming pools, based on turbidity, pH level, and water temperature. The objectives are to simulate the IoT-enabled Swimming Pool Management System using the Proteus application and to develop an integrated monitoring and cleaning model. The inputs include temperature, pH level, and turbidity sensors, while the outputs consist of an LCD, chlorine pump, and WiFi module. According to the project results, the used inputs respond appropriately, and the pH sensor triggers the motor to pump out chlorine when the pH level rises above seven. Future improvements may involve enhancing features, such as responding to the motor that covers the entire pool surface.

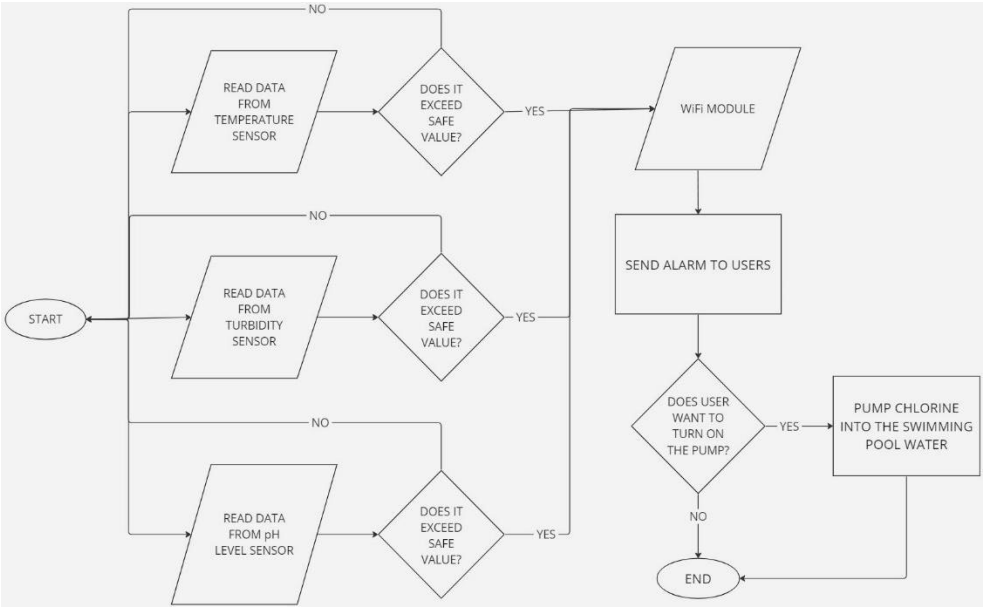
Keywords

Internet of Things, Swimming Pool, pH level, Temperature, Turbidity, Monitoring Systems

Product description

This IoT-Enabled Swimming Pool Management System utilizes Arduino UNO, sensors, and WiFi for real-time monitoring. The project integrates turbidity, pH, and temperature sensors, displaying data on an LCD and triggering a chlorine pump based on pH levels. The system addresses challenges in traditional pool maintenance, offering efficient monitoring, timely alerts, and potential cost savings.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Adam Bin Zamsari, born on September 5th, 2003, Muhammad Adam is a fifth-semester student at UiTM Pasir Gudang pursuing a diploma in Electrical Engineering (Electronic). With a strong interest in electronic systems, he has excelled in his studies, consistently demonstrating a passion for technology applications. Currently working on his Final Year Project, he is developing an innovative "IoT-Enabled Swimming Pool Management System" that monitors and cleans pools in real-time. Beyond academics, Muhammad Adam actively engages in collaborative projects, showcasing leadership skills within the university community. As he progresses, he remains focused on honing his electrical engineering skills and contributing to technological advancements, highlighting his commitment to excellence.

Zatul Iffah Abd Latiff is a senior lecturer at Faculty of Electrical Engineering, Universiti Teknologi MARA, Malaysia. She received her Bachelor of Engineering Degree in Electrical Engineering from Korea University, South Korea in 2010 and her Master of Science in Telecommunication and Information Engineering from Universiti Teknologi MARA (UiTM), Malaysia in 2013. She is currently persuing her study for Ph.D. in Space and Earth Electromagnetism in UiTM Shah Alam. She is one of the co-researcher of MAGDAS (Magnetic Data Acquisition System) network who is responsible for monitoring and maintaining one of the MAGDAS observatories located in Johor, Malaysia. Her research interests include geomagnetically induced currents (GICs) activity in the equatorial and low latitude region, space weather activity, ionospheric currents, Earth’s electromagnetism and application of ground magnetic and satellite data

23. ADVANCED FOOTSTEP POWER GENERATION VIA RFID READER

Muhammad Adam Haiqal Bin Abdul Aziz, Ts. Sufian bin Mohamad

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

2021852226@student.uitm.edu.my, sufia315@uitm.edu.my

Abstract

This project introduces the use of piezo sensor also known as pressure sensor that can convert kinetic energy into electrical energy. In today's world, the majority of the world's energy comes from non-renewable sources such as coal, oil, and gas. This over-reliance on traditional power sources contributes to environmental problems such as air pollution, global warming, and climate change. Basically, this project is for the placement of a platform for feet. To produce voltage from footsteps, the piezo sensors are positioned underneath the platform. The sensors are arranged in this way to produce the highest output voltage possible. After that, this is delivered to our monitoring circuitry. The design, which uses a microcontroller to monitor voltage and charge a connected battery, enables user to keep track of voltage. On an LCD panel, it also shows the charge that was generated. Additionally, it has a USB charging port for smartphones where users may attach cables to recharge their devices' batteries. Thus, we charge a battery using power from user footsteps, display it on lcd using microcontroller circuit and allow for mobile charging through the setup. Moreover, all data collected such as voltage generated per footstep and total footstep produced by the piezo sensor will send to the IOT server. Based on the simulation the project successfully produced an LCD output and voltage produced by piezo sensor output that meets the expectation from the beginning of this project. In my opinion, The Advanced Footstep Power Generation System project is an exciting development in the field of renewable energy, and its successful implementation could have a significant impact on the world's energy landscape.

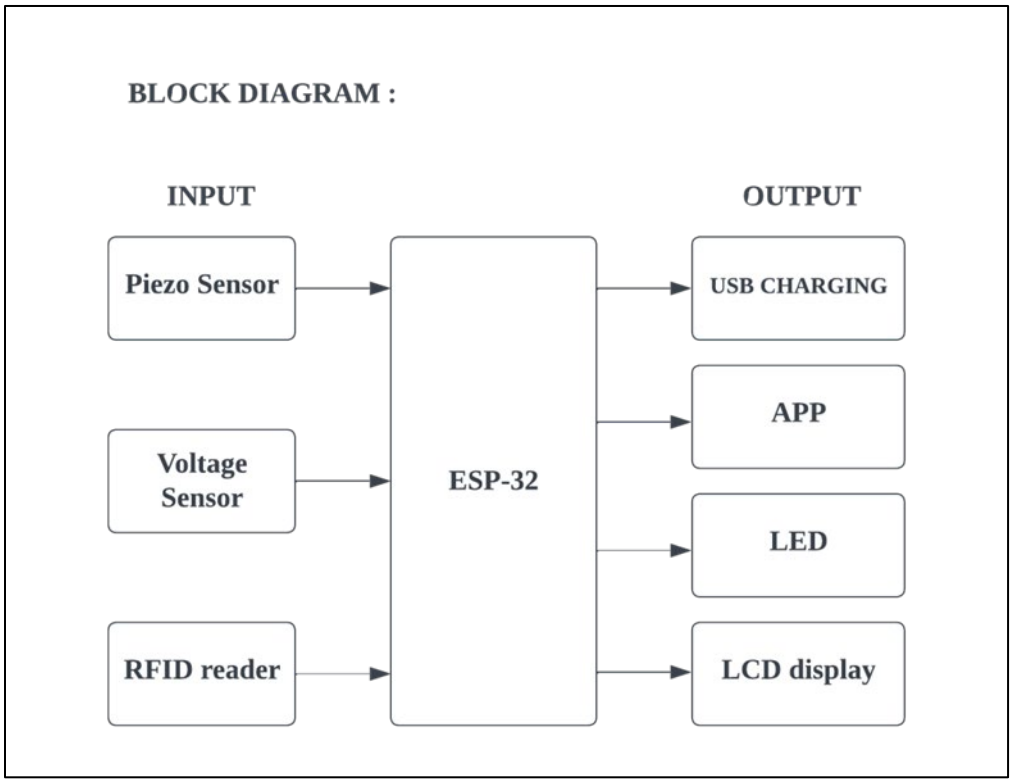
Keywords

IoT, ESP32, piezo electric sensor, App

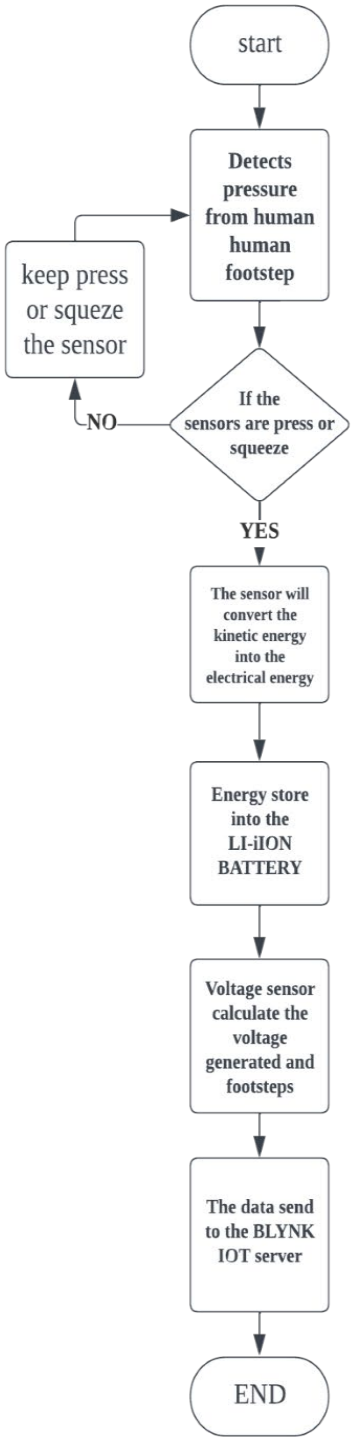
Product Description

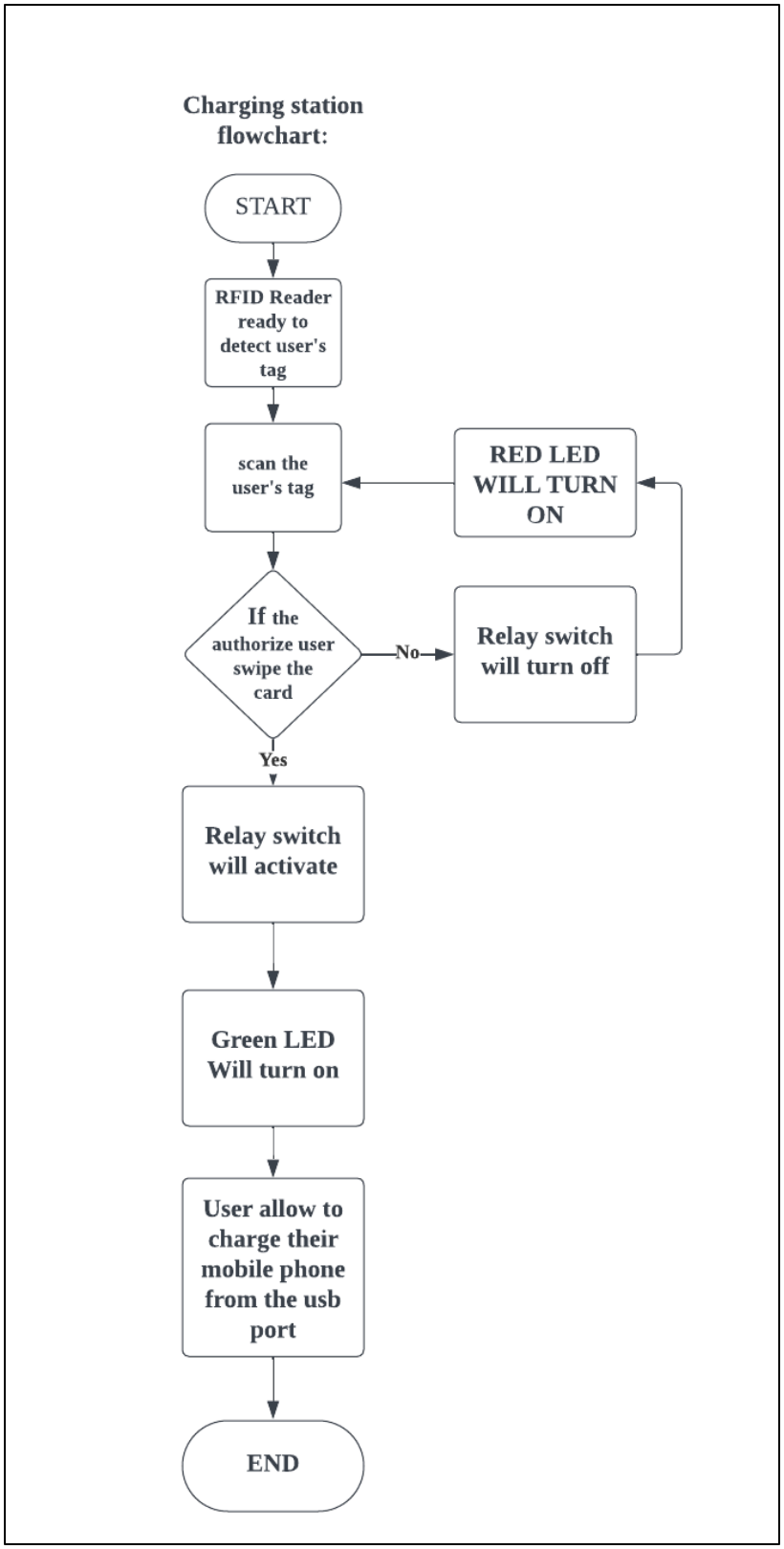
The purpose of this project is to produce voltage from footsteps, the piezo sensors are positioned underneath the platform. The sensors are arranged in this way to produce the highest output voltage possible. After that, this is delivered to monitoring circuitry. The design, which uses a microcontroller to monitor voltage and charge a connected battery, enables user to keep track of voltage. On an LCD panel, it also shows the charge that was generated. Additionally, it has a USB charging port for smartphones where users may attach cables to recharge their devices' batteries. Thus, we charge a battery using power from user footsteps, display it on lcd using microcontroller circuit and allow for mobile charging through the setup. Lastly, the esp32 microcontroller will send both voltages and footstep generated by the piezoelectric sensor value of data to blynk IOT using Wi-Fi.

Photo/ Schematic diagrams/ Flow charts/Screens hots/Graphs and etc.

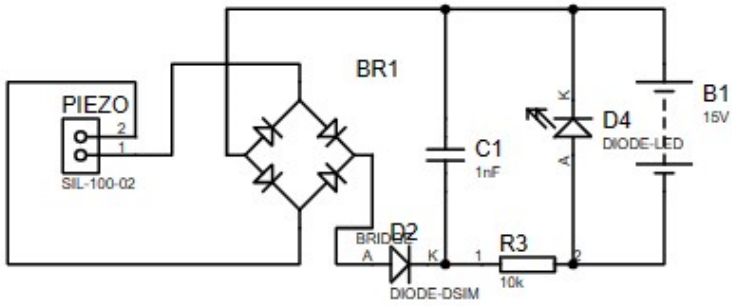


piezo electric power generation flowchart:

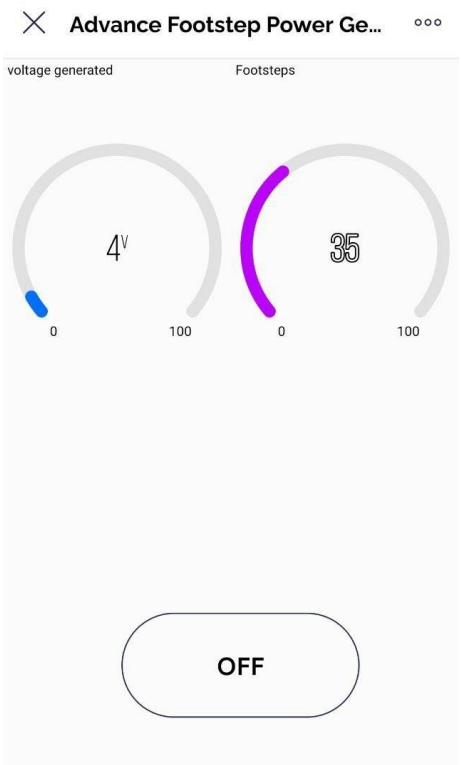


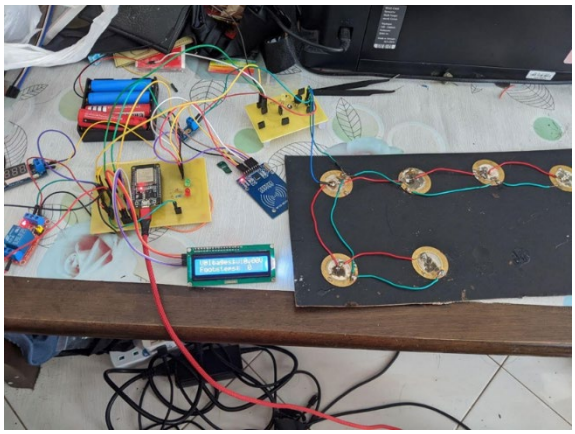

Charging station flowchart:
START
RFID Reader ready to detect user's tag
scan the user's tag
RED LED WILL TURN ON
If the authorize user swipe the card
No
Relay switch will turn off
Yes
Relay switch will activate
Green LED Will turn on
User allow to charge their mobile phone from the usb port
END

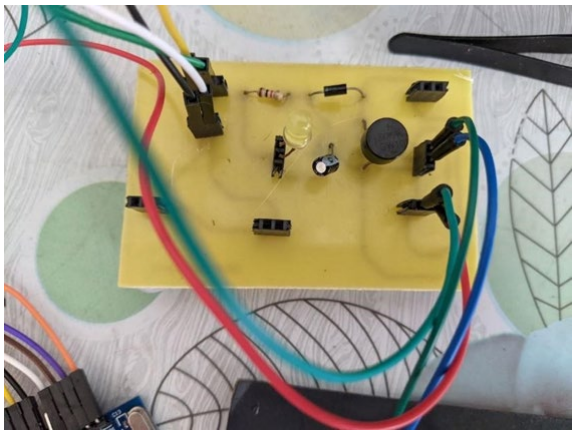
PIEZO ELECTRIC POWER GENERATION CIRCUIT:



Blynk App UI







Member Biographical Data

Born on JUNE 22nd, 2003, in Ayer keroh,Melaka, Muhammad Adam Haiqal bin Abdul Aziz is presently pursuing a diploma in Electrical Engineering at Universiti Teknologi MARA. He is currently in the fifth semester of his academic journey. Already gained a CGPA up to 3.2 up to 4th semester. In his final year project, he chose a advanced footstep power generation system title. He discovered the piezo electric sensor that made of piezo quartz crystal can generate small electricity and power small appliances such as light and charging the li-ion battery. This idea can be major breakthrough in discovering a new alternative power source to human beings. He applied a few knowledge that he learns from the subject that he is studying from the first semester.

Sufian bin Mohamad is a lecturer from Communication Department, Faculty Electrical Engineering, UiTM Kampus Johor Cawangan Pasir Gudang. He has experienced of 13 years teaching various electrical engineering subject. Besides, he gained lots of experienced in other fields such as student development activity in campus and faculty management.

24. IOT-ENABLED WATER RESOURCE MANAGEMENT SOLUTIONS

Muhammad Adib Al Siddqy Bin Mohamad Asri, Norhalida Binti Othman

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Abstract

IoT-Enabled Water Resource Management Solutions is a project that uses an Arduino microcontroller, sensors, and a communication module to create a real-time monitoring system for water turbidity and ph. By identifying and responding to aberrant water quality circumstances, the goal is to assure the delivery of safe and clean drinking water. The system will sound an alarm or stop the flow of water if the pH or turbidity levels go above acceptable limits to stop people from drinking polluted water. In order to further purify the water before it enters the user's home, the system can be combined with a water treatment system.

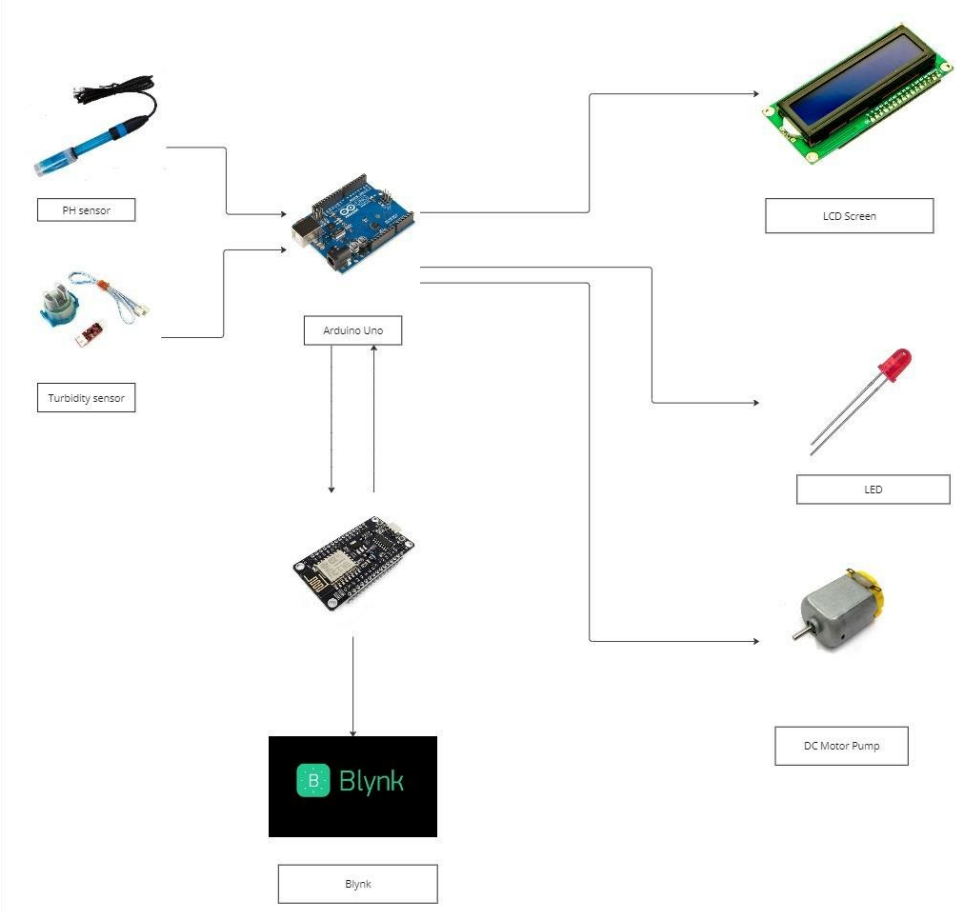
Keywords

Arduino Uno, IOT, Wi-Fi module, water resource management system

Product Description

This project is basically about Smart Water Treatment System that continuously monitors and improves water quality by utilising the revolutionary power of Internet of Things (IoT) technology. This system, which heralds a new age in responsive water treatment approaches, is outfitted with sophisticated sensors, such as turbidity sensors to monitor water clarity and pH sensors to gauge acidity levels. Real-time data gathering and analysis are made possible by this system. The data will be shared through bylink app.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Adib Al Siddqy Bin Mohamad Asri is a driven fifth-semester student at UiTM Pasir Gudang who is pursuing a diploma in engineering electronic. His quest has brought him to the apex of his undergraduate experience because of his unwavering curiosity for invention and passion for the complex realm of electrical systems. "IOT-Enabled Water Resource Management Solutions," his final year project, embodies his academic philosophy and demonstrates his dedication to advancing knowledge in the field of electrical engineering. His final year project is more than simply a capstone project; it's a symbol of his commitment to learn new things and his readiness to enter the workforce with the skills he's gained from this project to significantly impact the ever-evolving fields of innovation and technology. He is excited about the opportunities and difficulties that the discipline of electrical engineering will present.

Norhalida binti Othman who is currently a senior lecturer in Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus. She is holding a Master of Engineering in Electrical Power from Universiti Teknologi Malaysia.

25. HARVESTING INNOVATION: A COMPREHENSIVE EXPLORATION OF MODERN AGRICULTURAL SYSTEMS

Muhammad Adnill Bin Yazet, Dr Nurul Nadia Binti Mohamad

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

Automated agriculture systems with Internet of Things (IoT) technology are revolutionizing the way modern agriculture is practiced. These systems combine the power of automation and connectivity to enhance agricultural processes, optimize resource utilization, and increase overall productivity. With the integration of IoT devices and sensors in agricultural operations, farmers can monitor and manage their farms remotely, gather real-time data, and make informed decisions based on data-driven insights. The benefits of an automated agriculture system with IoT are numerous, including increased productivity, improved resource management, reduced costs, enhanced sustainability, and greater profitability. Automated agriculture systems with IoT enable farmers to optimize their operations, leading to increased productivity. Therefore, this project providing added value to its users, especially farmers today in obtaining more accurate agricultural values. Basically, this project consists of three inputs and four output. The inputs are sunlight sensor, soil moisture sensor, rain sensor. For the output used are the water pump, LCD, LED and the wifi module which provides the convenience of users to observe this system through the BLYNK application on mobile phones. This project is an example of the internet of think (IOT) being used as a facility because the system can observe certain values through a mobile phone such as the presence of water, soil moisture and the presence of enough light so that plants can live fresh. Users do not need to bother to come to the farm field to provide the needs to the plant in case of insufficient resources.

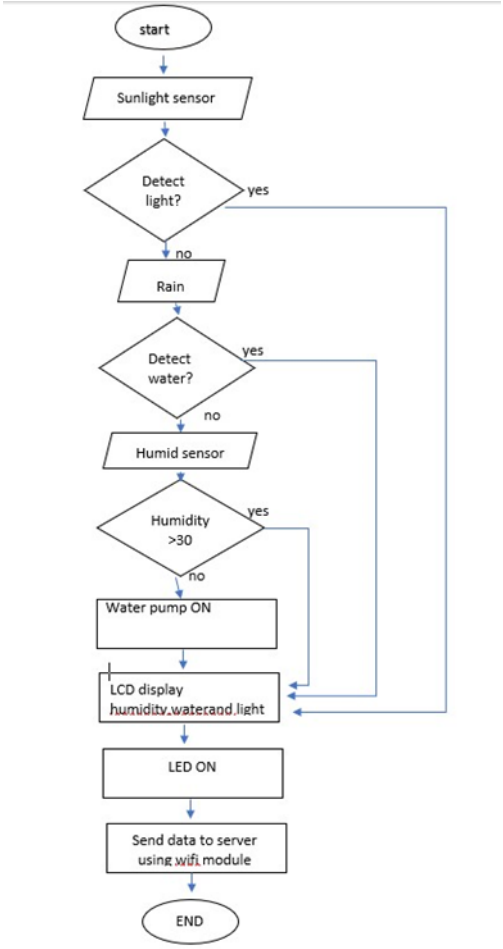
Keywords

Agriculture, Automated, Utilization, Data, IoT (internet of things)

Product Description

In the face of global challenges such as climate change, population growth, and resource limitations, the need to enhance agricultural practices has become imperative. This project presents about Automated Agriculture System with IOT to introduce the most effective in farming for the farmer nowadays. This report aims to design Automated Agriculture System. With IOT using Arduino Microcontroller. This project consists of four sensor which is rain sensor, water ph sensor, soil moisture sensor, and sunlight sensor. All this sensor produce output that can lead the water pump to allow the water went through the plant. All of the output will be displayed by wi-fi module (ESP) which it can inform the user all the data needed. In this project also consist LCD for display the data. The water pump will be activated if one of the four sensors used experienced a decrease in value according to its own function. The conclusion is this project contribute to the overall global food security by enhancing crop yield and minimizing waste. The ability to monitor and control various aspects of farming operations remotely ensures timely responses to changing conditions, ultimately leading to improved farm quality and quantity.

Photo/ Schematic Diagrams/ Flow Charts/Screenshots/ Graphs And Etc.



Member Biographical Data

Muhammad Adnill Bin Yazet, currently in the fifth semester pursuing a diploma in Electrical Engineering (Power) at UiTM Pasir Gudang, is driven by an insatiable curiosity for innovation within the intricate realm of electrical systems. His academic journey has brought him to the zenith of his undergraduate experience. In his final year project titled "Harvesting Innovation: A Comprehensive Exploration of Modern Agricultural Systems," captures the essence of his academic career, showcasing his unwavering commitment to advancing the knowledge within Electrical Engineering. Born on 28 April 2003, he has dedicated the past few years to establishing a robust foundation in core subjects such as electronics, circuit theory, and control systems. As he approaches the culmination of his undergraduate career, he reflects on the challenges overcome, the knowledge acquired, and the invaluable support received from his supervisor and peers. More than just a capstone project, his final year endeavor reflects his dedication to pushing the boundaries of knowledge and readiness to embark on a career where he can apply the skills honed throughout this undertaking. Excited to leverage the experiences gained from his final year project his anticipates making a substantial contribution to the rapidly evolving field of technology and innovation.

He eagerly awaits the opportunities and challenges that await him in the exciting realm of Electrical Engineering.

Nurul Nadia Binti Mohammad joined Universiti Teknologi MARA (UiTM) in January of 2020 as a senior lecturer at the Electrical Engineering Studies, College of Engineering. She obtained her Bachelor's Degree in Electrical Engineering (Hons) in October 2011, followed by Masters of Electrical Engineering from Universiti Tun Hussein Onn Malaysia (UTHM) in 2014. She then obtained her Doctor of Philosophy in Electrical Engineering from Universiti Teknologi Mara (UiTM) in 2019. Her area of expertise are modelling, control system, and process control.

26. AUTOMATED RFID-BASED HOME LOCK AND MONITORING SYSTEM

Muhammad Afiq Irfan Bin Baharuddin, Norlee Husnafeza Binti Ahmad

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Abstract

Automated RFID-based Home Lock and Monitoring System is a system that is focusing on enhanced security in daily environment, particularly in residential setting, by proposing and implementing an RFID door lock system using Arduino technology. The aim is to improve the shortcomings of traditional lock systems such as vulnerability to missing by introducing a more secure and efficient method of access control. The RFID door lock system seeks to offer faster access while ensuring greater safety by utilizing RFID technology to verify and grant access only to individuals possessing the correct RFID tags. The overall goal is to create a robust security system for restricted areas that is both reliable and trackable using Arduino as the microcontroller.This whole system is designed for the residents who had a lot of buglar cases in their environment.Resident's safety is promised by this little and creative hardware ensemble.

Keywords

Home Lock , Monitoring System , Restricted area , Buglar , Safety Environment

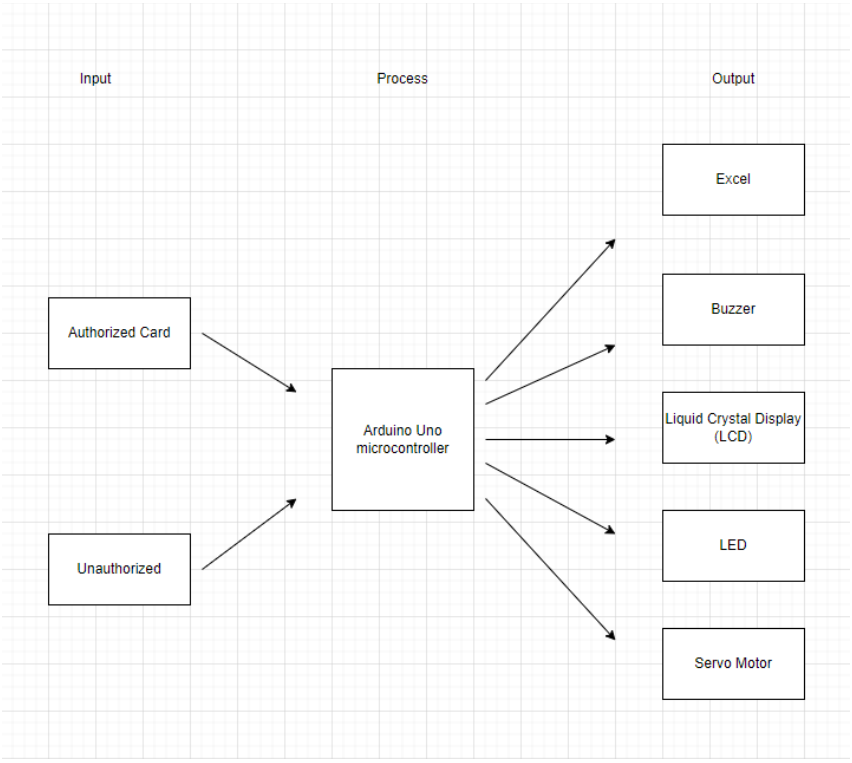
Product Description

RFID Door Lock System is a modern security solution replacing traditional locks with advanced RFID technology. With Arduino at its core, this system swiftly verifies authorized RFID tags, ensuring secure access and thwarting unauthorized entry.

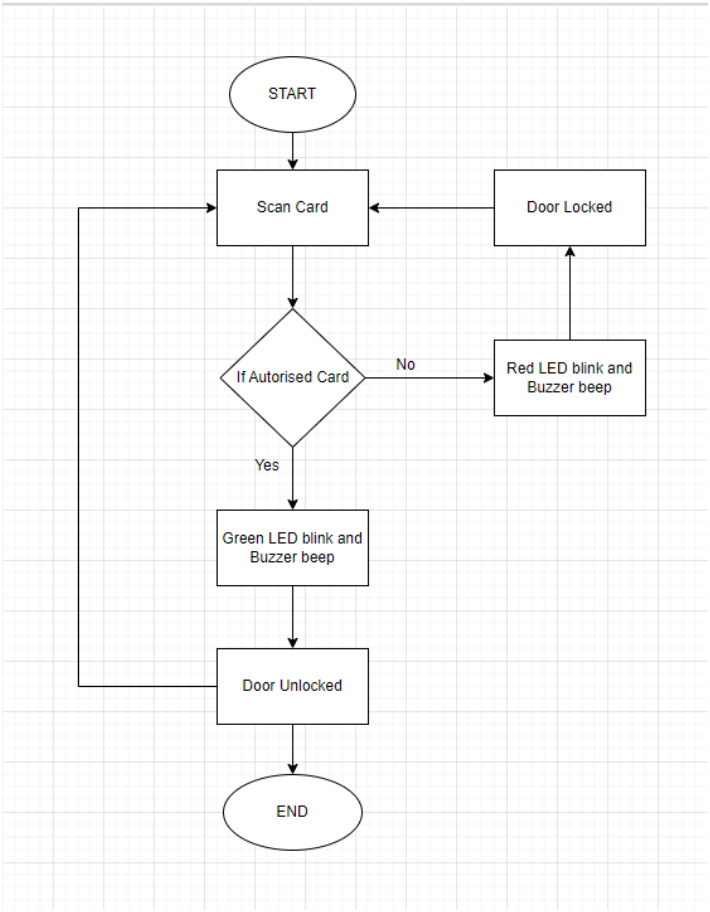
This innovation not only fortifies security but also enhances convenience, granting swift access through RFID tags while eliminating the hassle of keys or combinations. Additionally, it maintains a comprehensive log of entries and exits, enabling robust monitoring.

In essence, this RFID Door Lock System combines cutting-edge RFID tech with Arduino's reliability, offering efficient, secure, and hassle-free access control ideal for safeguarding residential and commercial spaces.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Block Diagram



Flowchart

Member Biographical Data

Muhammad Afiq Irfan Bin Baharuddin is a final-year student at the MARA University of Technologies (UITM) Pasir Gudang, where he is working on his diploma in Electrical Engineering (Electronic).After receiving his credentials, he intended to pursue further education to earn a degree in engineering.

Norlee Husnafeza Ahmad obtained her Ph.D. from UiTM Shah Alam with her research on the development of the generation market in Malaysia using System Dynamic modelling approach. She started her career at UiTM as a lecturer from February 2011 in the Power Department. Her main research interests are power system economic, AI optimisation technique, as well as System Dynamics modelling.

27. IOT BASED VOTING SYSTEM FOR UITM'S STUDENT ELECTION

Muhammad Aiman Bin Mohd Zamri, Dr Fatimah Khairiah Abdul Hamid

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Abstract

A smart voting system is designed based on an Internet of Things (IoT) and offers users with a high level of security using an offline-online hybrid voting system. This system is developed using a two-way verification process based on student ID number and biometric fingerprint. This project is a combination of a smartphone and microcontrollers. After the voter completed the voting process, the results of the voters will be transferred via Appsript and linked to Google Drive for data management and displayed on a smartphone. The users are directed to the voting candidate page if they enter the incorrect number ID. Based on the simulation result, the smart voting system with the two-way verification can provide a reliable voting process that allows users to cast ballots with high level security, leading to an efficient management of the voting results. For the future work, further enhancement can be explored, and the functionality of the system can be enhanced.

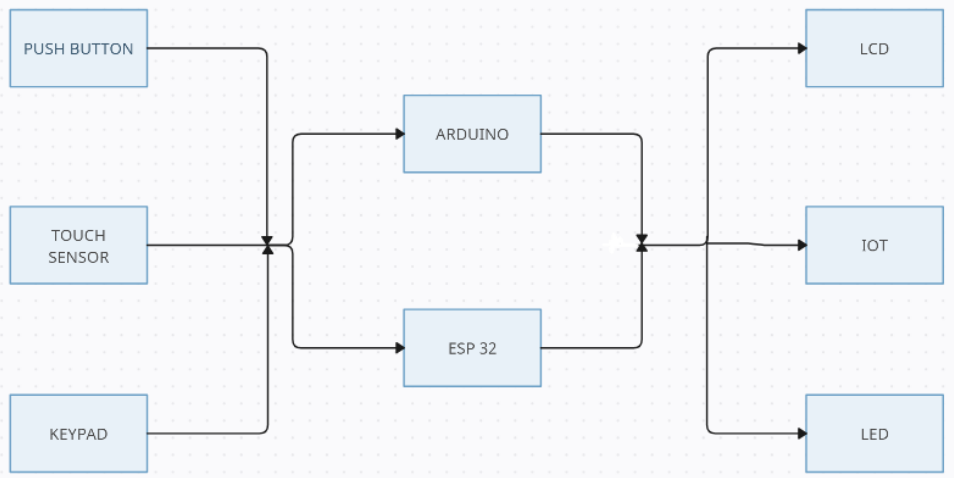
Keywords

Touch button, Lcd, Led, Arduino Mega, Touch Sensor

Product Description

The fingerprint voting system enabled by the Internet of Things improves voting efficiency and system security. The use of a dual verification method that includes both user ID and fingerprints allows for smooth transition into the next voting phase. Voters can cast their votes for the candidates who have been displayed. The use of a spreadsheet for real-time tracking simplifies the scrutiny of votes received for each candidate, facilitating vote collection and computation. The project's goal is to streamline the voting process and make it more manageable in general.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Aiman Bin Mohd Zamri is a Diploma Electric and Electronic student at Universiti Teknologi Mara who is working on a final year project about the Iot Based Voting System.His vision for this project is to improve the voting system's efficiency.His ambition is to pursue a B.Eng. degree in electric electronics..

Fatimah Khairiah Abd Hamid received the B.Eng. Degree in Electrical-Electronic from Universiti Teknologi Malaysia, in 2011. Meanwhile, she pursued her Master and PhD in Electrical Engineering in the same university in 2013 and 2016, respectively. She is currently a senior lecturer with the Faculty of Engineering, Universiti Teknologi Mara. Her research interests include modelling and simulation nanoscale transistor, radar and satellite system, sensor and IOT application

28. HOME COMFORT AND SECURITY BY AUTOMATIC SENSOR

Muhammad Aiman Qusyairi Bin Muzal, Wan Suhaifiza Binti W. Ibrahim

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Abstract

The proposed smart home automation system integrates various IoT devices, such as sensors, actuators, and smart appliances, with a central control hub. various sensors were used, including temperature, motion, and light- dependent resistor (LDR). enabling real-time monitoring and analysis. The objective is to improve convenience, efficiency, and safety by controlling lighting, temperature control, and movement safety systems. Future work for the project involves expanding the compatibility of devices that can improve energy efficiency and address security and privacy issues in the home area.

Keywords

Smart home automation, IoT devices, Sensors, Central control hub, Energy efficiency

Product Description

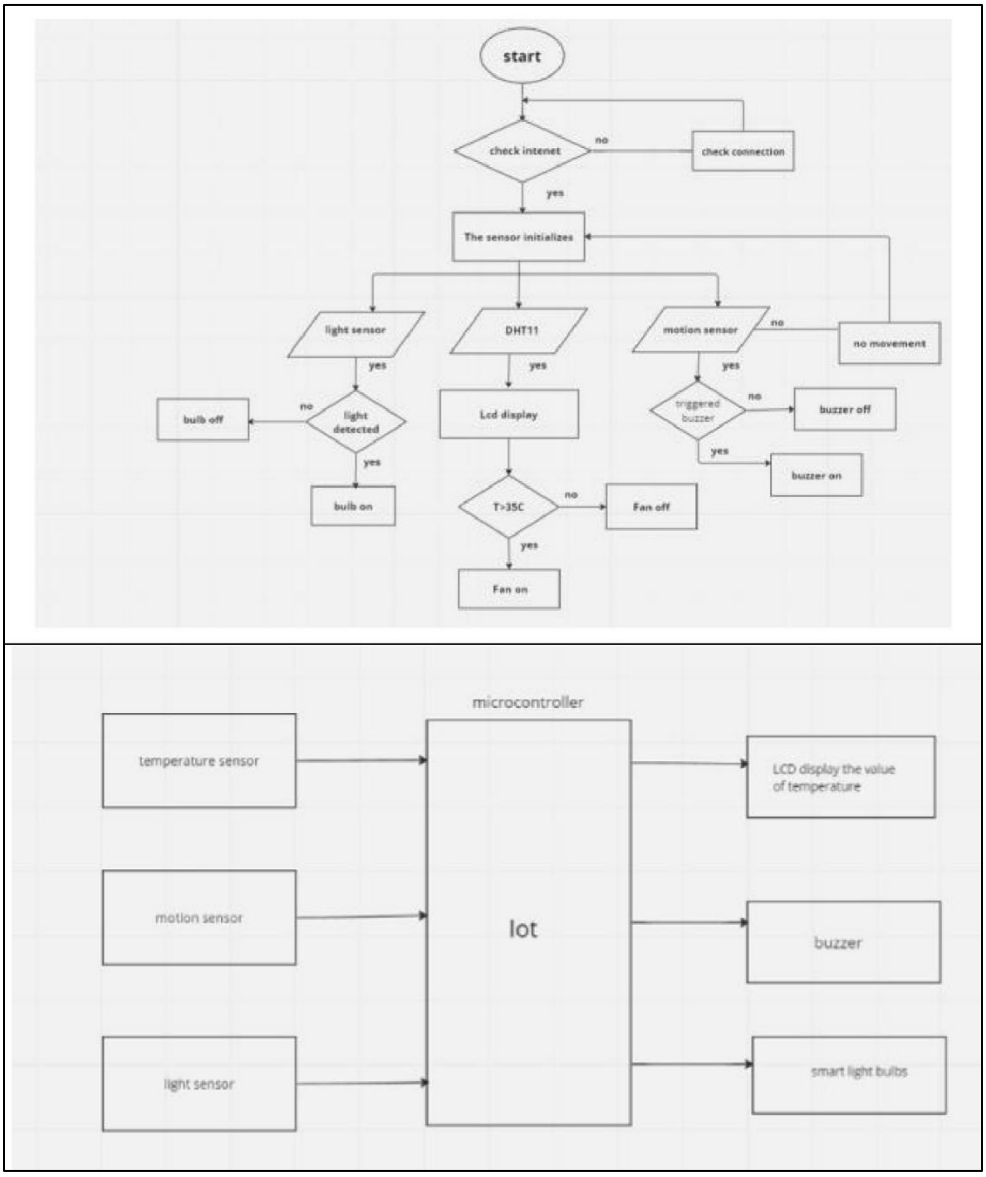
Automatic Sensor Integration: Our product is equipped with advanced sensors, including temperature sensors, motion detectors, and light-dependent resistors (LDR), ensuring a comprehensive and responsive monitoring system.

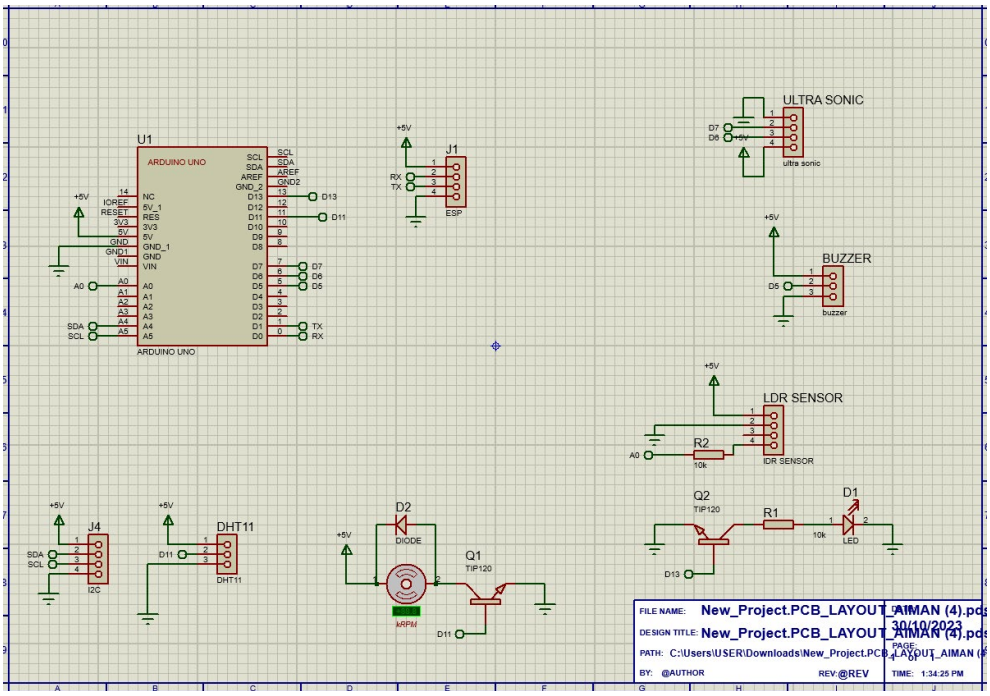
Smart Home Automation: Experience the next level of home automation as our system effortlessly integrates with various IoT devices, such as actuators and smart appliances, through a centralized control hub. Take control of your home with just a touch.

Real-time Monitoring and Analysis: Stay connected to your home at all times with real-time monitoring and analysis capabilities. Receive instant updates on temperature changes, motion detection, and light variations, allowing you to make informed decisions for enhanced comfort and security.

Efficiency and Safety: Our product is designed with the objective of improving overall convenience, efficiency, and safety in your home. Manage and optimize energy consumption while addressing security concerns, all through a user-friendly interface.

Photo/ Schematic diagrams/ Flowcharts/Screenshots/ Graphs and etc.




U1
ARDUINO UNO
ULTRA SONIC
BUZZER
LDR SENSOR
DHT11
J4
I2C
D2
DIODE
Q1
TIP120
R1
R2
10k
D1
LED
J1
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BY: @AUTHOR
REV:@REV
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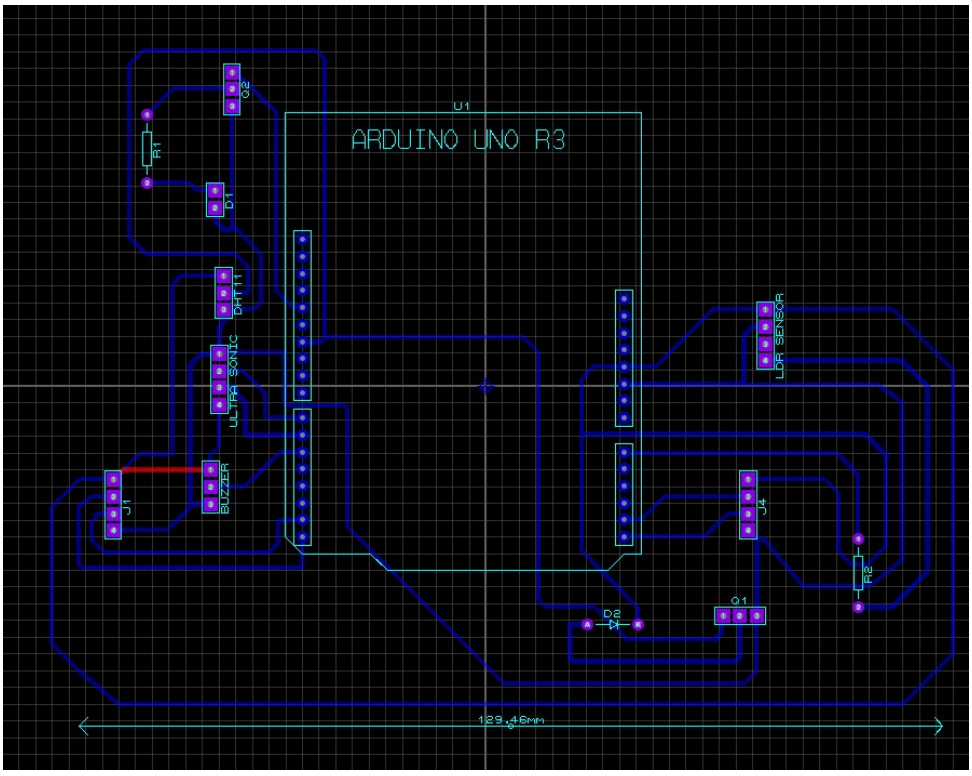
U1
ARDUINO UNO R3
Q2
R1
D1
DHT11
ULTRA SONIC
BUZZER
J1
LDR SENSOR
J4
R2
D2
Q1
129.46mm

Member Biographical Data

Muhammad Aiman was born on 4 august 2003 in Hospital Serdang, Selangor. Raised in a Bandar Baru Bangi, Selangor for 20 years. Aiman's academic journey began at Sekolah Rendah Integrasi Bandar Baru Bangi where many experiences he went through throughout elementary school and high school that allowed him to learn a lot of important knowledge. He currently pursued his diploma in electrical engineering major in electronic at UiTM Pasir Gudang, Johor. His enthusiasm for the field of electrical engineering major in electronics is evident in several projects that have been successfully produced during his studies at UiTM Pasir Gudang, among which he successfully completed a mini project, the temperature control system project, and now for his final year project, Aiman has improved the previous project by adding an automatic system and several sensors that more efficient. He also has been involved in several projects while studying here, the second of which was leading an Asnaf project held around Johor. The result of his work is that he can increase his confidence in talking to people and this way of getting close to new people can help him when starting work in his career.

Ts. Wan Suhaifiza binti W Ibrahim joined UiTM in January, 2011 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering. Wan Suhaifiza binti W Ibrahim obtained her Bachelor of Electrical (Hons) Engineering and Masters of Electrical Engineering (Power) from Universiti Teknologi Malaysia. Currently, she serves as a senior lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Power Department. Her main research interests are E-learning, high voltage technology and renewable energy.

29. PORTABLE AIR POLLUTION METER

Muhammad Amirul Najwan Bin Mohd Abu Zarim, Noor Hafizah Khairul Anuar

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Abstract

Urban environments with a high degree of industrialization are infested with hazardous chemicals and airborne pollutants. Currently, air pollution monitoring predominantly relies on expensive high-end static sensor stations. These stations produce only aggregated information about air pollutants, and are unable to capture variations in individual's air pollution exposure. The project aims to develop a portable air pollution monitoring system that captures individual exposure levels to air pollutants during daily indoor and outdoor activities. The project offers a low-cost portable sensor of MICS-6814 Air Quality sensor and BME280- environmental sensor controlled using Arduino uno microcontroller. The reading of air quality display on the LCD as well as the history of observed data can be retrieved in the database system. The project contributed to providing fine grained air pollution insights over a small-scale area.

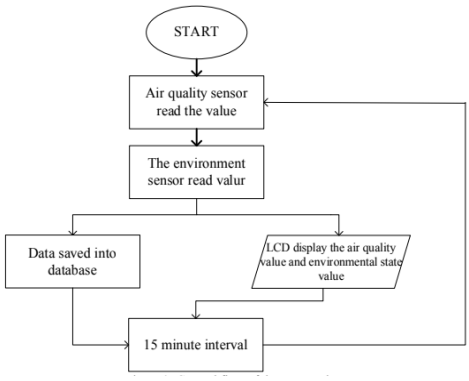
Keywords

Air quality, Air pollution, Internet of things, Low-cost sensor, Data classification, Wood smoke

Product Description

The portable air pollution meter was design to read the quality of air, to detect any harmful substances that make the air polluted.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Amirul Najwan Bin Mohd Abu Zarim, is a student from Universiti Teknologi Mara Pasir Gudang and start studying on 2020. Studying in Electrical Engineering Program and still continue until 2024.

Noor Hafizah Khairul Anuar received the B.Eng in Electrical Telecommunication from Universiti Teknologi Malaysia (UTM) in 2008 and M.Sc in Electrical Telecommunication Engineering and Information Technology from Universiti Teknologi MARA (UiTM) in 2012. She is currently pursuing her Ph.D. in Electrical Engineering at Universiti Teknologi Malaysia (UTM) in sensor development, instrumentation, and machine learning. She is a lecturer at the Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA, Johor.

30. MOBILE IOT-ENABLED WASTEBIN WITH REMOTE CONTROL

Muhammad Azahan Nafiz Bin Mohd Parid, Fadila Binti Mohd Atan

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Abstract

The design and development of an automated waste management system in public areas using Arduino Uno as the microcontroller, connected with Internet of Things (IoT) technology and a user-friendly mobile app. The major issue discussed is the conventional waste management systems that delay effective waste collection. The project's objectives include developing a Mobile IoT-enabled wastebin with IoT capabilities, as well as including sensors such as ultrasonic and infrared for level waste measuring and bin's lid automation, respectively. The Nodemcu ESP 8266 is used for Wi-Fi networking and remote control using a mobile app. Output sensors such as a servo motor, LCD, and buzzer improve the device's functionality. The sensors, which is controlled by a smartphone app, responds to human activity by opening the bin's lid and producing a sound when it is full. Future enhancements are expected to improve the user interface and remote-control operations, and then it makes an effective waste management solution in cities.

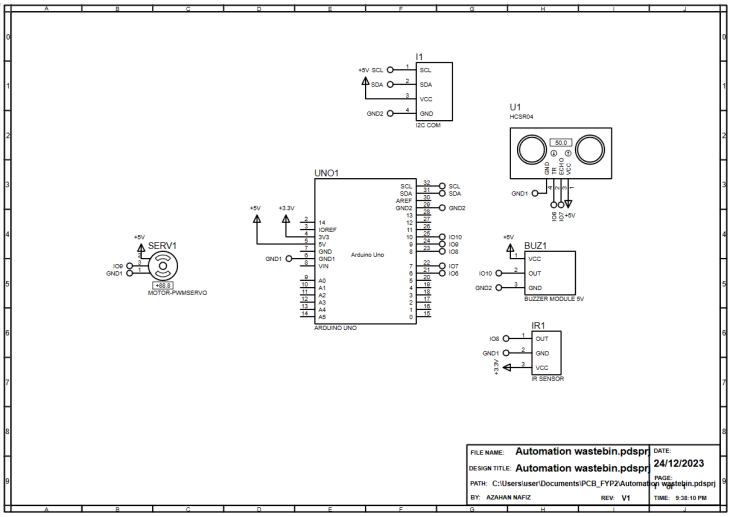
Keywords

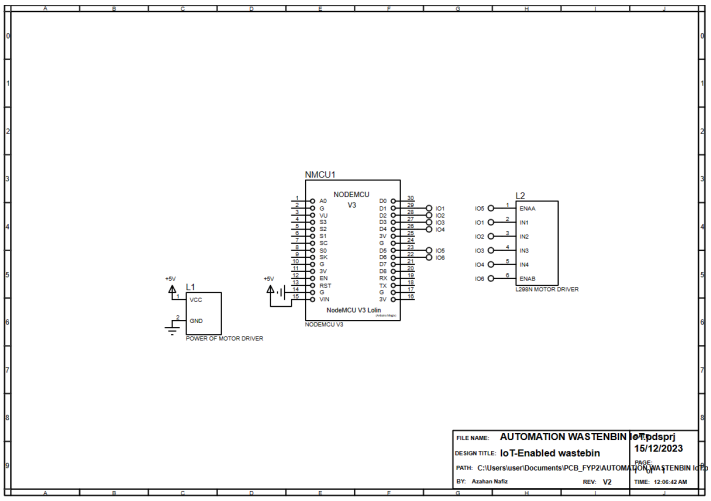
Automated waste management system, Arduino Uno microcontroller, Internet of Things (IoT) technology, Mobile IoT-enabled wastebin and Nodemcu ESP 8266

Product Description

The product has been designated as a mobile IoT-Enabled Waste Bin with Remote Control, which is linked to a user-friendly smartphone app. This innovative device receives user's smartphone instructions for movement in any direction and it is simply integrating Wi-Fi module interaction with the Blynk IoT software. It functions as an automated waste bin and it is not only providing a hands-free experience with its automatic lid operation but also monitoring waste capacity within, displaying open/close status and percentage on the LCD screen. When the bin reaches full capacity, buzzer alerts sound alerting users to clean up and empty the filled bin as soon as possible to ensure a convenient and effective waste management process.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Muhammad Azahan Nafiz is now studying and taking an electrical engineering diploma major in system at University Teknologi MARA Johor, branch Pasir Gudang. He has experience and knowledge with various software such as Proteus, MATLAB, and Arduino Uno in one half years, and then Cx programmer and designer in one year. Also, he has great skill about design and construct the electric circuit using the hardware and software. Moreover, the achievements that he obtained are winning competition of e-sport in UiTM and getting the participation in Karisma (sport competition for all UiTM). In addition, the hobbies that he interested such as playing e-sport and sport game, watching Japan or Malaysia animation and be a food hunter. the future goals he wanted to grab is to be a graduated student that can apply knowledge that has been learned in jobs related to electricity.

Fadila Mohd Atan is a senior lecturer specializing in electronic and communication engineering, holds a Master of Science degree in Telecommunications and Information Engineering from Universiti Teknologi MARA. With a decade of unwavering dedication, she has meticulously advanced her expertise in constructing prototypes to address real-world challenges within the engineering domain. Throughout her career, she has been actively involved in planning, design, circuit analysis, troubleshooting and Printed Circuit Board (PCB) fabrication and/or software application development of an electrical and electronic system. She has contributed significantly to multiple publications and projects.

31. MODERNIZED PARKING FOR DISABLED PEOPLE

Muhammad Azhad Haziq Bin Hamaly Yady, Siti Aliyah Binti Mohd Saleh

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Abstract

In our society, ensuring accessibility and inclusivity, especially for those with disabilities, is crucial. A significant challenge is the scarcity of accessible parking. Leveraging IoT technologies, this report focuses on creating a disabled-friendly parking system with sensors and a Camera controlled by Esp32-CAM and Arduino UNO. The system aims to detect available parking spaces in real-time and ensure compliance with disabled parking regulations. Additionally, it includes displaying parking availability and controlling a motorized mechanism for those with mobility challenges. The data would also be sent to the database and App. Implementation of this system not only addresses the challenge of finding accessible parking but also contributes to a more inclusive and convenient society.

Keywords

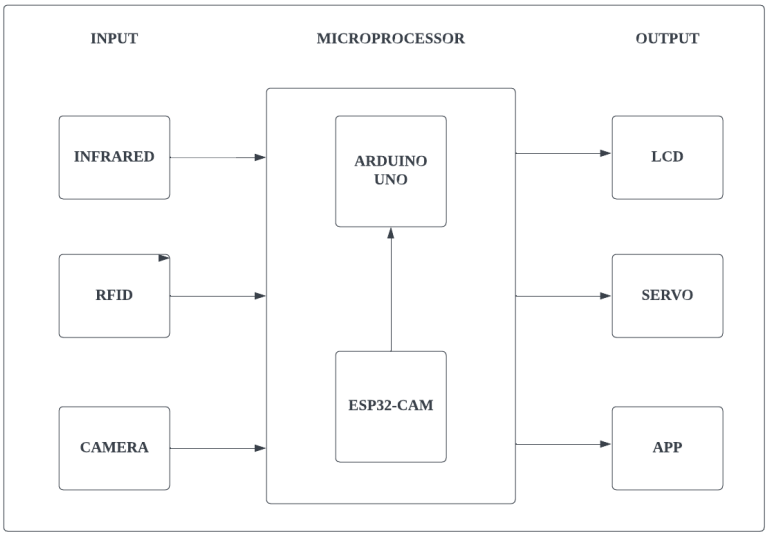
IoT, Arduino UNO, Esp32-CAM, App, Camera

Product Description

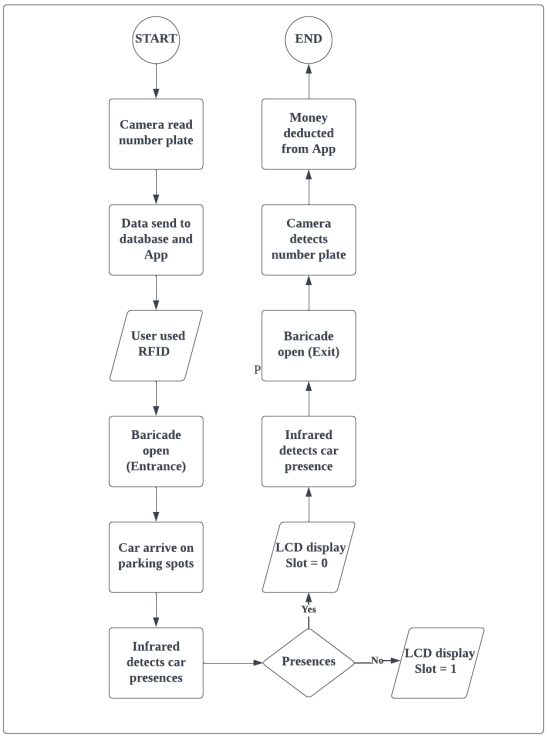
In this system, RFID technology is harnessed to facilitate the effortless opening of the barricade, with control exerted by an entrance servo motor. Following this, the Esp32-CAM captures the vehicle's number plate and promptly dispatches the information to a central database for storage and processing. As vehicles enter designated parking spots, an LCD screen dynamically displays the real-time availability of each parking space, utilizing an infrared sensor. Simultaneously, the infrared sensor detects the presence of a car, ensuring accurate occupancy information. This seamless integration allows for the automated opening of the exit barricade, enhancing the overall efficiency of the system. The entire operation is orchestrated by an Arduino UNO, providing centralized control and coordination.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs etc.

BLOCK DIAGRAM



FLOWCHART



Member Biographical Data

Born on November 7th, 2003, in Shah Alam, Selangor, Muhammad Azhad Haziq bin Hamaly Yady is actively engaged in a pursuit of knowledge, currently immersed in a diploma program for Electrical Engineering at University Technology MARA. Currently navigating the intricacies of his fifth semester, He demonstrates a keen interest in the expansive and versatile realm of electrical engineering. His academic journey has been complemented by hands-on experience in app development and Arduino programming, showcasing his commitment to honing practical skills alongside theoretical knowledge. He is drawn to electrical engineering not only for its broad scope but also for the diverse skill set it offers and the myriad career paths it opens.

Siti Aliyah Mohd Saleh has a master's degree in engineering (Applied Science) from Tokai University, Japan (2012). She is currently serving as a lecturer at University Technology MARA (UiTM), working in the Power department of Electrical Engineering Studies. Her research interests include high voltage technology and power system.

32. INTELLIGENT STICK WITH ULTRASONIC SENSOR AND WIFI MODULE

Muhammad Danish Bin Sham, Madam Siti Sufiah Binti Abd Wahid,

Madam Masmaria Binti Abdul Majid

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

Intelligent stick with iot for disability a set of systems and processes for helping the disability people through its life due to their visual impairment, they have severe mobility and navigational issues. Independent travel is challenging because of the risks posed by environmental obstacles and hazards. Their mobility and safety may be compromised by uneven surfaces, construction zones, and impediments. The main objectives of this project are to design intelligent stick with iot that can give information about the objects in public places using Arduino Nano as its microcontroller and develop in the mobile app and Internet of Thing (IoT) technology to help mobility for disability person. This report aims to design a Intelligent Stick with Iot for disability that been combined with o microcontroller-based Arduino Nano board and connected to ultrasonic sensor which function to measure any obstacles in front the person and give an alert sound using buzzer. Then, the location of the person will be given to the apps by using the GPS module to let the family to know the current location in case of any emergency.

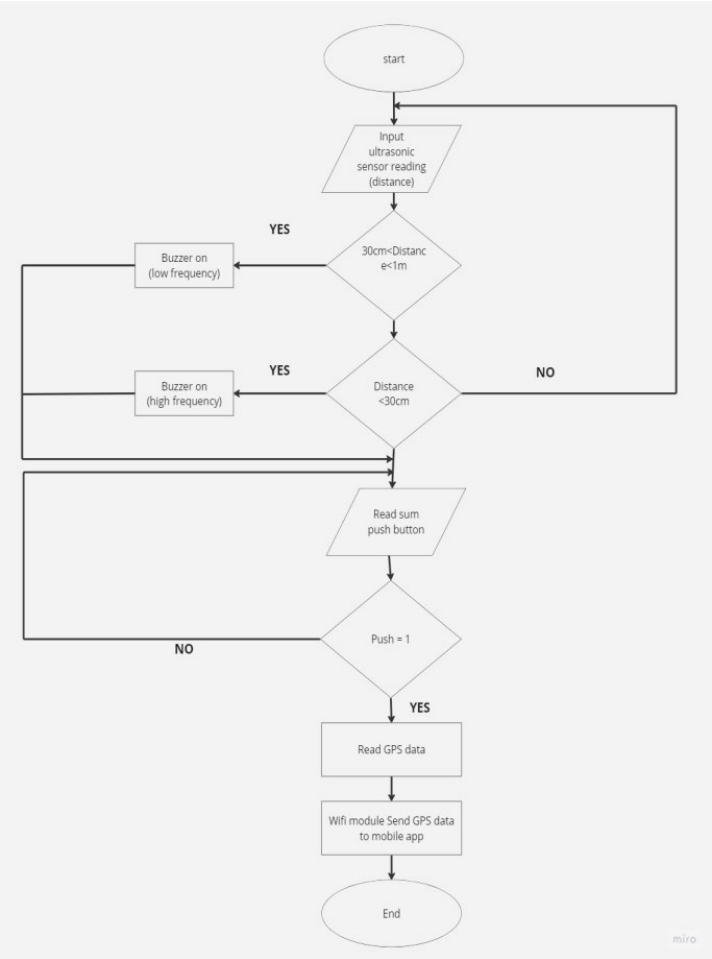
Keywords

Intelligent stick, Arduino Nano, GPS Module, Disability, Environmental obstacles, IoT (internet of things)

Product Description

This project consists of combining an ultrasonic sensor and GPS module. This study creates a revolutionary tool that redefines mobility support for individuals with severe navigational challenges and visual impairment. This innovative device detects obstacles using an ultrasonic sensor. Then, it employs an integrated buzzer to quickly alert users with clear auditory cues, enabling them to safely avoid any hazards. The GPS module offers real-time geolocation tracking and is readily integrated. With a companion smartphone app, users can allow trusted friends to keep an eye on their whereabouts and offer prompt aid if necessary. This compact and ergonomic gadget, which combines comfort and functionality, puts safety first while enhancing mobility. It can provide those who are overcoming mobility challenges due to vision impairment a sense of confidence and freedom.

Photo/ Schematic Diagrams/ Flow Charts/Screenshots/Graphs And Etc.



Flowchart of this project

Member Biographical Data

Muhammad Danish bin Sham, an ambitious semester 5th student pursuing diploma Engineering Electrical (Power) at UiTM Pasir Gudang. His quest has brought him to the peak of his undergraduate experience for the complex realm of electrical systems. “Intelligent Stick with Ultrasonic Sensor and Wi-Fi Module,” project has been choose to advancing knowledge in the field of electrical engineering. He was born on March 30, 2003, and during the past several years, he has focused on developing a strong foundation in fundamental areas including control systems, electronics, and circuit theory. As his undergraduate career concludes, he thinks back on the challenges overcome, the wisdom acquired, and the invaluable support from friends and supervisor. He is excited about the opportunities and difficulties that the discipline of electrical engineering will present.

Siti Sufiah bte Abd Wahid joined UiTM in June 2014 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering. She obtained his Bachelor of Electrical Engineering and MSc. In Electrical Engineering (Power) from Universiti Teknologi Malaysia. Currently, she serves as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in the Power Department. Her main research interests are clean energy and power systems.

Masmaria received B.Eng in Electrical Engineering from Universiti Teknologi MARA (UiTM) in 2006 and M. Eng in Electrical (Mechatronic and Automation Control) from Universiti Teknologi Malaysia (UTM) in 2011. She is currently a lecturer of Electrical Engineering Studies, College of Engineering at UiTM Branch Johor Pasir Gudang Campus.

33. DRIVING UNDER THE INFLUENCE(DUI) DETECTION SYSTEM

Muhammad Dzikri Bin Faizal, Mastura Omar

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Abstract

This paper presents the development of an innovative detection system designed to identify drivers under the influence of alcohol. Utilizing an Arduino microcontroller as its core, the system integrates both alcohol and infrared sensors to accurately ascertain the presence of alcohol within the vehicle's environment. Upon detection of alcohol levels above a predetermined threshold, the system initiates a dual warning mechanism: visually through flashing LED lights, and audibly via a buzzer. Additionally, it incorporates a GSM module for communication, enabling it to send automated text message alerts to a predefined contact, thereby facilitating immediate intervention. This proactive approach aims to significantly enhance road safety by offering real-time alerts of potential impaired driving incidents, thereby contributing to the reduction of alcohol-related vehicular accidents.

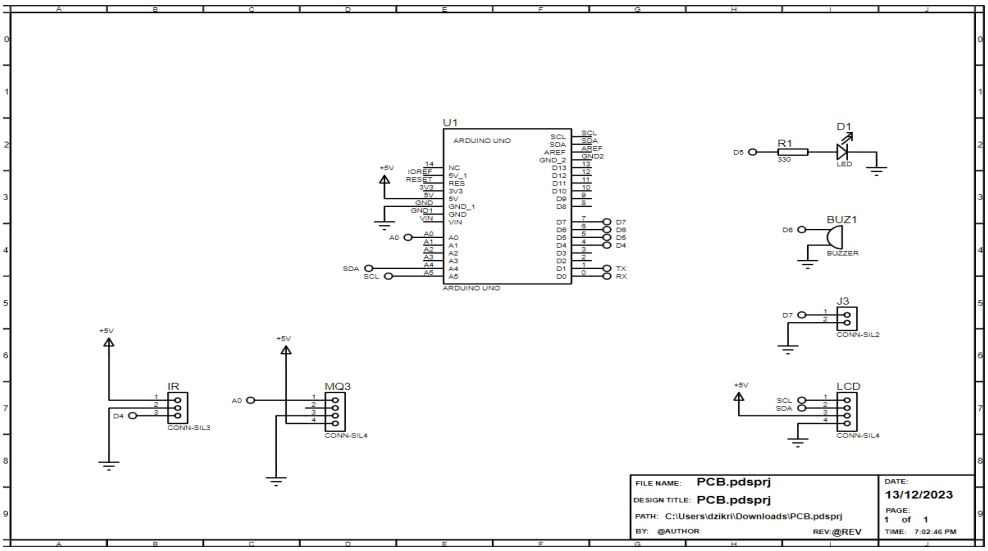
Keywords

Driving Under the Influence Detection System, Alcohol sensor (MQ3), Visual and audible warnings, GSM integration, Real-time SMS notifications, Road safety

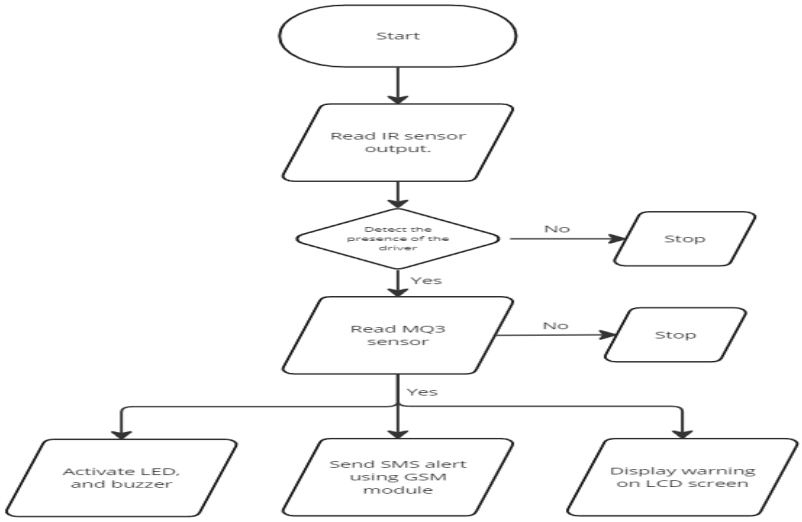
Product Description

This project introduces a Driving Under the Influence Detection System designed to address the critical issue of impaired driving. The system employs an Arduino microcontroller interfaced with alcohol (MQ3) and infrared (IR) sensors for accurate detection of alcohol levels within a vehicle. The IR sensor serves the crucial function of detecting the presence of the driver within the vehicle. This feature ensures that the visual and audible warnings, triggered by the MQ3 sensor upon detecting alcohol levels, activate only when both alcohol presence and the presence of the driver are confirmed. By combining the inputs from the IR and MQ3 sensors, the system effectively distinguishes between potential DUI scenarios and instances where alcohol is present without the driver being in control, adding an extra layer of precision to its functionality. Upon detecting alcohol, the system activates visual and audible warnings through LEDs and a buzzer, and it further integrates a GSM module to send real-time SMS notifications to a pre-defined recipient, alerting them to the potential instance of driving under the influence (DUI). The hardware configuration includes an Arduino board, alcohol sensor, IR sensor, LEDs, a buzzer, and a GSM module. The alcohol and IR sensors provide precise readings, allowing the system to differentiate between ambient alcohol levels and potential DUI scenarios. The Arduino continuously monitors sensor outputs and triggers warnings when alcohol is detected within the vehicle. The GSM module facilitates communication by sending SMS notifications to a designated phone number, ensuring that relevant authorities or individuals are promptly informed about the potential DUI situation. The system also incorporates a Liquid Crystal Display (LCD) for a user-friendly interface, displaying warnings when alcohol is detected. This Driving Under the Influence Detection System serves as a crucial tool for enhancing road safety by providing real-time alerts about potential DUI incidents. The integration of GSM technology extends the system's reach, making it an effective solution for promoting responsible driving behaviour and preventing accidents related to alcohol impairment.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Schematic diagram of this project



Flowchart of this project

Member Biographical Data

Muhammad Dzikri Bin Faizal is a dedicated student and currently pursuing Diploma in Electrical Engineering at Universiti Teknologi Mara (UiTM). His academic journey is marked by a commitment to excel in both theory and practical applications. Notable is his creation of a Driving Under the Influence Detection System, showcasing technical skills and innovation. Dzikri aspires to address real-world issues, reflecting a proactive approach to learning. Currently focused on excelling in his diploma, he aims for both academic success and graduation with honors, highlighting his determination and ambition in the field.

Mastura Omar is a dedicated Senior Lecturer in the Electronics Department at the School of Electrical Engineering, College of Engineering, UiTM Pasir Gudang. She holds a Bachelor of Engineering in Electrical and Electronics from Universiti Teknologi Petronas and a Master of Science in Microelectronics from Universiti Kebangsaan Malaysia. With over 10 years of experience in academia, Mastura specializes in Electronics System Design, blending her extensive knowledge with a passion for teaching and research.

34. EARTHQUAKE MONITORING AND ALERTING SYSTEM WITH VIBRATION SENSOR AND PIR

Muhammad Faiz Bin Mokhtar, Dr. Rijalul Fahmi Bin Mustapa

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Abstract

This project aims to design an earthquake monitoring and alerting system using an Arduino Microcontroller. The system addresses the crucial problem of the lack of earthquake detection and alert systems in buildings in Malaysia. By integrating vibration sensors and Passive Infrared (IR) sensors, the system can effectively detect seismic activity and changes in infrared radiation emitted by humans or objects. The microcontroller processes the sensor data and triggers various output devices such as a buzzer, LED, and LCD display. The buzzer provides audible alerts, the LED offers visible alerts through flashing lights or color changes, and the LCD displays detailed earthquake information, including vibration magnitude. The significance of this study lies in its contribution to enhancing earthquake preparedness and response efforts in Malaysia. By implementing an earthquake monitoring and alerting system, the safety of building and occupants can be improved, and timely information can be provided to authorities, emergency responders, and the general public

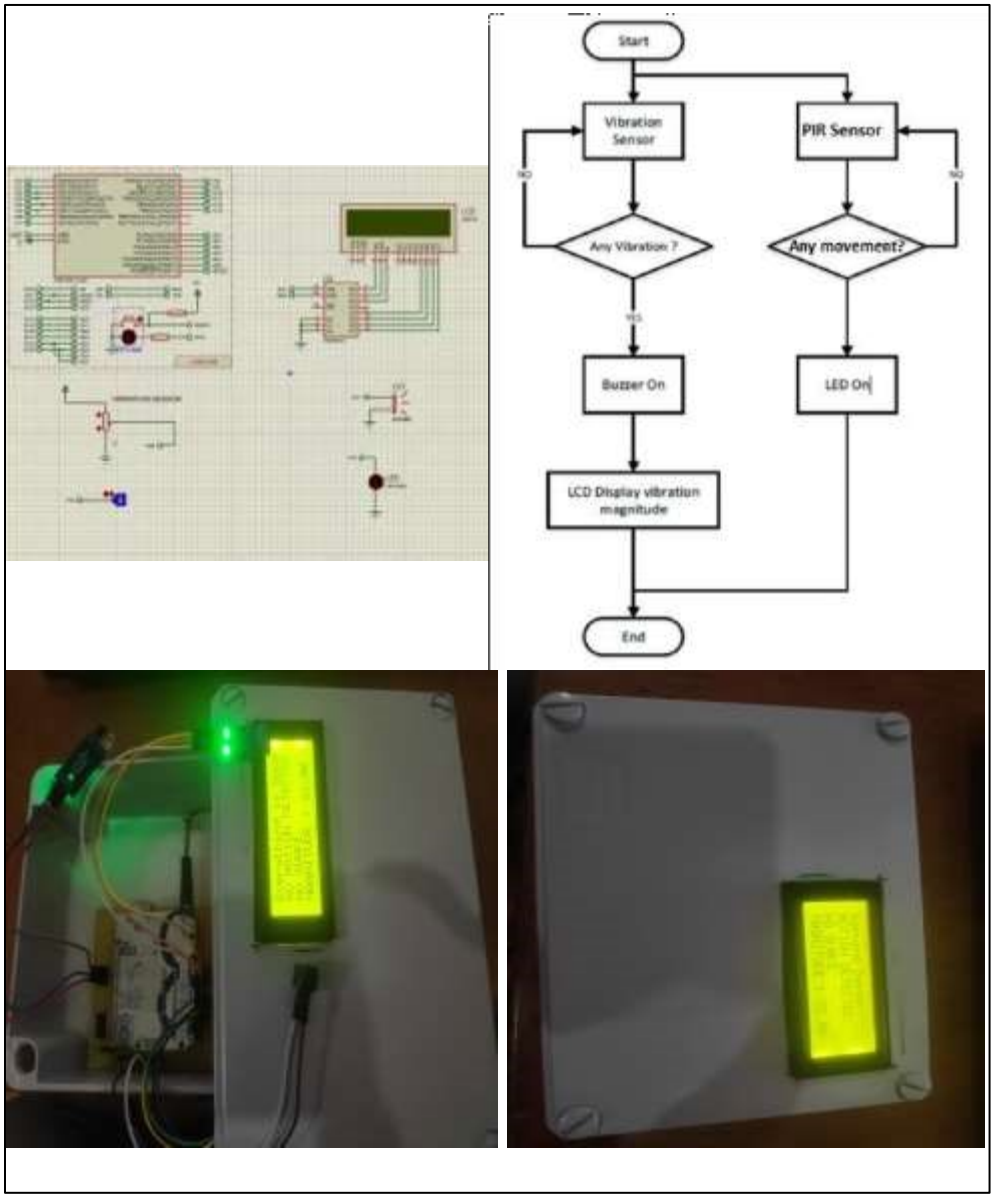
Keywords

Earthquake, LED, IR, Arduino Uno, Malaysia

Product Description

An sophisticated WiFi module, like the ESP8266, is added to improve the seismic monitoring and alerting system. For the purpose of enabling data transmission and remote communication, the WiFi module is essential. The WiFi module is set up to connect to a network as soon as the vibration sensor detects seismic activity. It then sends real-time data to a specified server or cloud platform, including timestamps and vibration magnitude. Centralized data analysis and effective monitoring are made possible by this connection. The WiFi module is also used to create warnings in the case of strong seismic activity, guaranteeing prompt notice to pertinent parties. To ensure dependable and ongoing system performance, the module constantly checks the WiFi connection and makes an attempt to rejoin if needed. The system's capabilities are improved by this thorough integration, which enables data analysis, alerting, and remote monitoring in earthquake scenarios.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Faiz bin Mokhtar is a student of Electrical Engineering(Electronic) at UITM PASIR GUDANG, in almost three years I've been here, i got 1st runner up two times for the futsal that is in 2022 and 2023 for the Sukan Kolej Uitm, I got 2nd runner up for the volleyball in 2022 for the Sukan Kolej Uitm. My hobbies are playing futsal, volleyball, badminton, and playing video games.

Rijalul Fahmi Mustapa is a senior lecturer in UiTM Pasir Gudang. He graduated from UiTM Shah Alam in Electrical Engineering. He posses a professional certificate as a measurement and verification and a certified energy anager. His current interest in research is energy consumption prediction and baseline energy modelling.

35. NATURAL DISASTER MITIGATION SYSTEM WITH AN IOT BASED TTGO T-CALL V1.3 ESP32 WIRELESS MODULE MICROCONTROLLER

Muhammad Fareez Asyraf Istas Fahrurrazi, Fazlinashatul Suhaidah Zahid

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Abstract

The Natural Disaster Mitigation System in Malaysia uses the TTGO T-CALL V1.3 ESP32 microcontroller for better monitoring. It gathers data from sensors like accelerometers and ultrasonic devices, sending it to an HTTP server for analysis. The system employs the ESP32-WROVER-B microcontroller with the LAMP stack (Linux, Apache, MySQL, PHP) for monitoring and response. The prototype includes sensors, LEDs, buzzers, and an LCD display, programmed using Arduino IDE. The approach involves collecting sensors data, making decisions, triggering alarms, and sending data via HTTP. The goal is continuous monitoring, accurate anomaly detection, and prompt alerts, supported by the robust data management of the LAMP stack.

Keywords

ESP32-WROVER-B, LAMP, mitigation system, IoT, Arduino

Product Description

- Compact Design:

Streamlined one-layer PCB design for space efficiency.

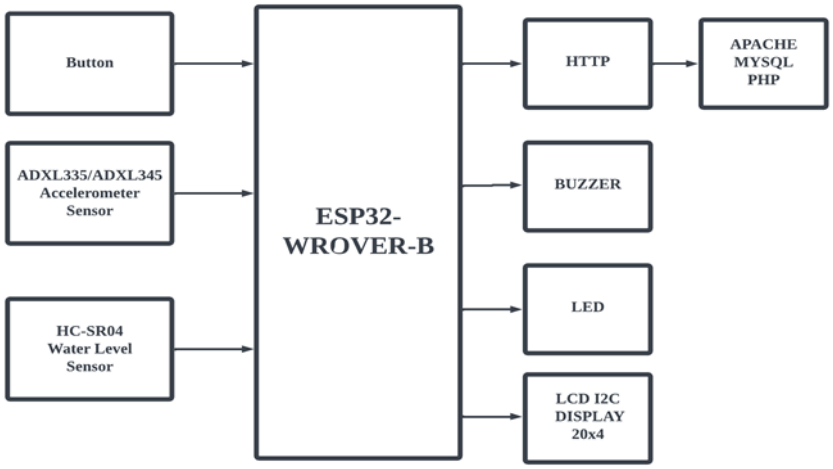
- User-Friendly Programming:

Programmed using Arduino IDE/Clion for easy customization.

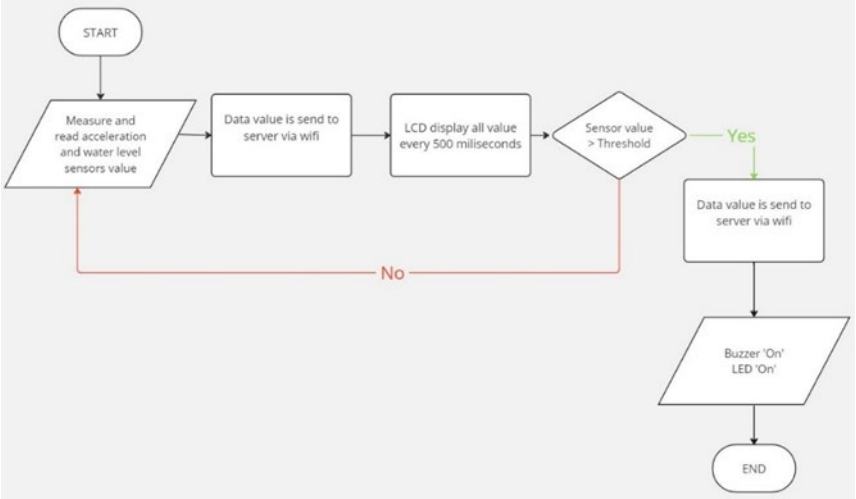
- Versatility:

Suitable for various disaster scenarios (floods, earthquakes)

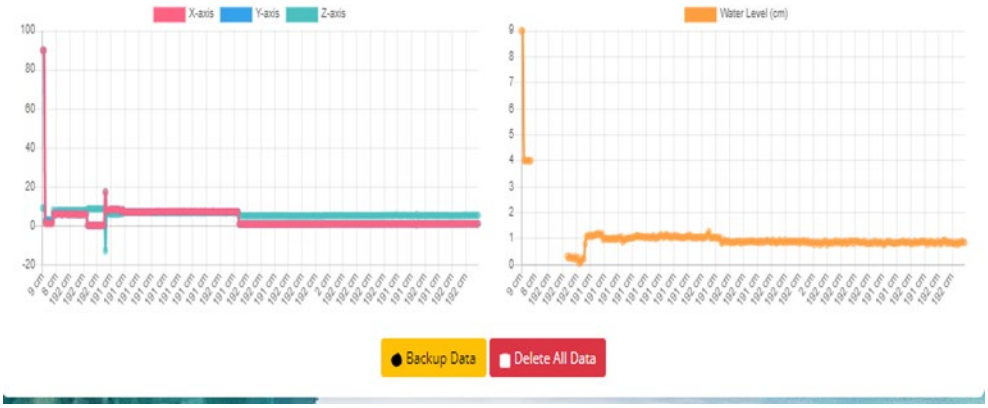
Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Block Diagram



General Flow chart



Data Analysis / Graph of XYZ and water level

Member Biographical Data

Muhammad Fareez Asyraf Istas Fahrurrazi is a UiTM Electrical Engineering (Electronic) Diploma student graduating in late 2024 with a CGPA (up to 4th Semester) of 3.61. Proficient in Multisim and Proteus, he excels in electronic circuit design, demonstrated through projects like the Natural Disaster Mitigation System using the TTGO T-Call V1.3 ESP32. As an active member of extracurricular clubs, including UiTM Electrical Engineering and Student Legacy of Islamic Centre, Fareez, fluent in Malay and English, is poised to contribute his skills and passion to the electronics field upon graduation.

Fazlinashatul Suhaidah Zahid is a practice lecturer and researcher with 7+ years of experience teaching courses on undergraduates' level. Her research group focuses on the fabrication and integration of dimensional materials particularly graphene, carbon-nanotube (CNT) and other 2D materials into humidity sensor and organic solar cell applications as well as polymer nanocomposites.

36. FREELLET: TOLLING AND CASHLESS E-WALLET INTEGRATION

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Abstract

An effective toll system is essential for a country's transportation infrastructure because it provides the funds necessary for constructing and maintaining the highways. However, there are differences in user behaviors due to the lack of standardization in different lanes and the inconsistent use of smart cards, Radio Frequency Identification (RFiD) and account reload system for cashless transactions at toll plazas may results in traffic congestion. This study presents Automatic License Plate Recognition (ALPR) at toll plaza as solution using ESP32 equipped with onboard camera and Wi-Fi module. Furthermore, the study introduces centralized account reloading system using MySQL, Express.js and Android app. The study utilizes multiple Integrated Development Environment (IDE) such as PlatformIO for embedded system development, Android Studio for android app development, WebStorm for account reloading system, and PyCharm for ALPR processing. The hardware input for this system consists of a camera module on ESP32, Infrared sensor and software input such as top up account and license plate registering system. The hardware output is servo motor, Liquid Crystal Display (LCD) and Neo-pixel LED. In addition, the software output is account balance inquiry. The problems brought on by a lack of standardization can be solved by implementing the proposed system. However, it might be challenging to accurately capture license plates with cameras. Thus, adding QR-code as a backup option in the future greatly improves the system's overall effectiveness.

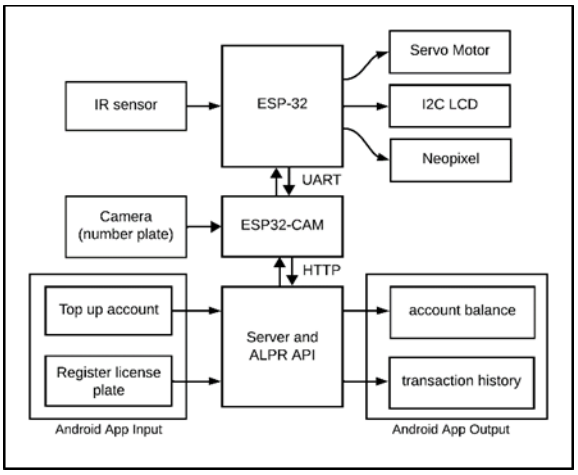
Keywords

Toll, Camera, Automatic License Plate Recognition (ALPR) MySQL, Express.js, E-wallet, Android App

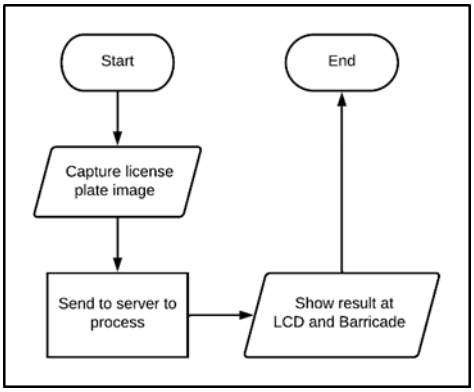
Product Description

ESP32 and ESP32-CAM are used and connected using UART communication. ESP32-CAM utilize to capture and send image to the server while ESP32 control the barrier system in such displaying error message or success message on LCD, control neo-pixel behavior, and optimized camera capture by only capture image only and only if there is vehicle obstructed in front infrared sensor. This significantly reduces CPU usage and internet bandwidth to the server. Furthermore, e-wallet system implements in this product to connect user capture license plate with user account to make cashless system. The e-wallet system consists of a payment system, account reload system, transaction history, login and register account. The data collected and registered are stored in MySQL database with help of JavaScript HTTP framework, Express.js.

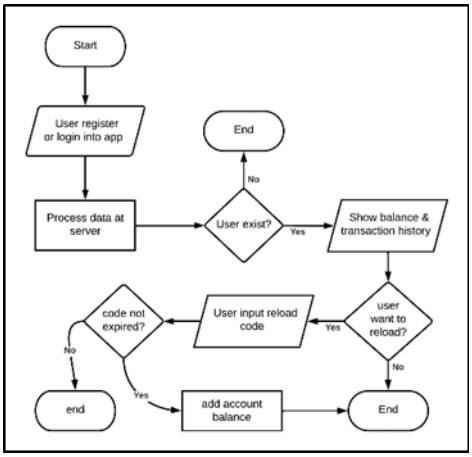
Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Block Diagram



Flowchart hardware



Flowchart Software

Member Biographical Data

Muhammad Farez Amirul currently persuading diploma in electrical engineering (electronic) at Universiti Teknologi MARA (UiTM) Pasir Gudang branch. He expected to graduate with his diploma in the year 2024. He is skilled in android development, backend development, embedded system using Arduino framework and knowledgeable in database management (MySQL).

Noor Hafizah Khairul Anuar received the B. Eng in Electrical Telecommunication from Universiti Teknologi Malaysia (UTM) in 2008 and M. Sc in Electrical Telecommunication Engineering and Information Technology from Universiti Teknologi MARA (UiTM) in 2012. She is currently pursuing her Ph.D. in Electrical Engineering at Universiti Teknologi Malaysia (UTM) in sensor development, instrumentation, and machine learning. She is a lecturer at the Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA, Johor.

37. E-ZDEY PETROL PUMP PAYMENT SYSTEM VIA NFC MODULE

Muhammad Faris Izdihar Bin Abdul Aziz, Hanunah Binti Othman

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Abstract

The landscape of petrol payment systems worldwide is undergoing drastically changes, with increasing focus on security, efficiency, and user convenience. This project introduces an E-zdey Petrol Pump Payment System, leveraging Near Field Communication (NFC) technology and an integrated hardware-software approach. The primary goals of this project are to design a prototype for a contactless fuel pump payment system that incorporates hardware components like the ESP32, PN532 NFC Module, Infrared Sensor, and YF-S401 water sensor, and to develop a mobile application that uses NFC technology to facilitate a safe and seamless fuel pump payments system. The methodology unfolds in two parts including the hardware implementation by involving the assembly of the ESP32-based hardware components, and the development of an Android-based application to complement the system. The seamless interaction between the hardware and the app forms the backbone of this innovative payment system. With the E-zdey application system, users can use their smartphone to make contactless payments using their e-wallet, which also stores all the required data, including balance, transaction history, and payment method layout. The input port is utilized by an infrared sensor, a water flow sensor, a push button, an NFC module, and E-zdey apps. Users need to select the value into their E-zdey app and select whether to refuel in Ringgit Malaysia (RM) or Liters. The anticipated benefits of this project extend beyond immediate security and efficiency enhancements. Future recommendations include widespread adoption of NFC-enabled petrol pump systems, contributing to a more secure and streamlined fuel transaction experience.

Keywords

Near Field Communication (NFC) module, petrol pump payment, contactless, efficiency, e-wallet

Product Description

The breakthrough in hardware integration of this project is ESP32 microcontroller, it features an IR sensor for vehicle detection, a switch for user interaction to the motor for fuel dispensing. Water flow sensor will measure the flow rate of the fuel and display it on the LCD. The PN532 NFC module ensures secure and contactless payments, while a water flow sensor and buzzer contribute real-time feedback. Following the E-ZDEY apps, the system leverages a robust MySQL database and a responsive server to ensure efficient and secure data management. NFC technology is used to communicate between the E-ZDEY apps and ESP32. Near Field Communication (NFC) facilitates short-range wireless communication between devices, enabling secure and efficient data exchange. This compact and innovative hardware ensemble promises to redefine and streamline the petrol payment experience.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.

Figure 1: Project Prototype

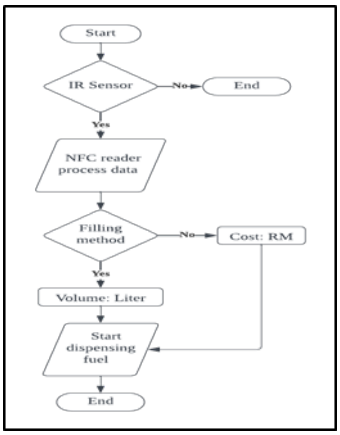

Figure 2: Block Diagram

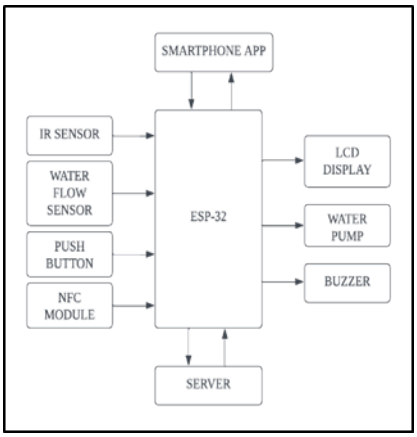

Figure 3: Flow Chart

Members Biographical Data

Muhammad Faris Izdihar bin Abdul Aziz is born in Negeri Sembilan on 23rd August 2003. He is currently pursuing a Diploma in Electrical Engineering (Electronics) at UiTM Pasir Gudang, Johor. His educational journey at UiTM Pasir Gudang has equipped him with a strong foundation in electrical engineering. With a passion for innovation and commitment to continuous learning, he aspires to contribute signifacntly to the field of electrical engineering and emerge as a app's developer. He excels in teamwork and is recognized for his skills as an app developer.

Hanunah Binti Othman graduated from Universiti Kebangsaan Malaysia (UKM), Bangi, Selangor, with a Bachelor of Electrical (Hons) in Electrical Electronic and System Engineering and a Master of Engineering (Communication and Computer Engineering). Formally worked as a lecturer in Electrical Engineering Studies (PKE), Universiti Teknologi MARA (UiTM) at Shah Alam Campus from year 2000 to 2014. She is currently employed with the Communication Engineering Department at PKE, UiTM Pasir Gudang Campus. She has taught over ten courses. Her areas of expertise include Mobile and Wireless Communication System, Privacy in Mobile Location-Based Services (LBS), Trusted Computing and Circuit Theories and Analysis.

38. STADIUM SEASON PASS ACCESS SYSTEM

Muhammad Fikri Haziq Bin Mohd Shukri, Dr Nor Diyana Bt Md Sin

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

This project aims to design an stadium season pass access system using Arduino Microcontroller. The system addresses the crucial problem of the lack of shortcoming in the system of entering the audience into the stadium which takes a long time By integrating motion sensors, the system can effectively detect the person when they want to get into the stadium. The microcontroller processes the sensor data and triggers various output devices such as a buzzer, LED, and LCD display. The buzzer provides audible alerts, the LED offers visible alerts through flashing lights or color changes, and the LCD displays detailed how many people get into the stadium. The importance of this study lies in its contribution to improving efforts to speed up the entry of fans into the stadium. By implementing a detection system, the speed of entering the audience into the stadium can be increased, and reduce human effort to stand for a long time to wait for the turn to enter the stadium.

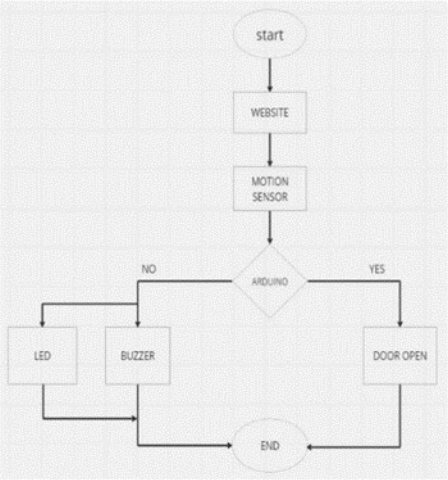
Keywords

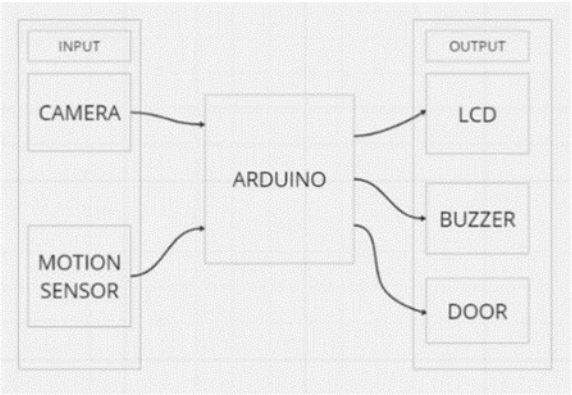
Stadium, Time, Person, Season Pass, Arduino

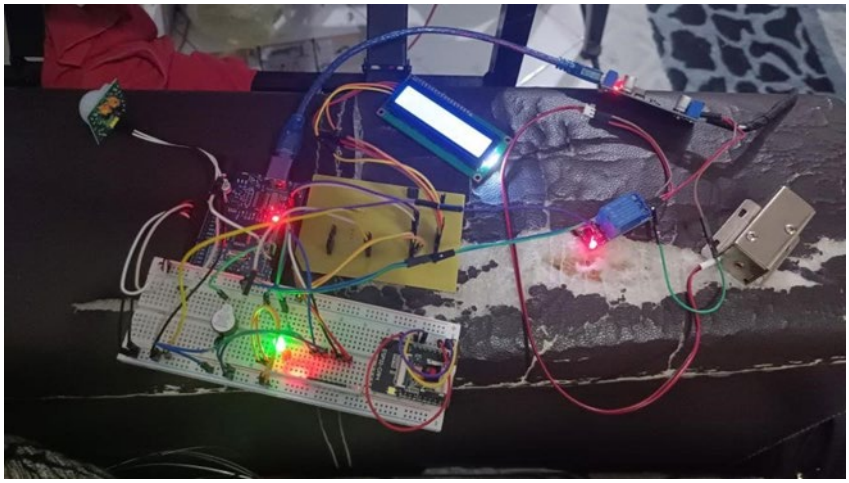
Product Description

The goal of this project is to provide a face-ID-based stadium season pass access system that opens doors. A laptop or personal computer, an esp32 camera, an Arduino Uno, an RFID tag and reader, and an LCD 12c were the main tools used in the design of a prototype that was intended to show whether or not the user was logged in.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.







Member Biographical Data

Muhammad Fikri Haziq Bin Mohd Shukri is a student of Electrical Engineering (Electronic) at UiTM Pasir Gudang . Studying control system and plc in process industry, etc is currently building project for instant stadium season pass access system

Nor Diyana Md Sin is a senior lecturer in the Faculty of Electrical Engineering of the Universiti Teknologi MARA (UiTM), Malaysia. She received her PhD in Electrical Engineering (Nanoelectronics) from the Universiti Teknologi MARA (UiTM), Malaysia in 2014. She earned her degree in in Electrical Engineering with honors from Universiti Teknologi MARA (UiTM). Her research interest are in the area of sensor, metal oxide semiconductors, nanotechnology and nanodevices.

39. AUTOMATED FOREST FIRE MONITORING SYSTEM VIA IOT TECHNOLOGY

Muhammad Firdaus Bin Suhaimi , Dr Zakariah Bin Yusuf

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2021205068@student.uitm.edu.my, zakariahyusuf@uitm.edu.my

Abstract

The main issue of this work is to establish essential safety precautions to prevent accidents, particularly focusing on the critical aspect of forest fire prevention. In addition, the installation of smoke and gas leak detectors, known for their environmental benefits, plays a crucial role. The primary goal is to analyze data acquired from soil, gas, and temperature sensors to promptly issue real-time alerts, specifically addressing the potential threat of forest fires. This project uses an ESP32 microcontroller to design a smart forest fire monitoring system via Internet of Things technology. The primary inputs used in this project is to measure the environmental conditions which are soil, temperature, and gas sensors. Regarding the output, an ESP32 is used to mimic an LCD screen that is used to monitor the environment in real time and an LED that alerts users to situations within the monitored area of the environment. By simulating the real-time data processing, people can assess the system's ability to reliably detect fires, lower false alarms, and promptly notify any significant parties in the area. Regarding the future work, in order to guarantee dependable and prompt data transmission from remote forest locations, the monitoring system's communication infrastructure can be upgraded by incorporating new technologies like wireless mesh networks or satellite communications.

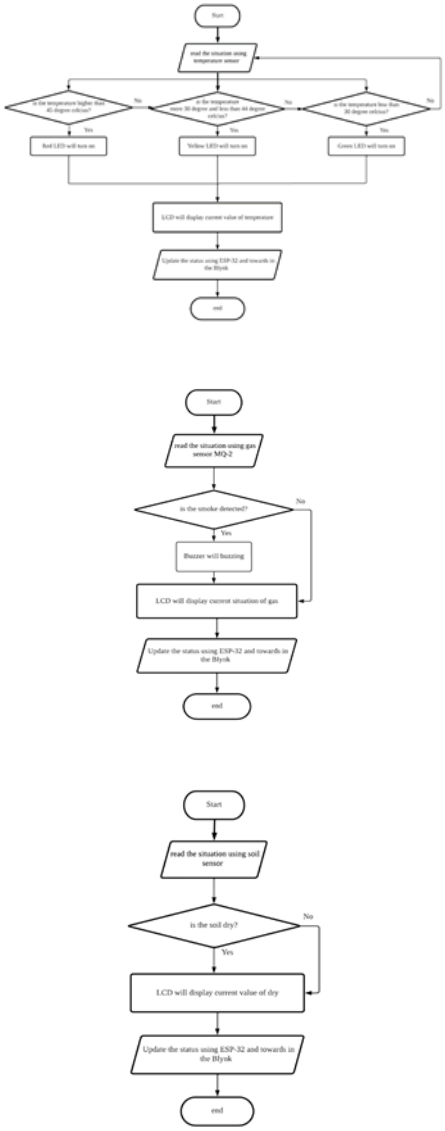
Keywords

Forest fire, gas sensor, Microcontroller, temperature, humidity,

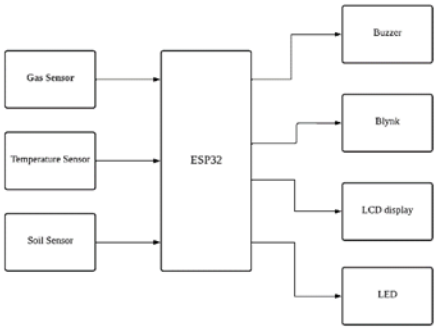
Product Description

An innovative project called Forest Fire Monitoring System via IoT Technology uses real-time environmental monitoring to lessen the effects of forest fires. By incorporating sensors for temperature, humidity, gas, and soil, the system uses ESP32 microcontrollers to gather data and send it to a central server. Users can view and analyse data on their mobile devices by utilising the Blynk app for IoT integration. The project's primary goal is early detection, which it achieves by using methods to evaluate environmental conditions and set off an automated alert system for the appropriate communities and authorities. This system provides a comprehensive solution for timely intervention, fostering the protection of essential forest ecosystems, with a focus on power efficiency and thorough testing.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Flowchart of this project



Block Diagram of the project

Member Biographical Data

Muhammad Firdaus Bin Suhaimi, an excellent 5th semester student at UiTM Pasir Gudang who is pursuing a diploma in engineering electrical (electronic). The path has brought himself to the peak of an undergraduate experience because of himself unwavering curiosity for innovation and passion for the complex world of electrical systems. The spirit of academic career is captured in the final year project, Automated Forest Fire monitoring system Via IoT Technology, which demonstrates all of the dedication to advancing the field of Electrical Engineering knowledge.

Zakariah Yusuf presently serves as a lecturer at the School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA (UiTM) Cawangan Johor, Kampus Pasir Gudang. He earned his Diploma, Degree, and Masters in Electrical Engineering from UiTM Shah Alam in 2004, 2008, and 2012, respectively. In 2018, he successfully completed his Ph.D. in Electrical Engineering with a focus on Control Systems at Universiti Teknologi Malaysia (UTM). With a decade of professional experience, he has gained expertise in diverse industries, including process control engineering, automotive, and power system project management

40. FIRE ALARM SYSTEM WITH REAL-TIME MONITORING AND ALERT SYSTEM USING IOT

Muhammad Habib Bin Shaharuddin, Dr. Atiqah Hamizah Binti Mohd Nordin

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Abstract

This project presents the fire alarm system with integration of Internet of Things (IoT) technology which has fire detection and alert mechanisms. By utilizing IoT sensors, wireless connectivity, and cloud-based platforms, the suggested system seeks to improve conventional fire detection techniques and offer quick and precise fire detection, instantaneous notifications, and remote monitoring. A variety of sensors, including temperature and fire detectors, are included into the system architecture and are positioned strategically across the monitored area. These sensors collect data continually and use wireless networks to send it to a central IoT hub. The simulation was also performed prior to the hardware development which successfully demonstrate the output of the system using Proteus. Besides that, the hardware prototype successfully operates accordingly in detecting the fire and alarming the occurrence of fire.

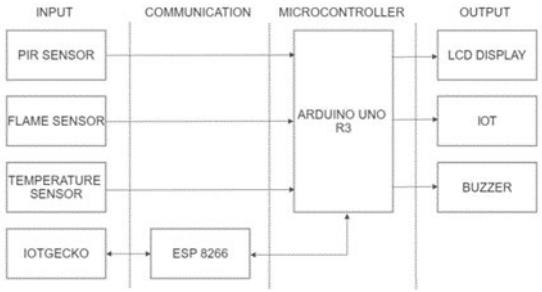
Keywords

Fire alarm, Arduino Uno, temperature, fire detectors, IoT (internet of things)

Product Description

This project represents a paradigm-shifting attempt to go beyond traditional fire alarm systems through the integration of Internet of Things (IoT) connectivity with Arduino-based sensors. The system consists of a number of sensors, including temperature, fire, and passive infrared (PIR), which are all expertly combined with output elements like an LCD display, LED indicators, and a buzzer to form a comprehensive ecosystem for fire alerts.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Flowchart of this project

Member Biographical Data

Muhammad Habib bin Shaharuddin is a committed fifth-semester student at UiTM Pasir Gudang who is pursuing a diploma in Engineering Electrical (Electronic). His pursuit of invention and passion for the intricate world of electrical systems have led him to the pinnacle of his undergraduate experience. His final project, "Fire Alarm System with Real-Time Monitoring and Alert System using IoT," captures the essence of her academic career and shows his commitment to expanding electrical engineering expertise. Born on October 10th, 2003, he has spent the last few years concentrating on building a solid foundation in core subjects like circuit theory, electronics, and control systems.

As his time as an undergraduate draw to an end, he considers the difficulties topped, the knowledge gained, and the priceless assistance from friends and a supervisor. More than merely a final project, his senior project demonstrates his dedication to lifelong learning and his preparation for a position that will allow him to put the skills he's learned from this project to use. He is excited to use the skills she developed for her senior project to make a big difference in the rapidly developing industries of innovation and technology.

Dr Atiqah Hamizah binti Mohd Nordin received her Ph.D in electrical engineering on life cycle assessment of photovoltaic system from UiTM Shah Alam. Her research interest is towards sustainable and responsible transition to cleaner energy system. She currently serves as a senior lecturer at Electrical Engineering Studies UiTM Johor Pasir Gudang Campus.

41. W.A.T.H MONITORING SYSTEM WITH WEB-BASED APPLICATION

Muhammad Hadi Bin Azlee, Hanunah Binti Othman

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Abstract

Currently, few devices have been proposed that can monitor real-time weather, air quality, temperature, and humidity at different locations, but most of the existing tools monitor different types of conditions at different times. A similar concept requires as all-in-one notification system that provides a smaller device to provide users with more convenient and easy-to-use tools. In addition, lesser-known devices can display real-time environmental conditions without the need for expensive dedicated equipment. Therefore, this project will focus on developing a prototype that can monitor weather, air quality, temperature, and humidity (WATH) index in real time. This prototype is intended to collect data on various parameters such as temperature, humidity, light intensity, raindrops, and air quality. The system includes a web-based application that allows users to monitor weather and atmospheric conditions via electronic devices such as computers and smartphones. The sensors used in this project are DHT11 for temperature and humidity sensor, raindrop sensor and MQ-135 for air quality sensor. The development of this project is to contribute to society by providing weather, air quality, temperature, and humidity (WATH) conditions level through web-based applications. It can help to notify and alert the users due to the high-risk situation of the affected area by displaying a ranking of high risk to low-risk locations. Even though there are a few websites have been provided, the existing website's interface needs to be improved by applying more CSS and JAVA language into the website to add more visuality to the website. This project has 2 parts including the hardware and software parts. For hardware part, the monitoring system can be seen from the output in the hardware, which is LEDs for level of air quality, buzzer to alert the users and I2C LCD for weather monitoring and all measurements value from the sensors. For software part, monitoring system can be seen in website through internet web browser such as Google Chrome.

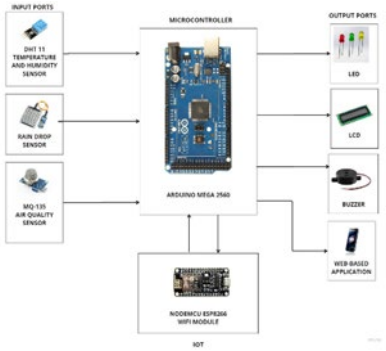
Keywords

weather monitoring, air quality, Arduino Mega 2560, ESP8266, web-based application

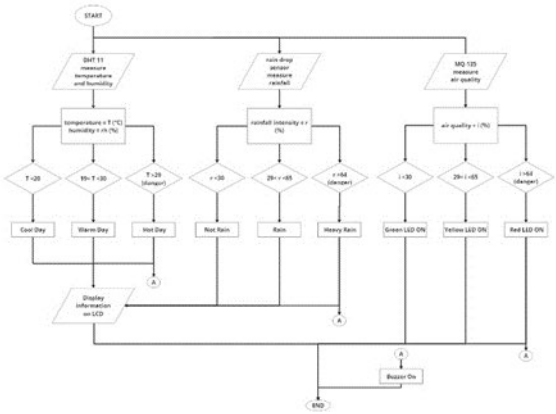
Product Description

W.A.T.H monitoring system is a merging component of MQ-135, DHT11, and raindrop sensors seamlessly integrated with an Arduino Mega 2560. This dynamic system delivers real-time insights into air quality, temperature, humidity levels, and rain status through a multi-output display featuring a buzzer, three colour LEDs, and an LCD screen. The ESP8266 facilitates data transmission to a dedicated website, offering remote access to live updates and historical records stored in a secure MySQL database. Experience the epitome of smart living as our system empowers you with the knowledge to make informed decisions about your surroundings, ensuring a healthier and safer environment.

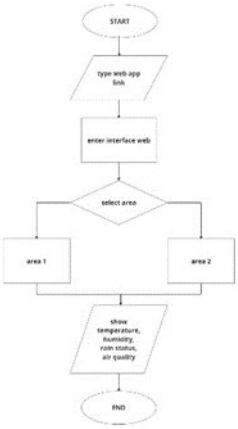
Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



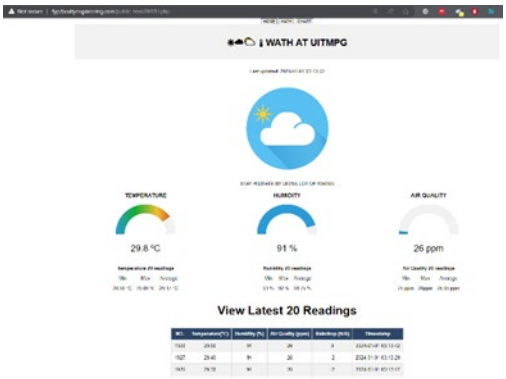
Block Diagram



Hardware Flowchart



Website Flowchart



Website Interface

Member Biographical Data

Muhammad Hadi bin Azlee is born in Johor Bahru, Johor. He is pursuing a diploma of Electrical Engineering Studies (PKE) and majoring in Electrical Electronic (CEEE111), UiTM Pasir Gudang, Johor. He got 3.45 CGPA up to 4th Semester. Proficient in C language during first Semester, he tries to learn more another programming language but end up expanding his knowledge in web development by learning HTML, CSS, and PHP languages. Therefore, he tries to use his knowledge for Final Year Project to produce a monitoring system with his own created web-based application.

Hanunah Binti Othman graduated from Universiti Kebangsaan Malaysia (UKM), Bangi, Selangor, with a Bachelor (Hons) in Electrical, Electronic and System Engineering and a Master of Engineering (Communication and Computer Engineering). Formally worked as a lecturer in Electrical Engineering Studies (PKE), Universiti Teknologi MARA (UiTM) at Shah Alam Campus from year 2000 to 2014. She is currently employed with the Communication Engineering Department at PKE, UiTM Johor, Pasir Gudang Campus. She has taught over ten courses. Her areas of expertise include Mobile and Wireless Communication System, Privacy in Mobile Location-Based Services (LBS) and Circuit Theories & Analysis.

Norlina Mohd Zain received the B.Eng in Electrical Engineering from Universiti Teknologi MARA (UiTM) in 2010 and M.Sc in Electrical Telecommunication Engineering and Information Technology from Universiti Teknologi MARA (UiTM) in 2012. She is currently pursuing her Ph.D. in Electrical Engineering at Universiti Teknologi MARA (UiTM) Shah Alam in the field of flexible materials for microwave application (Flexible Antenna). She is a lecturer at the Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA (UiTM) Caw. Johor Kampus Pasir Gudang.

42. CONVENIENT FIRE ALARM SYSTEM WITH BLYNK NOTIFICATION

Muhammad Hafiz bin Ramle,Dr Khairul Kamarudin bin Hasan

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Abstract

In order to warn people before a fire completely consumes their homes, fire alarm systems are crucial. But in order to install fire alarm systems nowadays, a lot of wiring and labour is needed.Therefore,this project targets to create an IoT based wireless fire alarm system that makes the user find it easy to use. This system uses an Arduino Uno microcontroller to communicate with an infrared flame sensor, which continuously detects the environment to look for fire.This project are using flame sensor and gas sensor as the inputs and LCD along with buzzer as the outputs for this project.Wi-Fi module(ESP32) used as a platform to connect user to get them notified from their gadgets if there's presence of fire at the area.

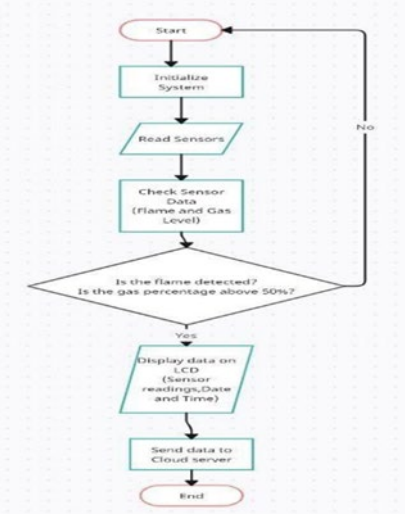
Keywords

Arduino Uno,IoT,Wifi-module,Fire alarm system.

Product Description

The Fire Alarm System with IoT Notification project's main objective was to transform fire safety protocols by combining state-of-the-art technology with proactive detection and quick reaction mechanisms. The goal of this project was to build an intelligent system that could use advanced sensors to identify possible fire threats and make use of the Internet of Things (IoT) to send instantaneous notifications to specified user devices. The objective was to improve safety by enabling timely response during fire emergencies by delivering real-time notifications, irrespective of the user's location, through the seamless integration of IoT technology with fire detection systems. The project aimed to establish a new benchmark for fire safety, stressing the value of using creative solutions to reduce risks and guarantee quick reactions.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Hafiz bin Ramle is a third-year student at the Universiti Teknologi Mara Johor Branch College of Engineering,which is located on the Pasir Gudang Campus.He is majoring in Electrical Engineering(Electronic).He expected to be graduate with his diploma in the year 2024.

Khairul Kamarudin Hasan is currently working with School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA Cawangan Johor, Kampus Pasir Gudang, Malaysia. He received the B. Eng in Electronic Engineering (Electronic Industrial) in 2012, the Msc. Eng degree in Electronic Engineering (System), in 2014 and Ph. D degree in Electronic Engineering from Technical University Malaysia Malacca in 2021. His research interest Wireless Power Transfer, Power Electronic, Control system and Drive.

43. AUTOMATIC CLEANING SYSTEM FOR CEILING FAN BLADE

Muhammad Hafiz Hakimi Bin Zaidi, Mrs. Norbaiti Binti Sidik

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Abstract

Ceiling fans are used in both home and business settings, and they provide energy-efficient air circulation. The collection of dust on fan blades, on the other hand, is not just an aesthetic issue but also a significant health danger. This study offers an innovative Automatic Cleaning System for Ceiling Fan Blade. The system employs sensor technology to detect dust on the blades and triggers a robotic cleaning mechanism when necessary. Experimental results demonstrate the effectiveness of the automatic cleaning system in maintaining cleaner fan blades and improving indoor air quality. This automated solution not only reduces the manual effort required for fan maintenance but also contributes to a healthier and more comfortable living or working environment. The proposed the system presents a promising advancement in home automation technology, addressing a common issue while promoting energy efficiency and user convenience.

Keywords

Automatic cleaning system, ceiling fan maintenance, dust detection, user-friendly interface, indoor air quality

Product Description

Elevate your home maintenance routine with the next evolution in fan care. Designed for hassle-free cleaning, this automatic cleaning system ensures your ceiling fan blades stay pristine without manual effort. The system combines cutting-edge technology with user-friendly features, making it a must-have for those who value efficiency and cleanliness.

Key Features

Intelligent Dust Sensing:

The cleaning system features sensors that detect dust levels on your ceiling fan blades, ensuring cleaning is only initiated when necessary.

Automated Cleaning Mechanism:

Enjoy hands-free fan maintenance as the automatic cleaning system activates an advanced cleaning mechanism. Motorized brushes gently and efficiently remove dust, leaving your fan blades spotless.

Benefits:

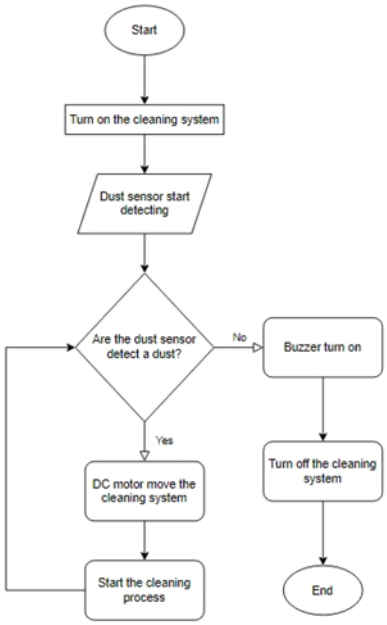
Time-Saving Convenience:

Enjoy more free time as the cleaning system handles fan maintenance autonomously, eliminating the need for manual cleaning sessions.

Healthier Living Spaces:

Contribute to a healthier home environment by reducing dust circulation, promoting better indoor air quality for you and your loved ones

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Hafiz Hakimi bin Zaidi was born in Johor, Malaysia, where he developed a deep appreciation for precision and attention to detail from an early age. Hafiz is currently pursuing his diploma in electrical engineering major in electronics at Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus. Hafiz pursued his education with a focus on engineering, driven by a natural curiosity about how things work. This curiosity led him to discover his knack for design and problem-solving. With an innate talent for translating ideas into reality, Hafiz polished his skills in AutoCAD, dedicating a year to learning about the software. Hafiz finds balance in his life through a passion for sports. Whether on the field or court, he dedicates his free time to playing various sports, fostering teamwork, discipline, and a healthy, active lifestyle. As he continues to evolve both personally and professionally, he remains committed to pushing the boundaries of innovation.

Mrs. Norbaiti Binti Sidik was born in Kedah Darul Aman. Her studies continued in Universiti Kebangsaan Malaysia in Bandar Baru Bangi Selangor right after completed 1 year Science Matriculation Certificate in Pusat Matrikulasi Sains, Ipoh Perak in 1995. She graduated her Bachelor Engineering Degree in Electrical, Electronics and System within 3 years from Universiti Kebangsaan Malaysia and she successfully completed Master Engineering Degree in Communication and Computer also from the same university in 2002. She is very committed, passionate, and dedicated in education line who is now a senior lecturer and having experienced more than 10 years in teaching & learning and lecturing in Faculty of Electrical Engineering, Universiti Teknologi MARA, Cawangan Johor Kampus Pasir Gudang, Johor Darul Takzim.

44. HYGIENIC RELAXATION AIR QUALITY PURIFIER MONITOR

Muhammad Haikal Bin Zulkifli, Masmaria Binti Abd Majid

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Abstract

With the advancement of technologies, many contemporary infrastructures and industries are being developed these days to keep up with the growth of technology and the economy. However, as pollution is increasing significantly each year, particularly in the air sector, this innovation has backfired on humanity. Asthma, lung cancer, heart disease, and an increased risk of developing chronic respiratory disease are just a few of the illnesses and diseases that can be contracted by inhaling toxic gases released into the air by factories and harmful fumes from moving vehicles on the road. On the other hand, as technology and science evolve, we can develop and design a smart tool capable of checking the quality of the air in our vicinity and purifying it with the right procedure. As it title name suggests, this project scans and monitors the composition of the surrounding air and display it at Liquid Crystal Display (LCD) screen.

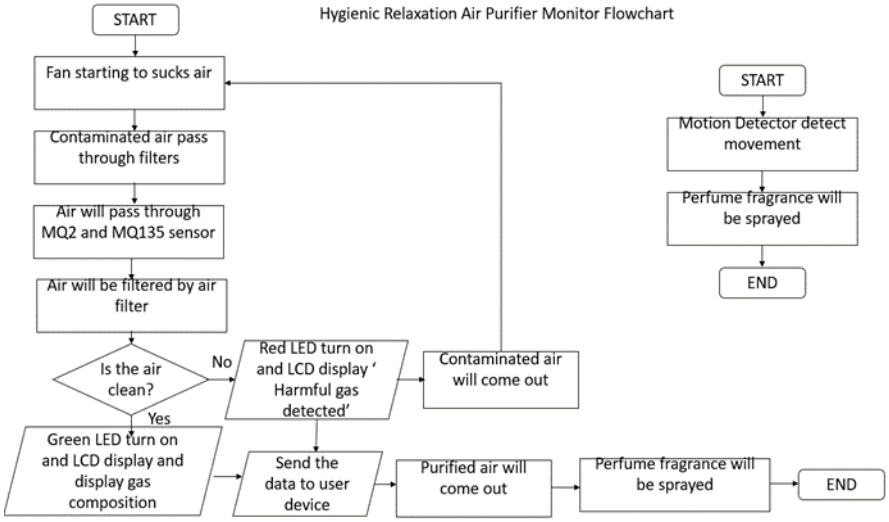
Keywords

ESP32, Blynk, Temperature and Humidifier Sensor (DHT22), Gas sensor, Humidifier Module.

Product Description

The "Hygienic Relaxation Air Purifier" is an innovative and advanced device designed to enhance indoor air quality, providing a clean and refreshing atmosphere for relaxation and well-being. It displays precise temperature and humidity of the surrounding air and can be visualized at the Blynk IOT App. In addition of temperature and humidity, it also has gas composition sensing feature so the user aware of harmful gas around the air. It also offers a good aromatic fragrance when one come near it. This cutting-edge device combines state-of-the-art air purification technology with a sleek, user-friendly design to create the ultimate atmosphere of tranquility in your own living space.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Haikal Bin Zulkifli, a current Diploma student in Electrical Engineering (Electronic) at UiTM Johor, specializes in Electronics and is undertaking innovative research for his Final Year Project: Hygienic Relaxation Air Purifier Monitor. He envisions this project as a solution to make sure the air quality around the air ensured for future generation. Beyond this, his ambition is to pursue a higher education in Electrical Engineering (Electronic), majoring in Electronics, driven by a passion for innovation and technology to better himself more in knowledge of Electronic Engineering

Masmaria received B.Eng in Electrical Engineering from Universiti Teknologi MARA (UiTM) in 2006 and M. Eng in Electrical (Mechatronic and Automation Control) from Universiti Teknologi Malaysia (UTM) in 2011. She is currently a lecturer of Electrical Engineering Studies, College of Engineering at UiTM Branch Johor Pasir Gudang Campus.

45. STORAGE BOX FOR CAMERA AND ELECTRICAL DEVICE

Muhammad Hanif Faisal Zaimi Husni, Ts. Dr Siti Aminah Nordin

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Abstract

Cameras are one of the most expensive electronic devices and some people use it as a major source of income. Therefore, they must be kept carefully. Most of the newgeneration camera is not really durable and the greatest enemy of a camera are high humidity level. Other than that, because of high prices even for second-hand cameras and lenses. These items are mostly will be stolen or robbed. With the emergence of the computational era, the old storage box can be improved by using IoT such as Arduino and ESP32. In the current scenario, IoT is considered an active research area for safety features. This study proposed a safety storage box using IoT technology. There will be 2 aims for this study. Which is hardware development that consists of DHT11 sensor to monitor the humidity, a Keypad for password, RFID for faster access, and a buzzer. While the second part is to alert the box owner if the box is getting vibration meaning it moved using mobile approach. Thus, this system will reduce the risk of cameras getting robbed or infected with fungus.

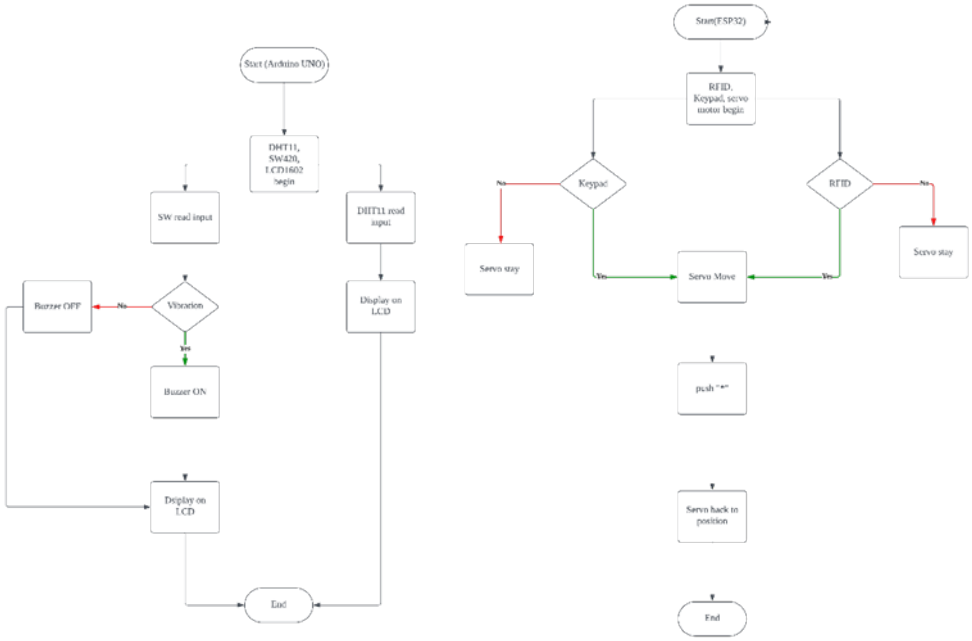
Keywords

ESP32, Camera, Storage Box, Electronic Device and Humidity

Product Description

A box that can be used to store electronic and optical devices such as camera. The box contain keypad, RFID, servo motor and esp32 as the security purpose while for monitoring purpose it uses SW420, DHT11, LCD1602 and Arduino uno. The box selling points are 2 ways to open the box. Therefore, the user can use either way to unlock it based on the situation such as when the owner is alone, he can enter pin normally but when there is other people around, he might need to use RFID card to keep the pin only to himself. Other than that, the box can also monitor humidity to let people know the condition inside the box. As we know, electronic device can be a bit too sensitive toward humidity. Then, the last point is it can detect vibration when someone try to force it open.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Hanif Faisal Zaimi Husni is a diploma level of electrical engineering major in electronic system and has been enrolled in UiTM Pasir Gudang. He is interested in photography and wanted to ease his photography journey. He can be reached via email at haniffaisal2003@gmail.com. He has intermediate level of coding skill and can help others. Furthermore, he can also do some circuit designing.

Siti Aminah Nordin is a distinguished senior lecturer currently affiliated with UiTM Pasir Gudang. She earned both her master's and Ph.D. degrees in Electrical Engineering from UiTM Shah Alam in 2014 and 2022, respectively, showcasing her commitment to academic excellence. With a specialized focus in the realm of Electrical Engineering, her research interests are notably centered around microwave filters, antennas, and electromagnetic wave area. Her academic journey and expertise reflect a deep dedication to advancing knowledge and contributing to the field, particularly in areas crucial to modern communication and technology. She can be contacted at email: sitia181@uitm.edu.my.

46. INNOVATIVE ENHANCE PARKING WITH SECURITY SYSTEM

Muhammad Harraz Bin Mohd Azizi, Dr. Muhammad Asraf Bin Hairuddin

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2021203426@student.uitm.edu.my, masraf@staf.uitm.edu.my

Abstract

In the contemporary era of technological advancements, a wide array of complex products has greatly facilitated the daily routines of small-scale traders. However, despite these significant progressions, there remains a segment of individuals, particularly the older generation, who consistently stick to traditional practices, especially in Malaysia's culinary domain. They prioritize the preservation of the authentic and original flavors inherent in traditional dishes. Consequently, this preference demands a considerable investment of time and effort, making it increasingly difficult for them to sustain the preparation of these customary foods, particularly given the inclination of younger individuals towards more convenient alternatives. In light of this situation, introducing a project that focuses on developing an automated coconut milk squeezer becomes necessary. This device aims to extract coconut milk from grated coconuts while upholding the same level of quality as achieved through traditional methods. To ensure affordability and accessibility, the project proposes the utilization of a readily available microcontroller, such as the Arduino Nano. The automated coconut milk squeezer will use a linear actuator motor will apply pressure on the grated coconut, which has been mixed with water, within a designated area, resulting in the extraction of coconut milk. This innovation is specifically designed to provide to the needs of small-scale sellers and individuals seeking a convenient solution, enabling them to produce coconut milk that maintains the traditional method's authenticity, flavor, and quality. In essence, this project actions to bridge the gap between traditional practices and modern convenience, ensuring that the unique culinary legacy of Malaysia is preserved while simultaneously enhancing efficiency and ease of use for all investors involved.

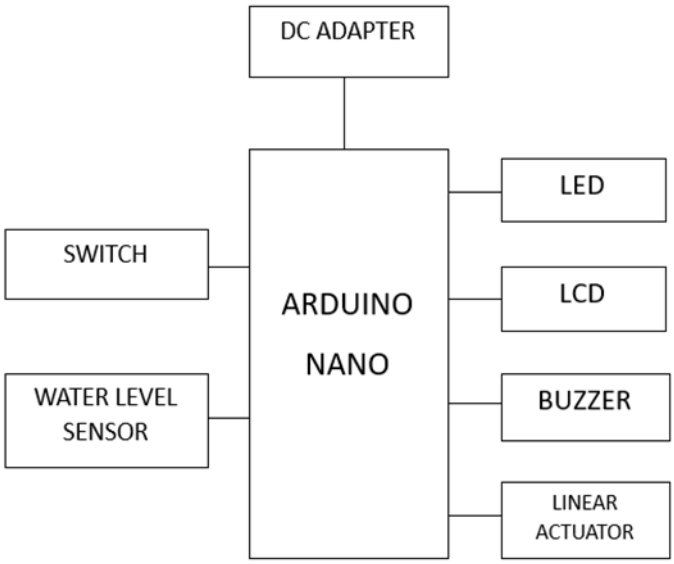
Keywords

Automated coconut milk squeezer, coconut milk, technological advancement, sustain culinary legacy, affordable and accessible

Product Description

A portable semi-automated Coconut Squeezer is designed to produce coconut milk. This system features a switch to operate the device. The water level sensor included in this project detects a certain level of coconut milk to automatically stop. Additionally, a buzzer and LED are installed in this project as indicators to show that the squeezing process is underway; the LED will turn on, and a buzzer will buzz for a set time. An LCD is also included to display whether the coconut is ready or not. Additionally, linear actuators are included, responsible for squeezing the grated coconut to become coconut milk. A DC adaptor is used to supply power to this project.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Harraz bin Mohd Azizi is currently a final year student pursuing his diploma in Electrical Engineering at Universiti Teknologi MARA (Uitm) Pasir Gudang kampus cawangan johor. Upon completing his diploma, he planned to continue his study in degree in the engineering field. Finally, his dream to become a certified and successful engineer

Muhammad Asraf Hairuddin senior lecturer at the Centre for Electrical Engineering Studies, Universiti Teknologi MARA, Johor Branch, Pasir Gudang Campus. He graduated with a diploma, degree, and a Ph.D. from the Universiti Teknologi MARA in Shah Alam. His research interests include Image Processing, Artificial Intelligence, Deep Learning, and Process Control.

47. AUTOMATIC BREWING MACHINE WITH MULTI OPTIONS OF BEVERAGES

Muhammad Hazman Bin Abdul Aziz, Muhammad Zairil Bin Muhammad Nor

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MARA Johor Branch, Pasir Gudang Campus

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Abstract

This report presents the prototype design and simulation for "Automatic Brewing Machine with Multi Options of Beverages". The objective of the project is to develop a fully functional automatic brewing machine with two options of beverage. The methodology involves the integration of mechanical and electrical circuit designs, with the system driven by an ESP32 microcontroller. The components include in the system is Push button, hopper built using recycle water bottle, servo motor, one for control encloser of the hopper and other to move the location of direct current motor for mixing process, and vibration motor which to cause the powder flow out from the hopper. For the system to sense nonelectrical energy, such as weight, load cell HX711 will be used to measure the weight of powder being poured and to detect a cup is in the required location. The option of beverage being choose from user will be receive by push button. This project contributes to the advancement of automated brewing technologies, improving efficiency and enhancing the quality of life through timesaving and automate brewing processes.

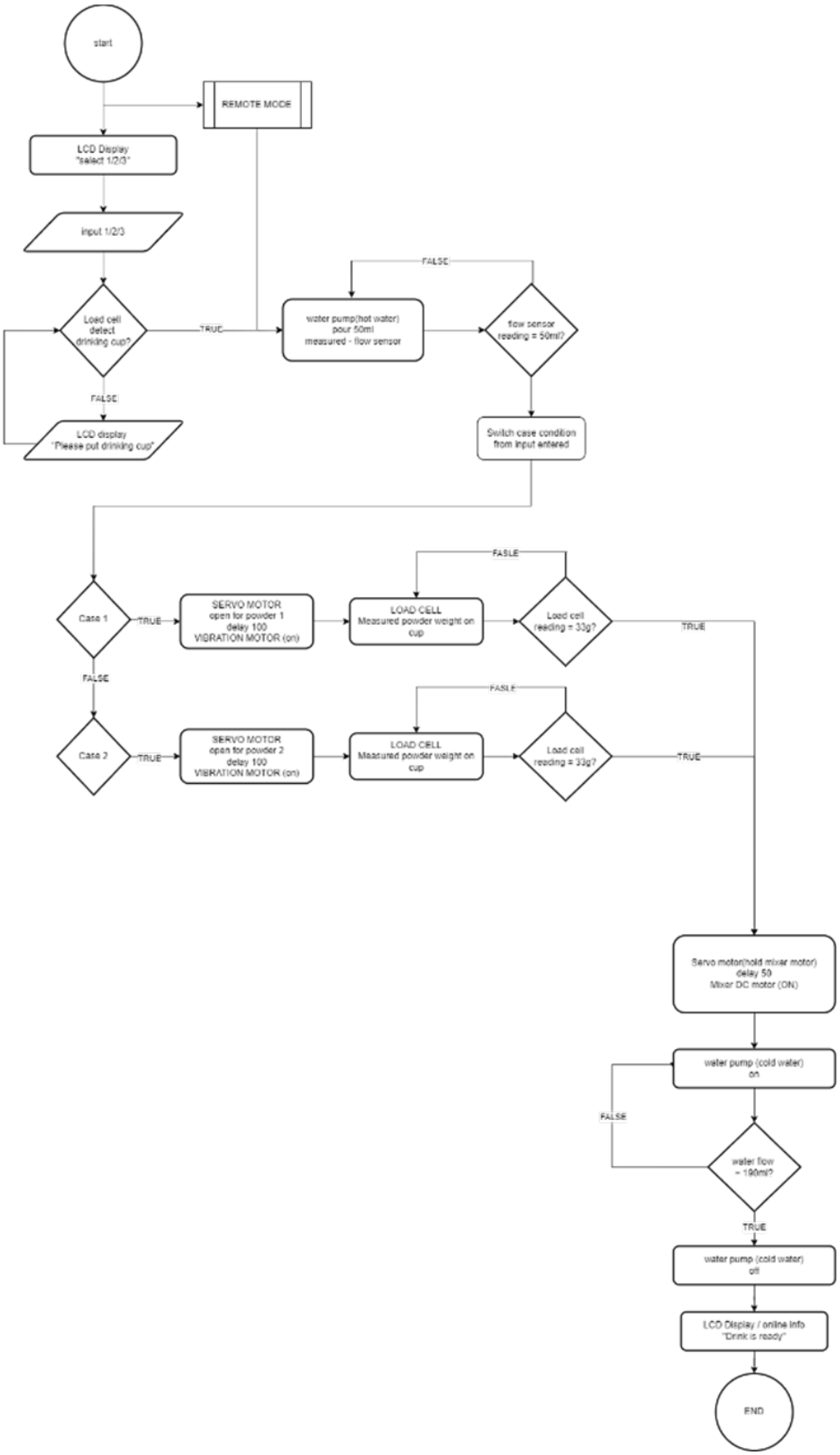
Keywords

Automatic Brewing Machine, ESP32 Microcontroller, Multi Options of Beverages, Mechanical and Electrical Integration, Load Cell HX711

Product Description

This product intended to automate the brewing process with multi option of drinks by using ESP32 equipped with LCD display, mixer dc motor, two servo motor, weight sensor loadcell HX711 and DS18B20 temperature sensor.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

M. Hazman Abdul Aziz currently pursuing diploma in electrical electronic engineering at Universiti Teknologi Malaysia (UiTM) kampus Pasir Gudang.

M. Zairil M. Nor received the bachelor's degree in electrical engineering (telecommunication) from Universiti Teknologi Malaysia (UTM), Skudai, in 2009, and the M.Sc. degree in electrical engineering also from Universiti Teknologi Malaysia (UTM), Skudai, in 2013. He is a lecturer in UiTM Johor, Pasir Gudang Campus and currently pursuing their Doctoral Degree (PhD) in Wireless Communication Centre. He has published more than 15 journal papers and technical proceedings on smart antenna systems, microwave devices, and reconfigurable antenna in national and international journals and conferences. His research interest includes smart antenna on communication systems.

48. MULTI-PURPOSE REMOTE AC DEVICE CONTROLLER

Muhammad Ilman Danish Bin Mohd Hanafi, Ts. Shakira Azeehan Binti Azli

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Abstract

The purpose of the Multi-purpose Remote AC Device Controller project is to modernize the way people use and control their AC devices by leveraging advanced technology. This report represents the prototype design and simulation for the 'Multi-Purpose Remote AC Device Controller.' The objective of this project is to develop a working prototype of a multipurpose remote AC device controller using an ESP32 microcontroller, incorporating inputs such as an IR sensor, touch sensor, potentiometer, and mobile devices. The outputs will include an OLED display, a relay, and AC devices. Additionally, the goal is to enable control of the AC devices via IoT by connecting the ESP32 to a web-based platform. The methodology centers on creating a unified system with the ESP32 and sensors, followed by thorough testing to guarantee an effective remote AC device controller. In conclusion, the Multi-Purpose Remote AC Device Controller project aims to revolutionize AC device control through advanced technology, emphasizing the integration of the ESP32 microcontroller with various sensors and a web-based platform for enhanced efficiency and user interaction.

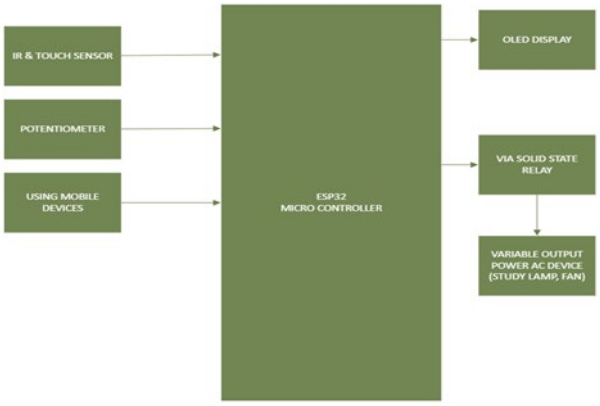
Keywords

ESP32 Microcontroller, IoT-enabled web interface, IR and Touch Sensor, Energy Savings.

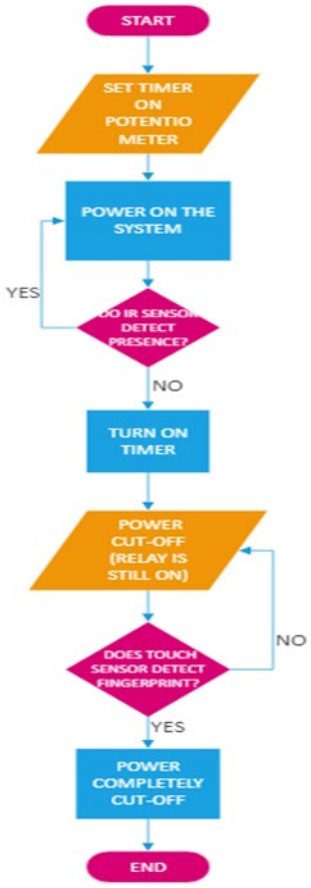
Product description

The Multi-purpose Remote AC Device Controller project aims to modernize AC device control using the ESP32 microcontroller, IoT-enabled web interface, IR sensor, touch sensor, and potentiometer. Users can set device run times with the potentiometer, and the built-in IR sensor detects movement, turning on devices when needed and off when idle. A touch sensor provides a quick off option. This innovation conserves energy, enhances user comfort, and contributes to the growth of smart home technology. In summary, it combines smart tech, energy savings, and user-friendliness for a tech-savvy, eco-friendly future.

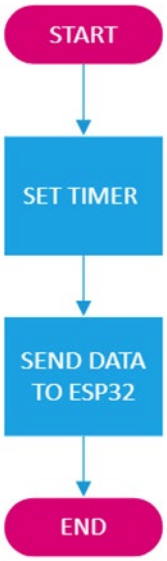
Photo/ Schematic



Block Diagram



Flowchart for analog controller



Flowchart for Iot web-based platform

Member Biographical Data

Muhammad Ilman Danish bin Mohd Hanafi, an Electrical Engineering (Electronic) Diploma student at UiTM, is set to graduate in late 2024 with a notable CGPA of 3.55. Proficient in LtSpice, Matlab, and Multisim, he has excelled in projects like the Multi-Purpose Remote AC Device Controller using ESP32. Active in the UiTM Electrical Engineering Club, I-MAS Theatre Club as Audio Manager, and Taekwondo Club, Ilman's diverse skills and bilingual proficiency in Malay and English position him well for a promising career in the electronics industry post-graduation.

Ts. SHAKIRA AZEEHAN BINTI AZLI

Msc (Electrical Engineering-Power), B.Eng (Hons) Electrical Engineering and Diploma in Power Electrical Engineering from Universiti Teknologi Malaysia, Johor. Ts. Shakira is one of the academic staff at Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus.

49. ENHANCED CAR LOCATION TRACKING USING BLYNK APPLICATION

Muhammad Irfan Bin Jamaludin, Nur Asfahani Binti Ismail

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Abstract

Even in this modern era cars can still be hijacked, stolen, and taken apart to be sold as spare parts, that is why there will always be a need for retrieving a vehicle once stolen. Besides, not all safety measures are guaranteed to work on car thieves. So having a way to track down the stolen vehicle to retrieve it back would be the best solution. This project is the solution as it aims to send information regarding the device's location to the user. The device would be planted inside the vehicle and send the information to the user's smartphone through the internet. Another objective of this project is for users to keep track of elderly or disabled people's location in case they go on a drive by themselves. Other than that, this is most beneficial for those who do car renting services as the chances of the car being stolen are high due to strangers being the ones renting it. This project uses IOT (Internet of Things) Technology to monitor and send information through the system. This project utilises the Arduino board as the microcontroller and the main unit of this project. The hardware is separated into 2 categories which are input and output. The input consists of a GPS module to locate the location of the device. On the other hand, the output consists of an LCD and GSM Module to display the coordinates and send the data to the smartphone. The software uses Arduino IDE and Proteus to write and upload the program to the microcontroller and to design the PCB that will be used as the base of the hardware. For IoT, Blynk is used to display the coordinates and the location of the device planted in the vehicle.

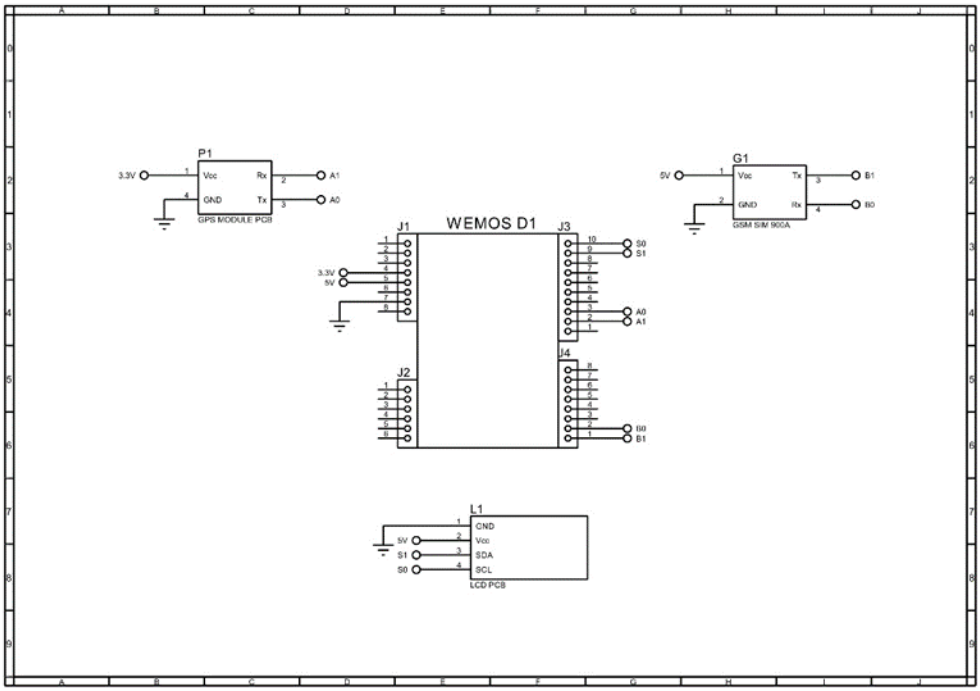
Keywords

GPS tracker, location, cars, vehicle, IoT

Product Description

The enhanced car location tracking system is a device that utilizes GPS technology to provide real-time monitoring for vehicles. This project focuses more on the implementation of this device towards cars. Its objectives are to ensure peace of mind for the user and enhanced security.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Muhammad Irfan Bin Jamaludin is a diploma student in electrical electronic engineering at UiTM Pasir Gudang. He is currently going through his last semester with a CGPA of 3.39 and will undergo industrial training. Irfan will resume his studies for an engineering degree in the future.

Nur Asfahani Ismail has been teaching at UiTM Johor Pasir Gudang Campus for 10 years. She has vast experience in supervising Diploma students for their final year projects and her projects interest include sustainable applications utilizing Internet-of-Thing (IoT).

50. SEMIAUTO GRASS CUTTER WITH IOT CONTROL

Muhammad Irfan Daniel Bin Mohd Salleh, Zahari Abu Bakar

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

The semi-automatic grass cutter with IoT control is an innovative project that combines advanced technology and lawn care to create a convenient and efficient solution for maintaining outdoor spaces. By integrating Internet of Things (IoT) capabilities, the grass cutter can be remotely controlled using smartphones or tablets, eliminating the need for manual effort. The project incorporates various components such as sensors, motors, and IoT modules to enable automated grass cutting and remote control. Sensors detect obstacles and adjust the grass cutter's path for precise and efficient cutting. The IoT module facilitates wireless communication and remote control, offering users flexibility and convenience in managing their lawn care tasks. The benefits of the semiautomatic grass cutter with IoT control are numerous. Users can easily control the grass cutter using their mobile devices, allowing them to focus on other activities while the grass cutter operates autonomously. Automated obstacle detection ensures a smooth cutting process, while the remote-control functionality enhances flexibility and user-friendliness. Additionally, the IoT integration enables real-time monitoring and data collection, providing valuable insights into lawn care patterns and enabling proactive maintenance. This data-driven approach optimizes grass cutting routines, leading to improved overall lawn health and appearance.

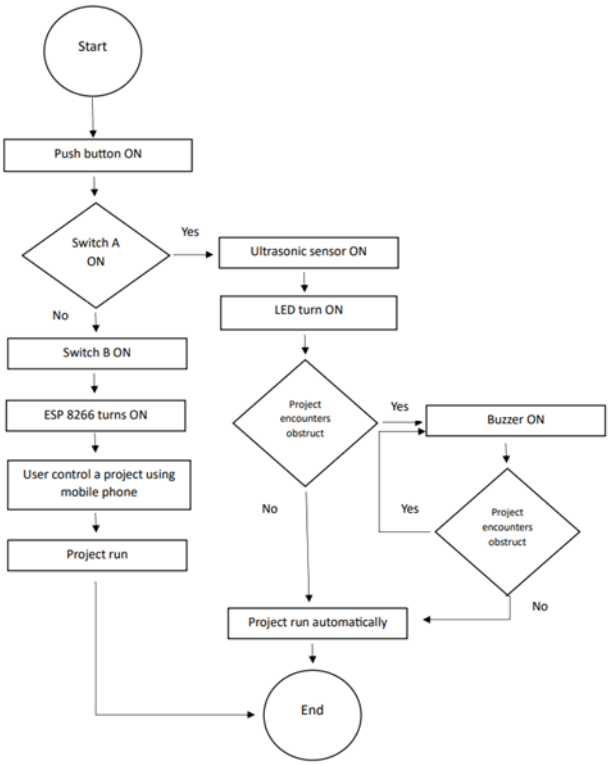
Keywords

Grass cutter, Automatic control, Manual Control.

Product Description

The Semi-Auto Grass Cutter is created to facilitate household tasks in cutting grass within residential areas. This technology is designed in two modes: automatic and manual. In the automatic condition, ultrasonic sensors are employed to detect obstacles nearby, causing the cutting operation to pause. The servo motor with ultrasonic capabilities moves from left to right to detect obstacles. If an obstacle is detected in front, the cutting operation will shift to an area without obstructions. In manual mode the user will control it by itself using the controller.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Irfan Daniel Bin Mohd Salleh is presently in the final year of his academic journey, pursuing a diploma in Electrical Engineering at Universiti Teknologi MARA (UiTM), specifically at the Pasir Gudang campus in the state of Johor, Malaysia. This phase of his education has been a period of academic growth, hands-on learning, and skill development within the field of Electrical Engineering.

Zahari Abu Bakar obtained his Diploma in Electrical Engineering (Electronics) from UiTM Pulau Pinang, Bachelor of Electrical (Hons) Engineering and MSc. in Telecommunication and Information Engineering from UiTM Shah Alam. Currently, he serves as a senior lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. His main research interests are e-learning and Machine Learning.

51. DUST SWEEPER ROBOT WITH CONTROLLER

Ts. Kamaru Adzha Bin Kadiran, Muhammad Irsyaduddin bin Ahmad Nazri

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Abstract

This paper presents the design and development of a dust sweeper robot with a robust controller system. The objective is to provide an efficient cleaning solution for various surfaces. The proposed system integrates advanced navigation and cleaning mechanisms. This report aims to design a Dust Sweeper Robot with Controller using Arduino Microcontroller. Extensive testing shows that the robot effectively reduces dust and debris, making it a promising solution for automated cleaning tasks in different environments. Future work may involve performance optimization and integration with smart home systems.

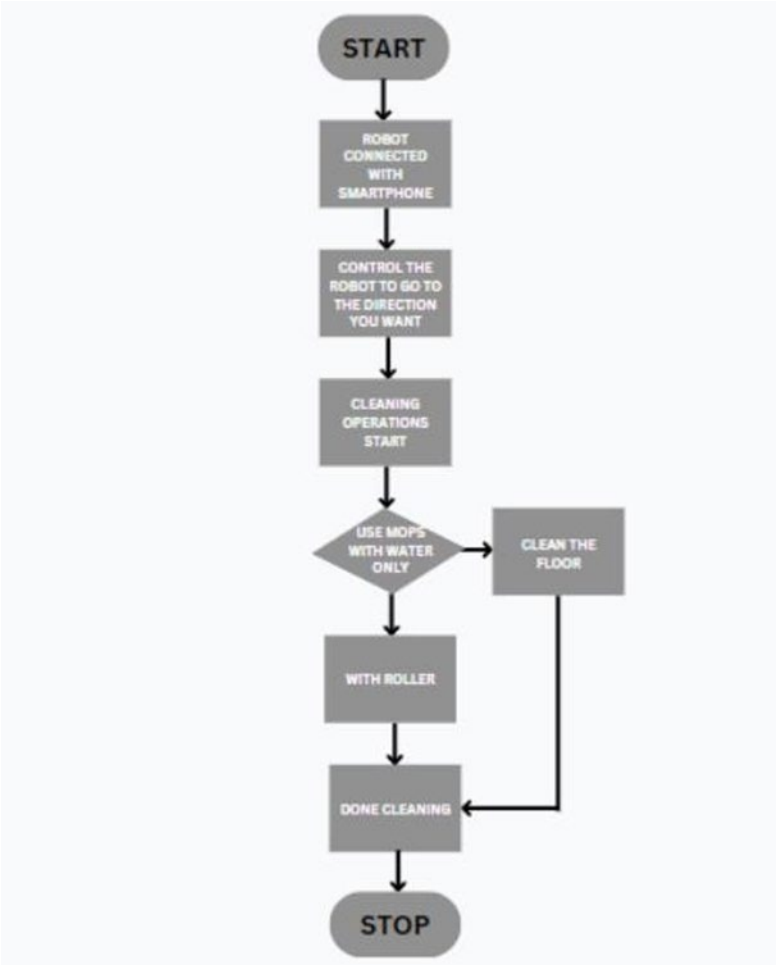
Keywords

various surfaces, smart home systems, Dust Sweeper robot, Arduino microcontroller, cleaning mechanism.

Product Description

The Dust Sweeper Robot with Controller is design to do the basic chores in house which is cleaning the floor. Most of the time, many people were too busy and lazy to do all the chores in the house because it used a lot of their energy to complete all the chores. So, by using Dust Sweeper Robot with Controller they will save their energy by just connecting the robot which using HC-05 bluetooth module with their smartphone and just control the robot to clean the floor. The robot already has water pump, roller which controller by the servo and the dc motor to control the sweeper and the movement of the robot.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Kamaru Adzha Bin Kadiran obtained his Bachelor of Engineering (Electrical - Telecommunications) (Hons) and Master of Engineering (Electrical - Electronics & Telecommunications) from Universiti Teknologi Malaysia (UTM). Currently, he serves as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. His main research interests are e-learning and machine learning.

Muhammad Irsyaduddin bin Ahmad Nazri is currently a final year student pursuing his diploma in Electrical Engineering (Electronic) at Universiti Teknologi MARA (UiTM) Pasir Gudang kampus cawangan Johor.

52. THE DEVELOPMENT OF AUTOMATIC GAS AND SMOKE ROMOVAL WITH FIRE ALARM MONITORING SYSTEM

Muhammad Isqandar Putra Bin Muhammad Zulqarnain, Ezril Hisham Bin Mat Saat

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Abstract

This project addresses the pressing issue of LPG gas leaks leading to house fires and fatal smoke inhalation. Our aim is to enhance safety by deploying MQ-6 LPG sensors, MQ-2 Smoke sensors, and IR flame detection technology. The engineering solution includes a DC fan for ventilation, a multifunctional alert system with a buzzer, and control via a keypad. Utilizing Arduino Mega 2560 and esp8266, the system enables real-time monitoring of LPG, smoke, and fire levels through Blynk. The goal is to heighten awareness during fire alarms, reduce fatalities by swiftly removing hazards, and create a safer living environment.

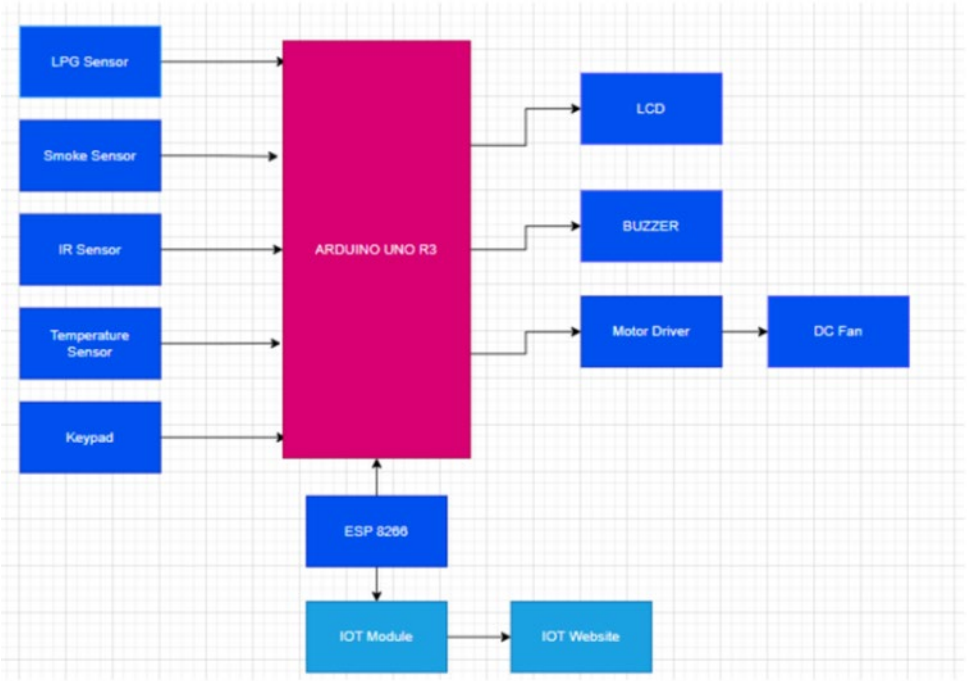
Keywords

LPG gas leakage, Smoke inhalation , house fire, removing hazard

Product Description

The development of automatic gas and smoke removal with fire alarm monitoring system is design for indoor area especially bedroom, kitchen, hall, office and all other close indoor area. This system will detect the present of LPG, Smoke, Fire and also can be use to monitor temperature. Additionally the system come with the engineering solution by using multifunctional alert system with a buzzer and also DC fan for ventilation that will automatically turn on when the present of LPG, Smoke and fire are detected, it can also been turn of by using keypad if any error occur.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Isqandar Putra Bin Muhammad Zulqarnain is currently a final year student pursuing his diploma in Electrical Engineering at Universiti Teknologi MARA (Uitm) Pasir Gudang kampus cawangan johor. Upon completing his diploma, he planned to continue his study in degree in engineering field.

Ezril Hisham Mat Saat earned his Bachelor of Engineering with Honors in electrical engineering from the University Teknologi Malaysia and completed his Master of Science in electrical engineering at Universiti Putra Malaysia. He presently holds the position of a senior lecturer in the Electrical Engineering Department at Universiti Teknologi MARA, Cawangan Johor Kampus Pasir Gudang. His primary research focus lies in the fields of Computer Engineering, Robotics, Embedded System, and the Internet of Things (IoT).

53. WATER CLARITY MONITORING SYSTEM WITH IOT MOBILE NOTIFICATION

Muhammad Iylia' Haqim Bin Hisham, Muhammad Rajaei Bin Dzulkifli

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

Water plays an important role in human life and the environment. This product aims to ensure the water that being use by human is safe and clean. It does not matter what the water is being use for either for cooking, taking a bath or drink. The water must be in a crystal clear condition or in a safe condition where it can be use by human activities. Due to humankind incapacity and lack of environmental awareness, water has become murky and muddy especially in rivers and seas. By using this project, human can avoid from using the murky and foggy water. This project offers a monitoring and warning system which using ESP32 as microcontroller which connected to turbidity and temperature sensor to ensure that the state of the water is safe and clean to use. The system will warn users by sending a mobile notification to their smartphone by using a specific app and activate a buzzer and led that when the state of the water is reaching it dangerous point where it is not safe to be use. The product will also shows the current reading of the water temperature and clarity via a LCD screen attached on the product.

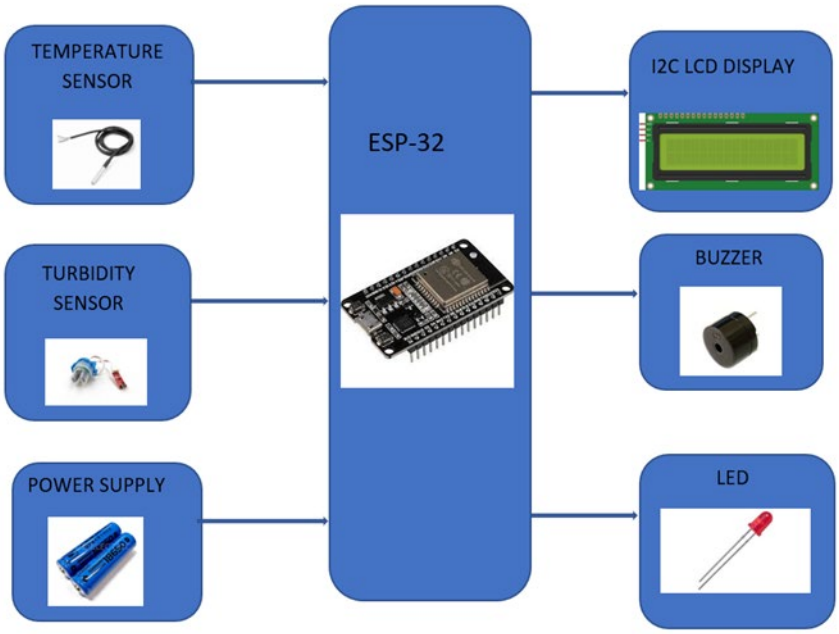
Keywords

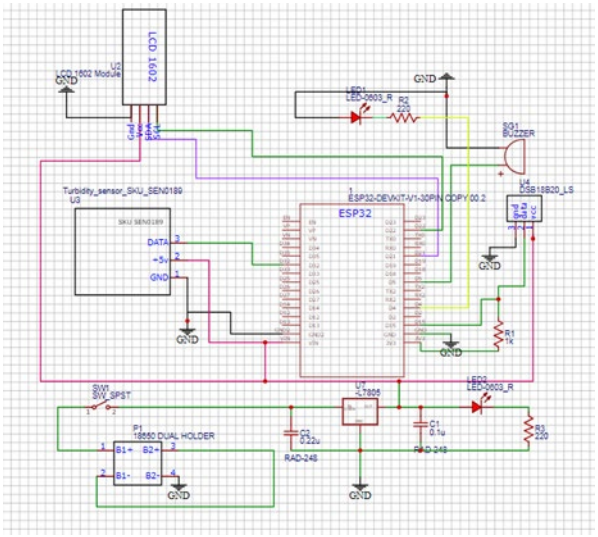
Water Clarity, Monitoring, Environment, Sensor, Safe.

Product description

A device which detects the condition of the water of the area that using the device. The product can be use to reduce the number of sickness due to dirty water usage. The feature of this product allows the users to monitor the condition of the water being use at home even when they are not around by sending mobile notification to the users smartphone. This product will also works on people who are living with disability as the product will sign the warning using two different ways which is buzzer and led. This would work on someone who is blind as they can hear the buzzer sound and for someone who are deaf, they can see the led blinking.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.





Member Biographical Data

Muhammad Iylia' Haqim Bin Hisham is a student who are currently studying in electrical engineering(electronic). I am aware that water quality is something essential in human life. As someone who loves to visit riverside, I want to assure that the water that I am using is in a crystal clear condition. I want to make sure that everyone is using a clear water and safe to use for daily life.

Muhammad Rajaei Bin Dzulkifli is a lecturer in Electrical Engineering Studies, College of Engineering, UiTM Johor Branch Pasir Gudang Campus. He teaches computer engineering courses with research interests in IoT, data analytics, wireless communication and network.

54. PROSTETHIC ARM FOR MEDICAL AND INDUSTRIAL PURPOSES

Muhammad Lutfi Akmal Bin Izaharuddin, Noor Hafizah Khairul Anuar

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Abstract

This project introduces a sophisticated robotic arm control system that leverages state-of-the-art technology to enhance precision and flexibility. The system is designed to be controlled wirelessly through a Bluetooth-enabled interface, connecting a controller equipped with flex sensors and an accelerometer to a robotic arm. The core components include flex sensors and an accelerometer for intuitive and responsive control, servo motors for precise movements, and stepper motors for enhanced stability. The controller is equipped with flex sensors, capable of capturing nuanced finger movements, and an accelerometer, enabling the detection of tilt and acceleration. These sensors work in tandem to provide an intuitive and immersive control experience. The collected data is transmitted wirelessly using an HC05 Bluetooth module, establishing a seamless connection between the controller and the robotic arm. The robotic arm, equipped with servo motors for precise joint movements and stepper motors for controlled rotation, translates the user's input into dynamic and accurate motions. The integration of these motors ensures a versatile range of movements, making the robotic arm suitable for various applications, from intricate tasks to broader range motions. The wireless communication facilitated by the Bluetooth module ensures a flexible and convenient user experience, allowing the operator to control the robotic arm from a distance. This project showcases the potential of combining advanced sensing technologies with wireless communication to create a responsive and versatile robotic system, opening doors to applications in industries such as manufacturing, healthcare, and research.

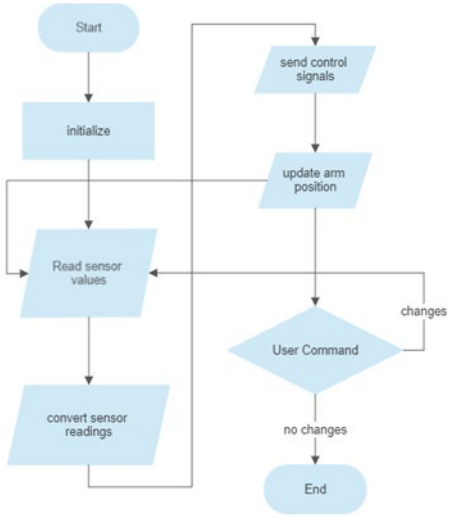
Keywords

Medical and industrial, Accelerometer, Flex Sensor, controller, Hand

Product Description

The product is a robotic hand which is controlled via Bluetooth. The connection uses two Bluetooth module which paired together which serve as controller and the actual hand itself. There are two main component which is Arduino Uno for the robotic arm part and Arduino Nano as the controller. For the controller, the design utilizes the user hand which controlled using a glove that is integrated with flex sensors. Flex sensor work as a potentiometer to detect changes of resistance value to send data for the movement of robotic finger. The glove also integrates Accelerometer to detect the changes of latitude and longitude to simulate to movement of an elbow. The robotic hang uses two types of motor such as servo motor for the actual finger of the robot and elbow and stepper motor for the base rotation.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Flowchart of this project

Member Biographical Data

Muhammad Lutfi Akmal graduated for SPM in the year 2020 from SMK Kota Kemuning with various involvement of extra cocurricular such as joined robotic club for school and science club. Currently pursuing diploma in electrical engineering (electronic) with excellent grade. Throughout the duration of diploma, he had mastered the process of designing printed circuit board (PCB). Currently furthering electronics as main elective.

Noor Hafizah Khairul Anuar received the B.Eng in Electrical Telecommunication from Universiti Teknologi Malaysia (UTM) in 2008 and M.Sc in Electrical Telecommunication Engineering and Information Technology from Universiti Teknologi MARA (UiTM) in 2012. She is currently pursuing her Ph.D. in Electrical Engineering at Universiti Teknologi Malaysia (UTM) in sensor development, instrumentation, and machine learning. She is a lecturer at the Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA, Johor.

55. SMART PRAYER MAT FOR ASSISSTING MUSLIM

Muhammad Mujahid Bin Mohd Rosli, Dr. Nur Amalina Binti Muhamad

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Abstract

Muslims can use the Smart Prayer Mat with Rakaat Counter and Qibla Compass, an innovative idea created to help them with daily prayers. Islam places great emphasis on prayer, yet it can be difficult for certain people to correctly count their rakaat (prayer cycles) and face the qibla (the direction of the Kaaba in Mecca). The Rakaat Counter and Qibla Compass included into the Smart Prayer Mat make manual counting and perfect alignment unnecessary. The Rakaat Counter correctly counts the number of rakaat done by using ultrasonic sensors by sense the movement when sujud performed. Throughout the prayer session, users are guided by visual and audible feedback, which encourages accuracy and attention. With its intuitive design, the Smart Prayer Mat appeals to people of all ages and races backgrounds. It minimizes disruptions during prayer, allowing for a more deep and spiritually rewarding experience. It does this by automating counting and alignment. In conclusion, the Smart Prayer Mat with Rakaat Counter and Qibla Compass makes use of technology to simplify and strengthen Muslims' adherence to their religion during daily prayers.

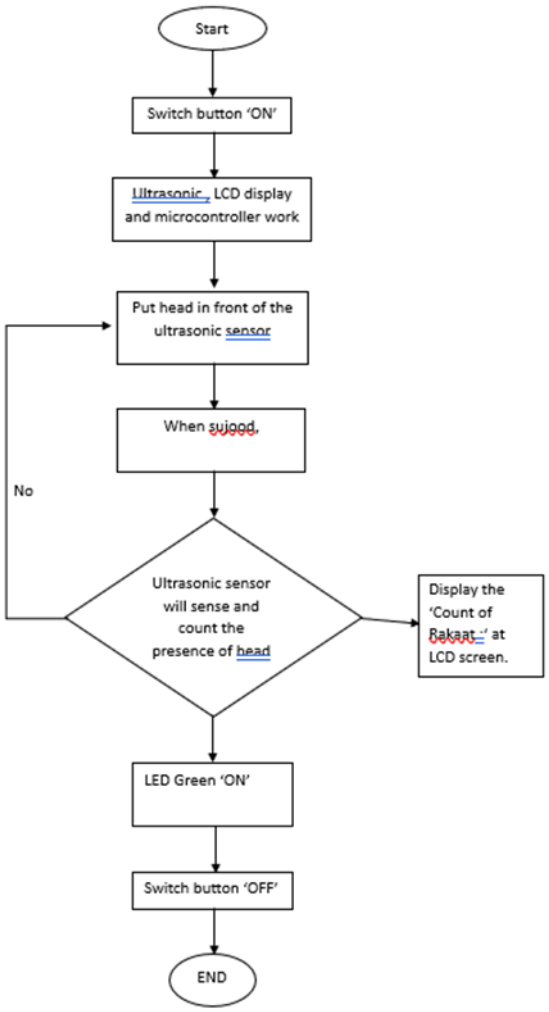
Keywords

Rakaat counter, praying, prayer mat

Product Description

The innovative smart prayer mat for assisting Muslims is designed for senior citizens and children to perform their prayers completely. This system features one ultrasonic sensor that detects the presence of a head when sujud is performed. Additionally for an output, a buzzer, LCD i2c, 8-segment display, and LED are used to show the number of rakaat and when it is completed.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Flowchart of this project

Member Biographical Data

Muhammad Mujahid Bin Mohd Rosli is currently a final year student pursuing his studies on diploma in Electrical Engineering at Universiti Teknologi MARA (Uitm) Pasir Gudang Kampus Cawangan Johor. Upon completing his diploma, he planned to continue his degree in electrical communication engineering.

Dr. Nur Amalina Binti Muhamad is currently the Head of Electrical Engineering Studies at Universiti Teknologi MARA (UiTM), Johor branch, Pasir Gudang campus. She graduated Bachelor's and PhD in Electrical Engineering from UiTM. Her expertise is on the fabrication of nanoelectronic devices, semiconductors and advanced materials.

56. THE SENTRY OF DOOR ALARM SYSTEM

Muhammad Naqiuddin Bin Mohd Amin, Pn Norbaiti Binti Sidik

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Abstract

This project presents the design and implementation of a comprehensive security door alarm system for college campuses. The project utilizes Arduino microcontroller, a camera module, and device notification to enhance security measures and prevent unauthorized entry. The system is aimed at providing a safer environment for students and staff, offering real-time alerts and visual evidence in case of a security breach. The project outlines the project objectives, methodology, and expected results, highlighting the potential benefits of implementing this system in college campuses

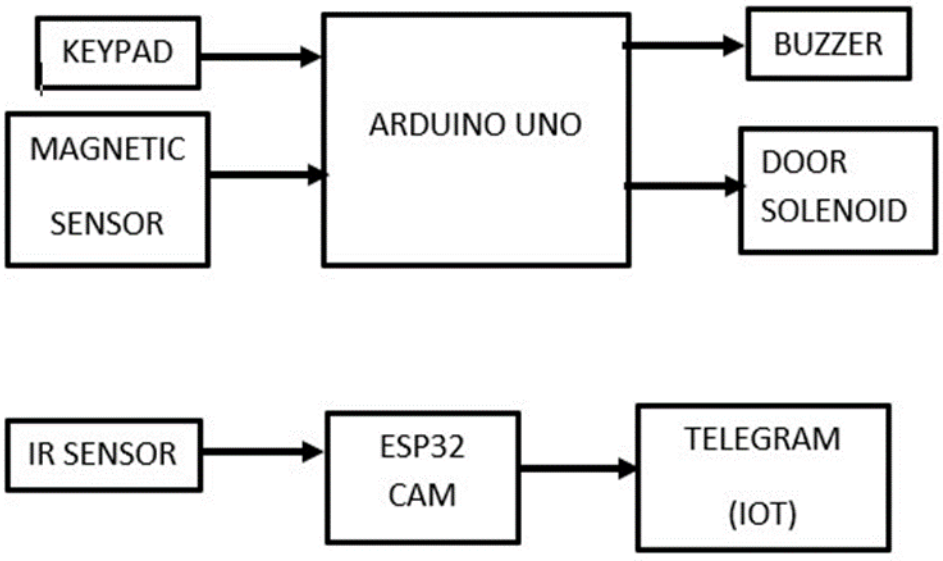
Keywords

Door alarm system, camera module, device notification

Product Description

This project has several security features of the house door. Among them is the alarm system, that is, the alarm system will ring if someone breaks into the house. Next, there is a camera module that can detect people near the door and send a notification to the home owner's device, then the safety keypad that is, the user must enter the correct password to enter the house.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Naqiuddin Bin Mohd Amin is Final Year Student for Diploma in Electrical Engineering at Uitm Pasir Gudang.After end diploma, he want to continue study degree Electrical Engineering at Uitm Shah.

Mrs Norbaiti Binti Sidik was born on April 21st 1977 in Kedah Darul Aman. She got her first education in government primary school Sekolah Kebangsaan Batu Lima in Sik Kedah. She was accepted to further her studies in Arabic high school known as Maktab Mahmud Alor Setar also in Kedah after passing main interview to be one of the lucky student in Maktab Mahmud. Her studies continued in Universiti Kebangsaan Malaysia in Bandar Baru Bangi Selangor right after completed 1 year Science Matriculation Certificate in Pusat Matrikulasi Sains, Ipoh Perak Darul Ridzuan in 1995. She graduated her Bachelor Engineering Degree in Electrical, Electronics and System within 3 years from Universiti Kebangsaan Malaysia, Bandar Baru Bangi Selangor Darul Ehsan and she successfully completed Master Engineering Degree in Communication and Computer also from the same university in 2002. She is very committed, passionate and dedicated in education line who is now a senior lecturer and having experienced more than 10 years in teaching & learning and lecturing in Faculty of Electrical Engineering, Universiti Teknologi MARA, Cawangan Johor Kampus Pasir Gudang, Johor Darul Takzim

57. IOT BASED REAL TIME TRAFFIC LIGHT MANAGEMENT SYSTEM FOR CONGESTION CONTROL

Muhammad Nazif Ezany Bin Yusop, Rozi Bin Rifin

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Abstract

This project aims to improve the efficiency of the traffic light management system by incorporating various smart city components and concepts. The system is intended to save time and electricity by improving key elements such as replacing traditional traffic lights with RGB lights, adding barricades to zebra crossings for pedestrian safety. Therefore, there are several sensors included in this project to ensure the aims are achieved. The sensor is DHT11 to determine the temperature and humidity. IR Sensor to detect the presence of vehicles on the platform. These inputs will be present in the output LCD. With this initiative, possibilities of human error can be eliminated, and it will also utilize the functionality of the traffic lights. This project utilizes both hardware and software part to achieve full efficiency. The software used for this project is Proteus. This part is the most important because it can help to reduce the errors and still give the chance to troubleshoot all the errors before applying to the hardware. This system will help to improve traffic management and improve overall efficiency in urban environments by implementing these enhancements and technologies, aligning with the vision of smart cities. There are few stages of completing this project, first is the design and development of the traffic light junction, the integration of the sensors and wireless technologies including the Internet of Things (IoT) component (NodeMCU), finally the testing and evaluation of the system's functionality.

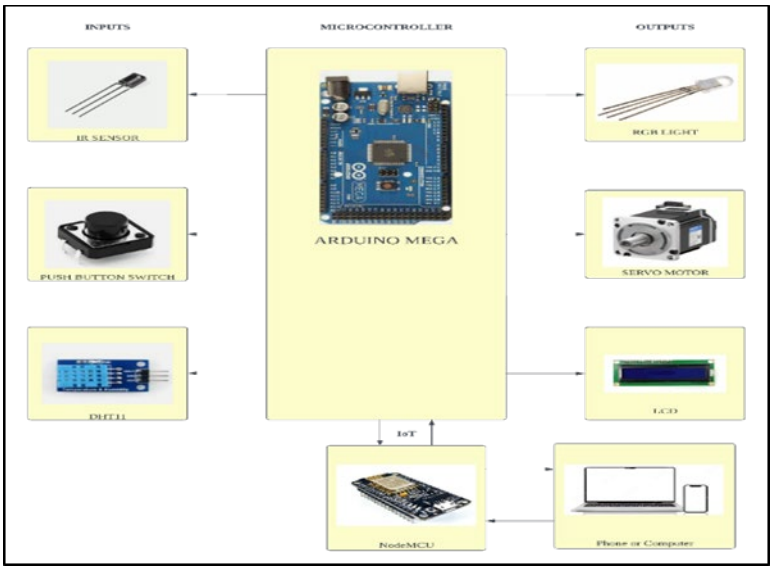
Keywords

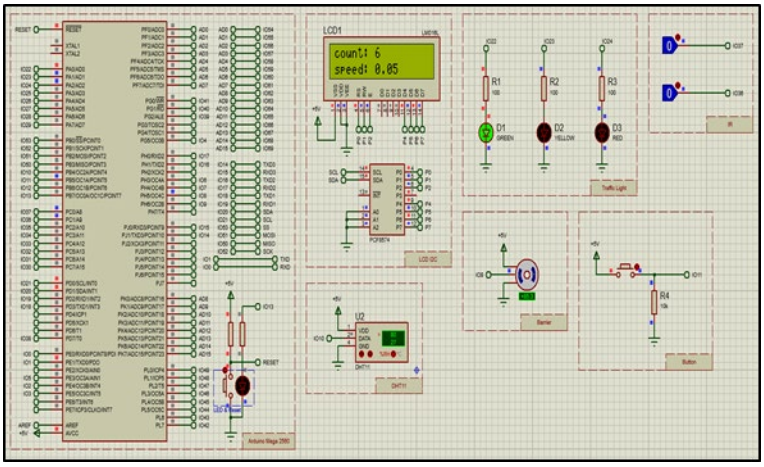
Traffic Light, IoT, Smart Cities, Environment, Sensor, Efficient.

Product Description

3-way intersections traffic light using RGB LED lights replacing the traditional LED traffic light with a barricade to protect the pedestrian crossings and a feature that measures the speed of the traffic around the intersection area. This product also save cost in term of light usage. It would not be an issue for people with colour blindness, because to acquire drivers license, candidate should pass the colour blind test. This product also provides the traffic condition display for the authorities to monitor from afar. The traffic light management system also controlled by sensor which it will priorities the lane with the presence of vehicle other than continue to the sequence.

Photo/ Schematic diagrams/ Flowcharts/Screenshots/Graphs etc.





Member Biographical Data

Muhammad Nazif Ezany Bin Yusop currently studying Electrical Engineering major in Electronics in UiTM Cawangan Johor Kampus Pasir Gudang. He have a strong interest in control systems and electronics. He was also a member of Student Representative Council of UiTM Johor Branch for 22/23 session, Leadership and Student Development Exco. As the student representative, he brings the student issue to the university management. Also, he conducted programs related to developing students' knowledge and skills.

Ts. Rozi Rifin earned a Bachelor of Engineering in Electronic from USM in 2005 and a Master of Science in MicroElectronics from UKM in 2013. Currently, he serves as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. Prior to joined UiTM, he served 9 years of experience as an engineer, working in different local and multinational companies that focused on various aspects such as Manufacturing, Process and Equipment Engineering, Quality Control, and Cost Reduction within the Integrated Circuit and Photovoltaic Solar Cells Fabrication industry. His main research interests are in Microelectronics, IC and VLSI design, solar cells fabrication, embedded systems and IoT

58. AUTOMATED COIN SAVING BOX WITH NOTIFICATION VIA ESP MODULE

MUHAMMAD NURHAKIMI BIN NORIZAN, DR. ATIQAH HAMIZAH MOHD NORDIN

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

The significance of saving money nowadays is constantly being ignored by our generation, either youngster or adult which could lead to negative impact of such as wasting money on unsignificant material and splurging on bad quality of lifestyle. If the problems are not properly dealt with, our younger generation will follow this unhealthy lifestyle and will indirectly foster extravagance lifestyle. With this perspective, this project presents an automated coin saving box with notification via ESP32 Lau module as wi-fi module to display coin value in box via application. By using Arduino Mega as a controller, there will be two main systems which are saving system and coin dispenser. Both systems use the same sensor, which is an infrared sensor. The value of the coins will be detected by their movement in and out of the smart coin box and the value will be recorded in the EEPROM. Then, the value will be displayed on the LCD display and sent to the smartphone via ESP32 Lau. The simulation model was modeled using Proteus software and coding for the controlled was designed. On top of that, the hardware prototype of the coin box was also developed and operates successfully. The results show that the simulation model of the automated coin box system operates successfully and able to display the coin value on the LCD display properly. The hardware prototype also able to display the value on the LCD, and the system also automatically recorded the value via Dabble application in the user's mobile phone devices.

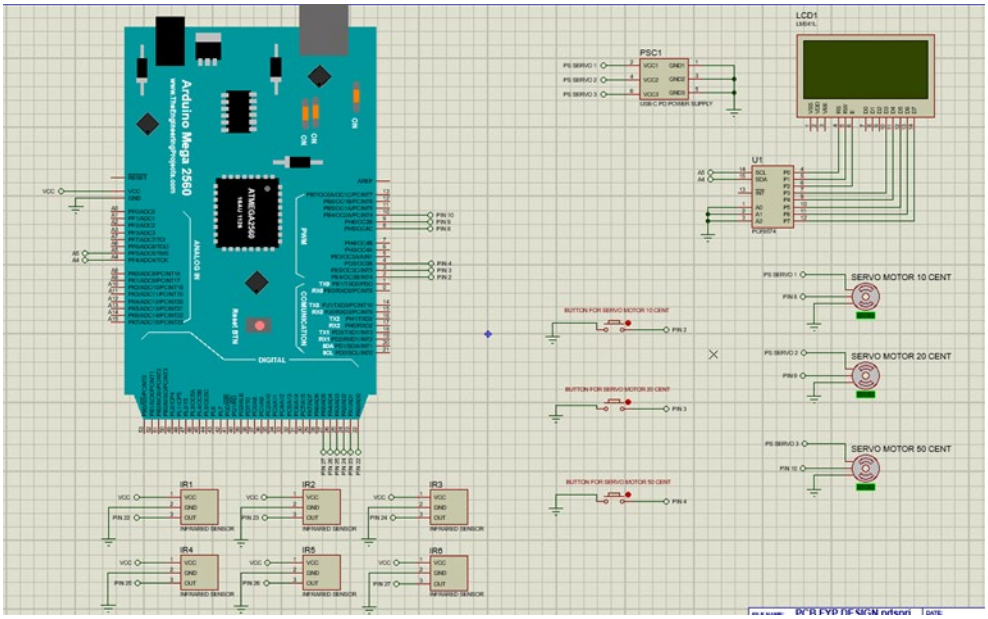
Keywords

Automated coin box, IoT, ESP32 Lau, Arduino Mega, Dabble application

Product Description

An automated coin saving box that are integrated with ESP32 Lau Wi-Fi-BT 30P that also equipped with a led display, servo motors, infrared sensor to detect the presence of coins and identify it value either it 10cent, 20cent or 50 cent and buttons to turn on the servo motor to push out coins from their own specific vault.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad NurHakimi Bin Norizan was born in Malaysia, Johor in 2003,3rd of October

Atiqah received her Ph.D in electrical engineering on life cycle assessment of photovoltaic system from UiTM Shah Alam. Her research interest is towards sustainable and responsible transition to cleaner energy system. She currently serves as a senior lecturer at Electrical Engineering Studies UiTM Johor Pasir Gudang Campus.

59. IOT-BASED SAFETY ALARM SYSTEM IN LABORATORY

Muhammad Shamizal Bin Samsul Kamal, Dr Fatimah Khairiah Abd Hamid

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Abstract

Safety alarm system in laboratory is an important aspect in detecting the source of danger that might lead into a disaster. This project aims to design an IOT-based safety alarm system in laboratory using Arduino UNO as microcontroller. The system is equipped with several input sensors such as MQ-2 gas sensor, DS18B20 temperature sensor and LM393 fire sensor. The sensors are used to detect dangerous elements that might harm the people in laboratory. Meanwhile, the outputs employed of 3 LEDs, buzzer, lcd display and remote monitor. The system would alert the user as the sensors detects the presence of danger in laboratory.

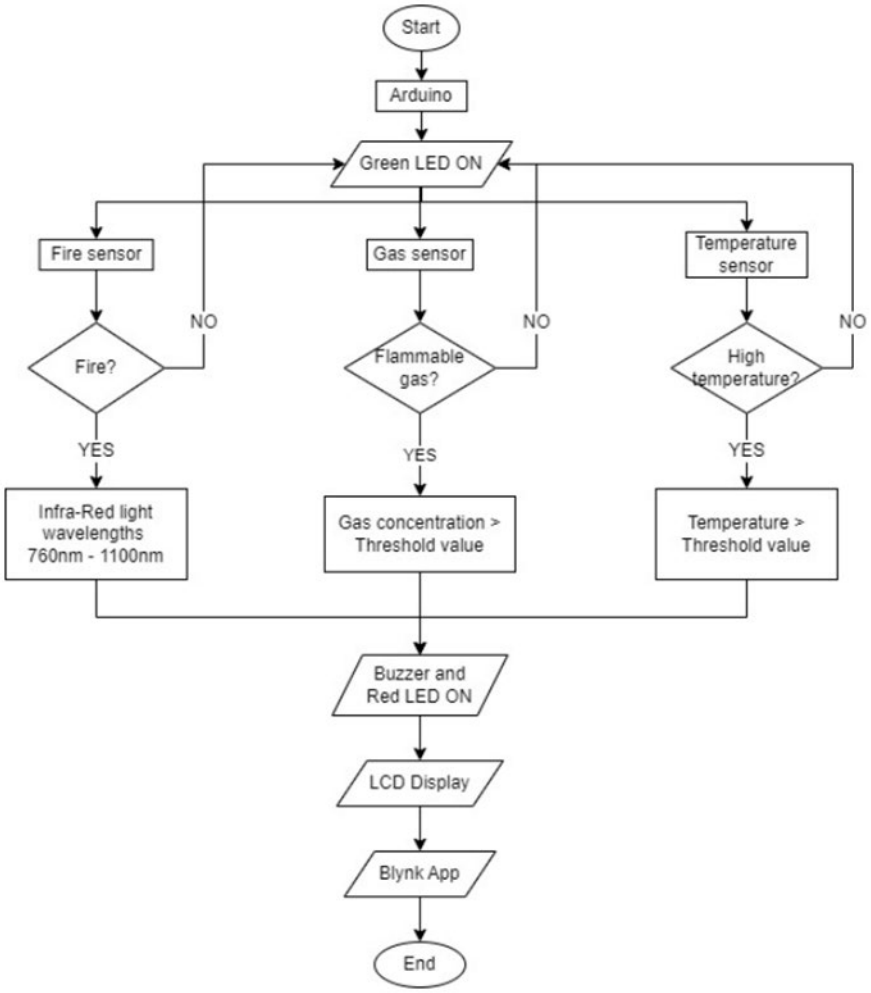
Keywords

Safety Alarm System, Arduino UNO, MQ-2 Gas Sensor, DS18B20 Temperature Sensor, LM393 Flame Sensor

Product Description

An IoT-based Safety Alarm System using Arduino UNO, equipped with three LED (red, yellow and green), buzzer and lcd display used as indicator for the safety alarm in gas concentration, fire detection, and temperature which then sends the data to a data reader using Bluetooth for monitoring.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Shamizal Bin Samsul Kamal currently pursued his Diploma in Electrical Engineering (Electronic) at UiTM Pasir Gudang. He is interested in electrical system design. He has experienced the working environment related to the electrical system following his father's occupation. He is also interested in the communication sector of electrical engineering.

Fatimah Khairiah Abd Hamid received the B.Eng. Degree in Electrical-Electronic from Universiti Teknologi Malaysia, in 2011. Meanwhile, she pursued her Master and PhD in Electrical Engineering in the same university in 2013 and 2016, respectively. She is currently a senior lecturer with the Faculty of Engineering, Universiti Teknologi Mara. Her research interests include modelling and simulation nanoscale transistor, radar and satellite system, sensor and IOT application.

60. AQUARIUM MONITORING AND AUTOMATIC FISH FEEDER. (A.M.A.F.F)

Muhammad Syahrul Nizam Bin Abdl Manah, Dr Siti Hazurah Binti Indera Putra

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Abstract

Aquarium owners often struggle to provide their fish with the best possible care due to lack of time, knowledge or resources, Aquarium may also not have the knowledge or experience to properly care for their fish. To act effectively in aquarium keeping, this study proposes an automatic aquarium water quality monitoring and fish feeder system using IoT. Esp32 has been selected as the project's brain and is Wi-Fi associable. The inputs for water quality controls are pH level sensor and a turbidity level sensor. The visual button from Blynk and physical push button is used to activate a servo motor for dispensing the fish feed, it is also possible to program the Blynk visual push button to feed fish at a certain time. An ultrasonic sensor is used for measuring the fish food level in the tank. The system is connected to a smartphone via Blynk for notifications. The LED indicator allows an aquarium owner to immediately identify whether the aquarium is in a good condition or otherwise according to the LED indicator. Red LED will turn on if the tank level and water quality are both in appalling condition, green LED indicates that the aquarium is in good shape. The level input from the sensor will be displayed in LCD and Blynk app. This project is aimed to have a positive impact on the health of fish, the stress levels of aquarium owners, and the sustainability of the aquarium hobby.

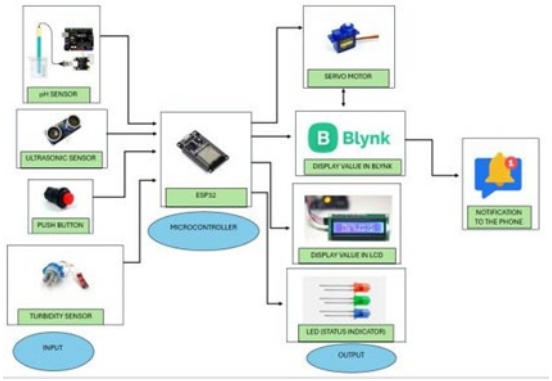
Keywords

Aquarium, Automatic Feeder, Water Quality, Tank level, Blynk

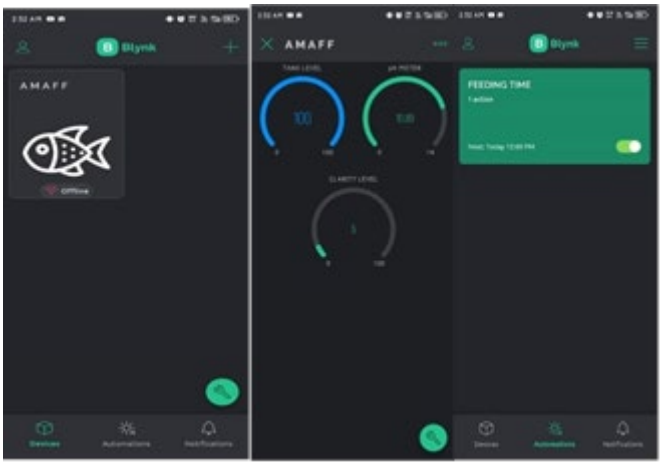
Product Description

The Esp32 in this project will function as a head, controlling every component and establishing a Wi-Fi connection. To launch the Blynk app, connect to Wi-Fi to see the water quality level, food tank level, and to set a timer for feeding the fish. The aquarium's general state is indicated by two LEDs. If any input is not fulfilled, the red LED will light up, A green LED will light up if the situation is reversed. Water Quality monitoring system consists of pH sensor and Turbidity sensor, Food tank level is consisting of ultrasonic sensor. The outcome will be shown on Blynk and LCD, if the input is not accepted, Blynk will notify the user and turn on a red LED. The servo motor used to dispense food is activated by a push button. Another method of activating the servo motor is through the Blynk visual push button, which may be programmed to activate at a specific time. If the servo motor is activated, notification will also be received.

Photo/ Schematic diagrams/ Flow charts/Scre enshots/Gr aphs and etc.



Block Diagram of the AMAFF System



BLYNK app display

Prototype of the AMAFF System

Member Biographical Data

Muhammad Syahrul Nizam Bin Abdl Manah, a final year Electrical Engineering (Electronic) student at UiTM Pasir Gudang, is inspired by two passions for electronic engineering and caring for fish. His culminating project, the Aquarium Monitoring and Automatic Fish Feeder (A.M.A.F.F), epitomizes this fusion. The A.M.A.F.F system, designed for optimal fish care, integrates real-time monitoring of water parameters and an automated fish feeding mechanism. Outside of the classroom, Nizam's commitment to the project is driven by his great admiration for aquatic life, demonstrating a seamless blend of personal passion with academic pursuits with aspirations to contribute to the automation and smart systems field, this project stands as a testament to his dedication in creating innovative solutions that benefit both hobbyists and the well-being of aquatic creatures.

Dr Siti Hazurah received her Bachelor of Engineering in Electrical (Electronics) Engineering from Universiti Teknologi Malaysia (UTM) in 2003, followed by her Masters of Engineering in Mechatronic and Automatic Control also from UTM in 2008. She then obtained her PhD in Automatic Control and Systems Engineering from The University of Sheffield, United Kingdom in 2019. She has 20 years of experience in the engineering field both as an engineer and as an academician. She is currently serving as a Senior Lecturer at the College of Engineering, Universiti Teknologi MARA (UiTM), Pasir Gudang campus.

61. IOT-BASED SOLUTION FOR CONTINUOUS MONITORING AND MANAGEMENT OF STRAWBERRY CROP FARMING

Muhammad Syamil Adril Bin Zaini, Zatul Iffah Binti Abd Latiff

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Abstract

Several issues affect strawberry plants, including weather, soil, and irrigation.Because of these issues many strawberry farmers face a lot of consequences such as the product will comes out with low quality, the death of the crop and so on.Thus, the issues experienced by strawberry farmers in Malaysia can be efficiently addressed by an IoT-based system for continuous monitoring and control of strawberry crop farming using Arduino UNO, pH sensor, MQ-135(for monitoring air quality including CO2 levels) sensor, soil moisture sensor, LED, motor, and LCD. Data is gathered by the Arduino UNO microcontroller from the pH sensor,and MQ-135 sensor. Farmers can regulate irrigation, ventilation, and climate control using this real-time data to generate the best possible growing conditions for strawberries. The solution makes use of the LED and motor to provide visual and tactile feedback, such as when regulating airflow or signaling when watering is necessary. Farmers can quickly manage illnesses, pests, and unfavourable conditions thanks to the LCD display's real- time information and notifications. The IoT-based system enables farmers to effectively manage their strawberry crops and increase productivity and ensure high quality yields by merging these elements.

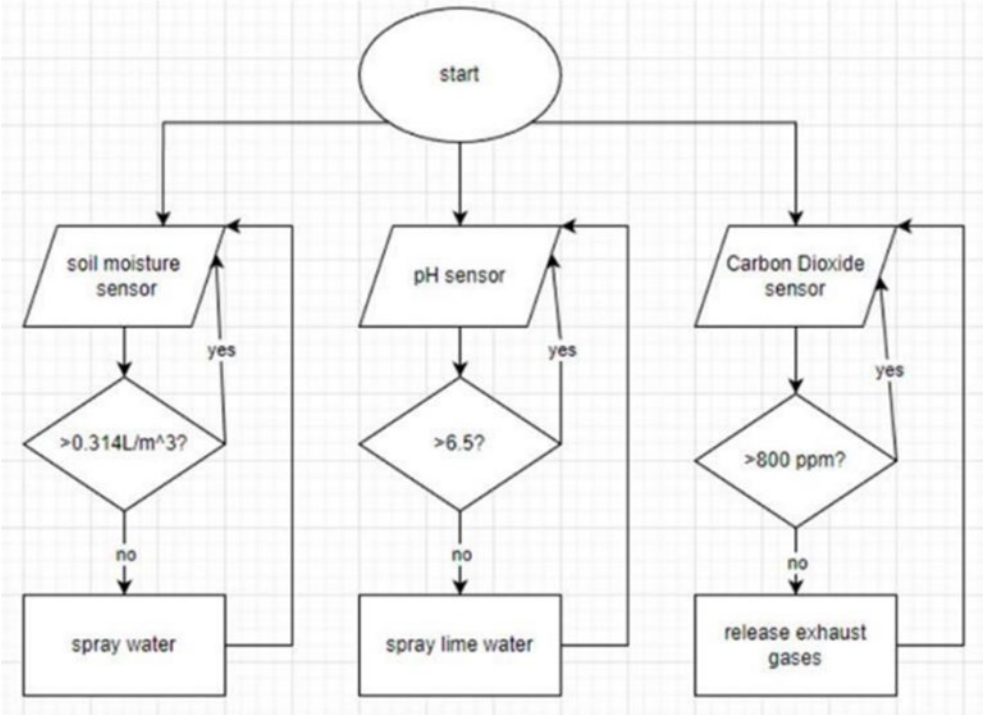
Keywords

Arduino UNO,soil moisture sensor ,pH sensor,MQ-135 , ,LED,Motor,LCD , IoT

Product Description

IoT-based solution for strawberry crop farming offers an integrated system that revolutionizes cultivation. Through a network of sensors, it provides real-time monitoring of crucial factors like soil moisture,pH sensor ,and carbon dioxide. By automating precision irrigation and controlling environmental conditions, it optimizes growth while minimizing resource usage. This solution redefines strawberry farming, offering efficiency, productivity, and proactive management at every stage of the cultivation process.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Syamil Adril Bin Zaini is a student at Faculty of Electrical Engineering, Universiti Teknologi MARA, Malaysia. He is currently pursuing his study for Diploma in Electrical Engineering(Electronic) in UITM Pasir Gudang.

Zatul Iffah Abd Latiff is a senior lecturer at Faculty of Electrical Engineering, Universiti Teknologi MARA, Malaysia. She received her Bachelor of Engineering Degree in Electrical Engineering from Korea University, South Korea in 2010 and her Master of Science in Telecommunication and Information Engineering from Universiti Teknologi MARA (UiTM), Malaysia in 2013. She is currently persuing her study for Ph.D. in Space and Earth Electromagnetism in UiTM Shah Alam. She is one of the co-researcher of MAGDAS (Magnetic Data Acquisition System) network who is responsible for monitoring and maintaining one of the MAGDAS observatories located in Johor, Malaysia. Her research interests include geomagnetically induced currents (GICs) activity in the equatorial and low latitude region, space weather activity, ionospheric currents, Earth's electromagnetism and application of ground magnetic and satellite data

62. AUTOMATIC PET FOOD FEEDER AND CONTAINER

Muhammad Syazani Azmil Bin Mohd Shariff, Ts. Sufian Bin Mohamad

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Abstract

This project main idea is to introduce an Automatic Pet Food Feeder And Container empowered by IoT, aiming to enhance the well-being of pets and provide convenience to pet owner. Many pet owners face challenges in maintaining a regular and balanced feeding schedule for their pets due to their busy lifestyles. The project will dispense food as the pet owner have set, give a notification to owner if the big container is low and allowed owner to control the pet feeder from office. The project uses an Arduino Uno ESP8266, LCD 16x2, servo motor, push button, Blynk application and weight sensor. By using Blynk application the user can set the schedule for Arduino to dispense the food. Arduino will make servo motor to move and dispense food. The integration of IoT into a Automatic Pet Food Feeder And Container system offers a comprehensive and intelligent solution for pet care. By constantly managing pet eating schedules this system will improves pet nutrition and facilities remote management and contributing to the overall well-being of pets and providing convenience to pet owners. For future plan may focus on the safety by installing camera in the device to monitor the pet.

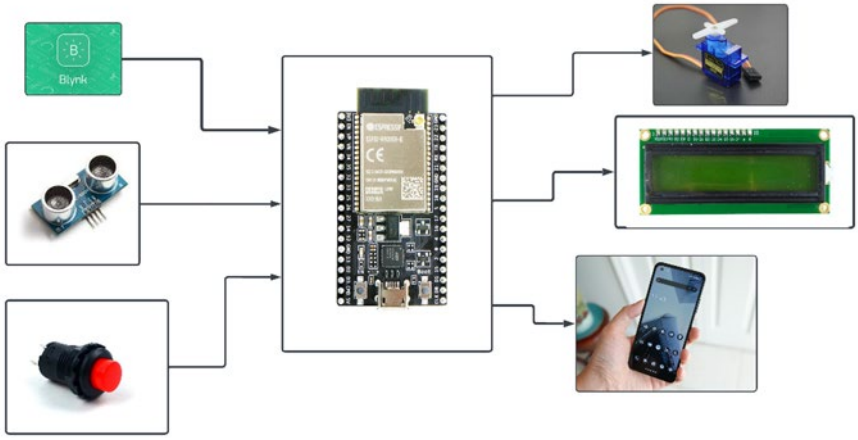
Keywords

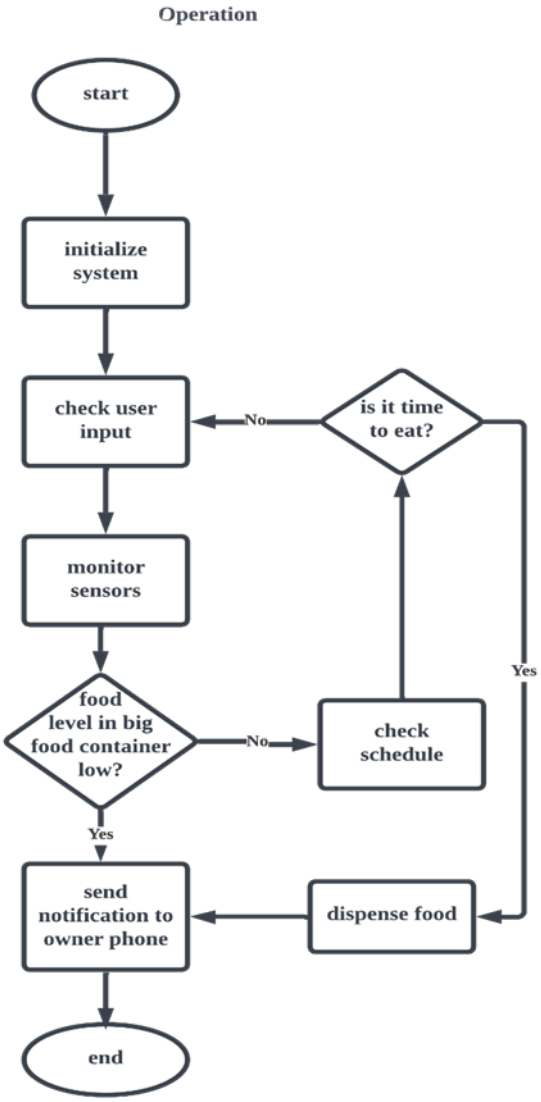
Dispense, pet feeder, Arduino Uno, ESP8266, LCD 16x2, servo motor, push button, Blynk application, weight sensor.

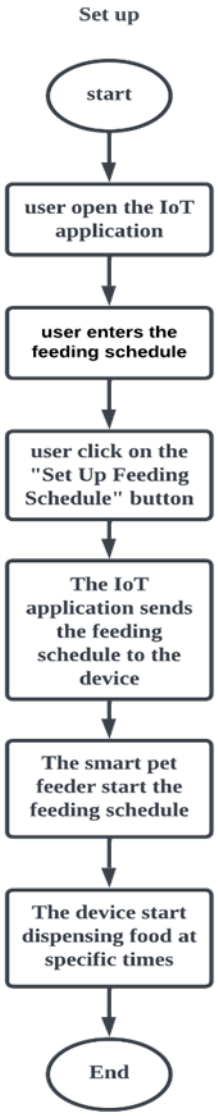
Product Description

In order to determine the amount of food in the food tank, the system employs an ESP32 microcontroller attached to an ultrasonic sensor, servo motor, I2C LCD display, and push button. ESP32 is controlled via the BLYNK application, which also keeps track of the food tank's contents. If the meal is dispensed, the user will receive a notification from the application. Everyday food dispensing time can be customised by the user.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.







Member Biographical Data

Muhammad Syazani Azmil bin Mohd Shariff, is a 3rd year student of diploma in Electrical Engineering major in electronic at UiTM Pasir Gudang University. He born on 8 October 2003 at Hospital Sultanah Aminah, Batu Pahat, Johor. He love to play with cat because it was a the most cutest animal in the world.

Ts. Sufian bin Mohamad is a lecturer from Communication Department, Faculty Electrical Engineering, UiTM Kampus Johor Cawangan Pasir Gudang. He has experienced of 13 years teaching various electrical engineering subject. Besides, he gained lots of experienced in other fields such as student development activity in campus and faculty management.

63. SELF-CARE PLANT SYSTEM

Muhammad Umar Aiman Bin Mohd Sabri, Madam Norhalida Binti Othman

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Abstract

Houseplants are plants that grow indoors. Not only do these plants enhance the overall appearance of a space, but also boost moods, increase creativity, and eliminate air pollutants. There is also plants that grows outside the house for example vegetables. People grew vegetables to reduce the cost of buying them and also can even be healthier than buying them at stores. Even though houseplants have many benefits, they are still plants that need to be watered especially the types that needs a lot of water. This is going to be a problem for people who have a busy schedule or not always at home for a long periods of time. Thus, to overcome this problem, an automatic watering system is created so that the plants don't need constant human attention. This research proposed a self - watering plant system with environmental monitoring. The objective of this research is divided into 2 parts. The first part is the hardware development that consists of three sensors which are Soil Moisture Sensor, temperature, and humidity sensor (DHT11) and an ultrasonic sensor for measuring water tank levels. These sensors are used to monitor the condition of the plant's soil by combining with a microcontroller like the ESP32. The second part is to provide the plant with water by using a small watering pump and to display the measured value of the DHT11 using LCD. This system also uses IoT technology to transfer data from the DHT11 and the Ultrasonic sensors to the owner's mobile phone using the features that the ESP32 offers. Therefore, this system will help those who love to grow their own plants but also doesn't have the time to take care of it.

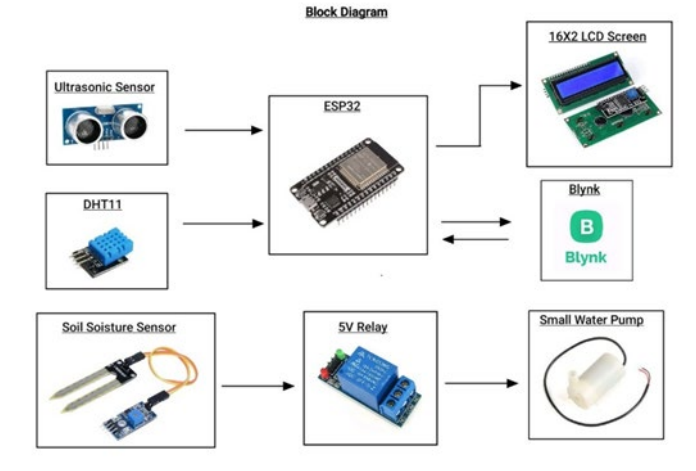
Keywords

Self-Watering, Environmental Monitoring, Wireless Monitoring, Plants Health care.

Product Description

The Self-Care plant System is designed for houseplants or vegetables, specifically targeted at plants that needs its soil to be constantly moisture. This system features a soil moisture sensor that monitors the condition of the plant's soil. It also features a temperature and humidity sensor (DHT11) to measure the plants surroundings and it can be monitored through the users mobile phone. Lastly, an ultrasonic sensor is also installed to measure the water level of the tank that supplies water for the water pump. The water level can also be monitored through the users mobile phone.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



App Display

Member Biographical Data

Muhammad Umar Aiman Bin Mohd Sabri is currently pursuing his diploma in Electrical Engineering (Electronic) major in Systems. Upon completing his diploma, he planned to continue his study in degree in the field of engineering.

Norhalida binti Othman who is currently a senior lecturer in Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus. She is holding a Master of Engineering in Electrical Power from Universiti Teknologi Malaysia.

64. ARDUINO BASED AQUARIUM MONITORING SYSTEM WITH INTERNET OF THING (IOT)

Muhammad Zairil Amirul Bin Zuhanis, Nurul Nadia Binti Mohammad

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Abstract

Certain aquatic organisms living in an aquarium such as aquatic plants, fish, and invertebrates need a specific type of PH value of the water and specific water temperature to keep them alive. As such, the job of maintaining the aquarium ecosystem is mainly done manually which can cause significant human error that will resort in massive losses and death of many aquamarine life that are precious. This report aims to design an Arduino Based Aquarium monitoring system with IoT using Arduino Microcontroller, temperature sensor, PH level sensor and water level sensor as well as a food feeder system. Therefore, to eliminate the possibilities of human error and to act efficiently in maintaining the aquarium ecosystem. This study is conducted to monitor and ease the job of maintaining the stability of the aquarium without human intervention. This project utilizes both hardware and software part to achieve full efficiency. The hardware part uses the 3 sensors to measure the parameters and a food feeder, The data are then collected and displayed on the user's phone enabling real-time monitoring and control of the system. This system will help to increase the efficiency of aquarium monitoring procedure so that the number of accidents occurs that result in the death of aquamarine life can be reduce.

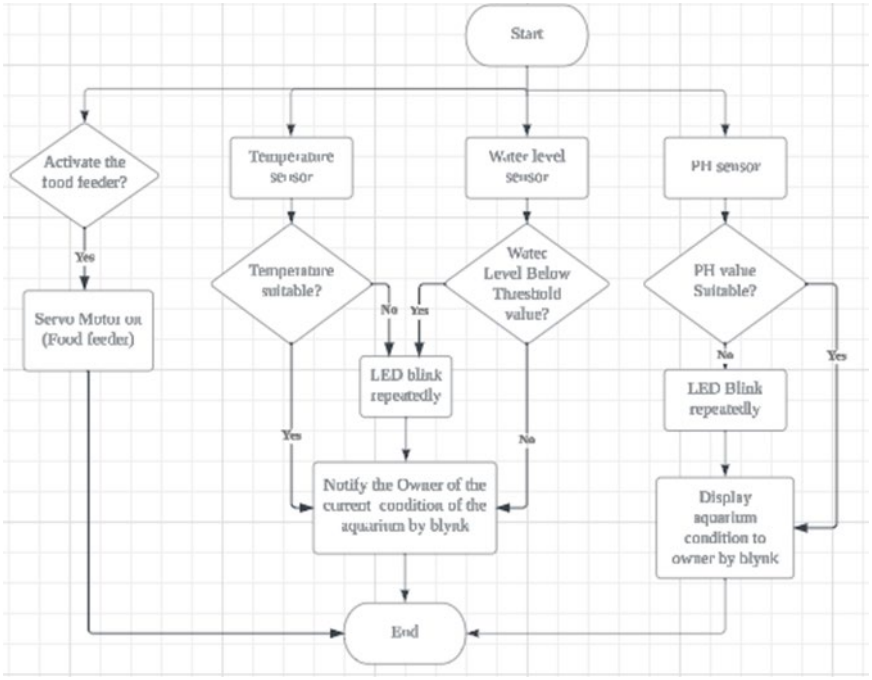
Keywords

Arduino, aquatic organism, ecosystem, human intervention

Product Description

This Aquarium monitoring system utilize 3 sensors as input and 3 output which is PH sensor, Temperature sensor and water level sensor as input the output is a DC motor, 20x4 LCD and LED. The system utilizes Internet of thing to help alert the owner of the condition of the aquarium. PH sensor will be used to measure the PH value of the water to ensure that the aquatic life is living in a comfortable environment, temperature sensor that will measure and determine whether the temperature is suitable for the aquatic lives inside the aquarium and the water level will be use to ensure the water are at a desired value. The LCD and the Iot will be use to display these parameter for the owner to monitor.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Muhammad Zairil Amirul Bin Zuhanis currently pursued his Diploma in Electrical Engineering major in Electrical (Electronic) at Universiti of Technologi MARA (UiTM).

Nurul Nadia Binti Mohammad joined Universiti Teknologi MARA (UiTM) in January of 2020 as a senior lecturer at the Electrical Engineering Studies, College of Engineering. She obtained her Bachelor's Degree in Electrical Engineering (Hons) in October 2011, followed by Masters of Electrical Engineering from Universiti Tun Hussein Onn Malaysia (UTHM) in 2014. She then obtained her Doctor of Philosophy in Electrical Engineering from Universiti Teknologi Mara (UiTM) in 2019. Her area of expertise are modelling, control system, and process control.

65. TRUCK'S BLIND SPOT DETECTION SYSTEM

Nabila Huda Mustapa Kamal, Ms. Norlee Husnafeza Ahmad

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Abstract

This project, "Truck's Blind Spot Detection System," aims to develop a safety mechanism for heavy vehicles using Arduino. The goals include creating a prototype with two ultrasonic sensors for front and rear distances, two microwave radar sensors for side detection, and GPS for location tracking. The system aims to reduce accidents, enhance driver convenience, and underscore the importance of blind spot safety in preventing daily road incidents involving heavy vehicles.

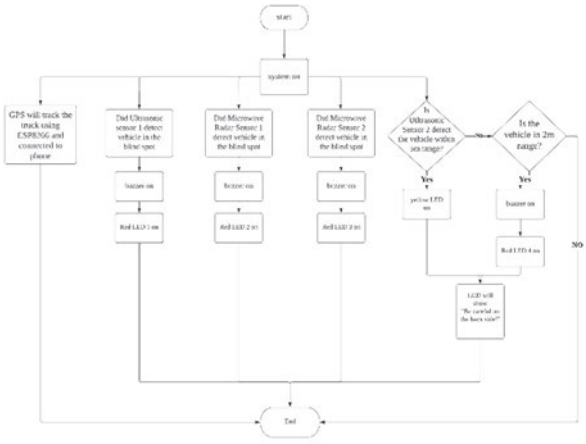
Keywords

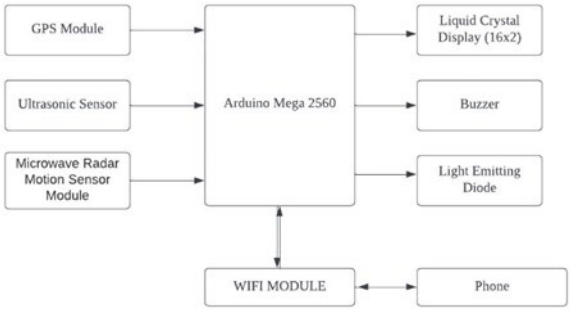
Blind spot, Pedestrian , Arduino, Vehicle, Safety systems

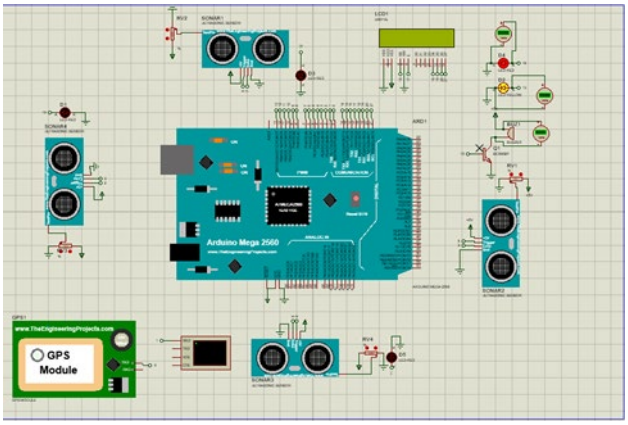
Product Description

The system activates upon switch-on, utilizing two ultrasonic sensors for front and back object detection and two radar sensors for left and right-side detection on a truck. If an object is sensed, the LED, buzzer, and LCD display issue warnings to the driver. Simultaneously, an IoT device (ESP 8266) notifies the company about the situation. The system continuously monitors and warns until the switch is turned off. Inputs include radar sensors, ultrasonic sensors, and GPS, providing blind spot detection, distance measurement, and location data to the company. Outputs comprise and LED, LCD display, buzzer for driver alerts, and an IoT device for real-time notifications and data collection to enhance safety and analyze driving performance.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.







Member Biographical Data

Nabila Huda binti Mustapa Kamal is currently pursuing Electrical Engineering (Electronic) in UiTM Pasir Gudang, Johor. She has a huge interest in the electronic field.

Norlee Husnafeza Ahmad obtained her Ph.D. from UiTM Shah Alam with her research on the development of the generation market in Malaysia using System Dynamic modelling approach. She started her career at UiTM as a lecturer from February 2011 in the Power Department. Her main research interests are power system economic, AI optimisation technique, as well as System Dynamics modelling.

66. QI-ENABLED WIRELESS POWER BANK

NAUFAL AAQIL BIN HAIZAL, Ts WAN SUHAIFIZA BINTI W IBRAHIM

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Abstract

This abstract describes the Wireless Power Bank (WPB) made to rethink the way we use our portable chargers. Made to meet the demands of cable free charging, this device utilizes Qi-wireless charging standards and eliminates the need for cables and offering a cable-free portable charging experience for a wide selection of Qi-enabled devices such as smartphones, smartwatches and earbuds. This WPB prioritizes mobility while housing a high-capacity battery to ensure long usage.

Multiple safety features have been implemented such as overcurrent protection and temperature control mechanisms. This maximizes the optimal charging speed and users' safety. The user-friendly interface such as LED indicators for battery capacity, further enhances the overall user experience. The Wireless Power Bank utilizes current technological trends providing a reliable and accessible solution for users that are in need of a wireless charging solution.

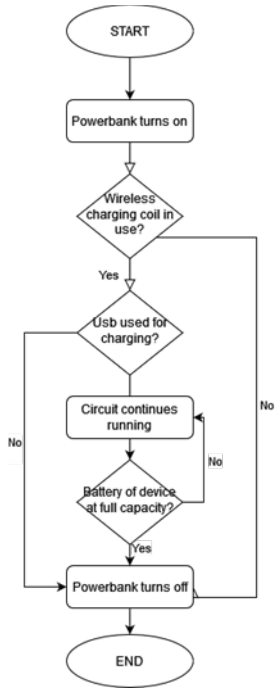
Keywords

'Wireless power bank', 'Qi Enabled', 'Portable charger', 'Cable free charging', 'User friendly design'

Product Description

Our product centers on developing a Wireless Power Bank (WPB) to transform portable charging. Harnessing Qi wireless charging technology, the compact and lightweight WPB offers a cable-free experience for various devices, including smartphones and smartwatches. The high-capacity battery, intelligent charging algorithms, and safety features ensure optimal charging speed and device protection. With a user-friendly interface and LED indicators, our project aims to provide a convenient and clutter-free charging solution, meeting the evolving needs of a modern, on-the-go lifestyle.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Naufal Aaqil bin Haizal attended Technical Institute of Melaka on 2019, pursuing an Electrical Engineering elective. After taking Sijil Pelajaran Malaysia (SPM), he joined UiTM in October 2021 and is currently taking a Diploma in Electrical Engineering (Elektronik). Currently, he is on his final year in his Diploma and is currently taking Final Year Project (FYP) to complete his diploma and graduate on time.

Ts. Wan Suhaifiza binti W Ibrahim joined UiTM in January, 2011 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering. Wan Suhaifiza binti W Ibrahim obtained her Bachelor of Electrical (Hons) Engineering and Masters of Electrical Engineering (Power) from Universiti Teknologi Malaysia. Currently, she serves as a senior lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Power Department. Her main research interests are E-learning, high voltage technology and renewable energy.

67. HEARTBEAT AND BODY TEMPERATURE MONITORING DEVICE USING IoT

Nik Nur Amira Binti R. Azmi, Fadila Binti Mohd Atan

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Abstract

This project describes the operation of a heartbeat and body temperature monitoring device to keep track of people's health and minimize the risk of sudden cardiac arrest. With wide exposure to the Internet of Things (IoT), it has changed the way healthcare workers monitor patients. This project aims to develop a prototype of a heartbeat and body temperature monitoring device using IoT. The projects also construct an IoT-based technology control system using thingSpeak. The designed hardware consists of a heartbeat sensor, temperature sensor, and thingSpeak as its IoT platform. This monitoring system allows medical providers to remotely observe their patients who are particularly those with chronic diseases related to the heart. Additionally, the size of this device is compact, user-friendly, and easy to bring anywhere. Moreover, the data will be transmitted to an application. In the future enhancement, the user will be able to retrieve the data stored in the application. Because of that, it reduces the need for repeated trips to the hospital.

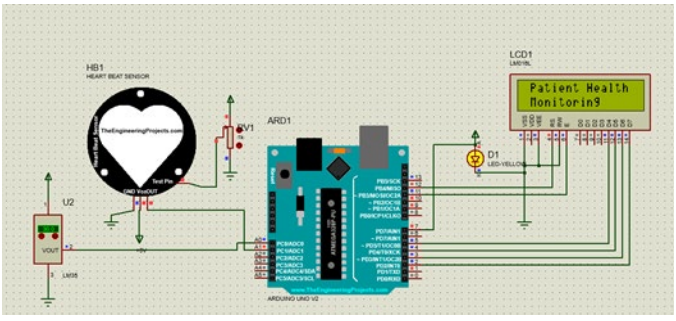
Keywords

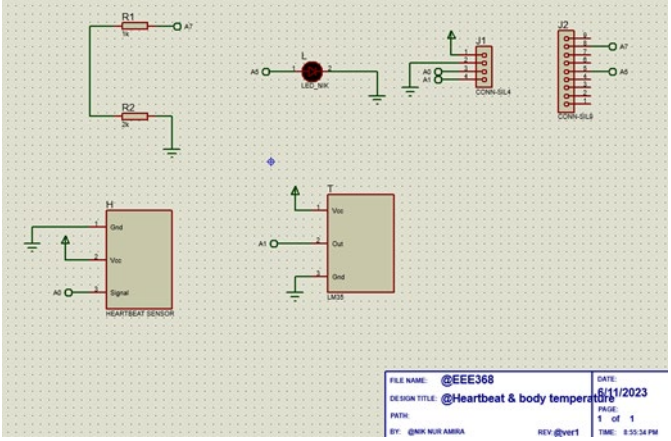
Heartbeat, Arduino UNO, thingSpeak, temperature sensor, ESP8266

Product Description

The product is inspired from oximeter which is the device that had a spike in demand during covid-19 pandemic. Therefore, a slight modification has been made which heartbeat and temperature sensor are combined into one device. So, the user especially the old can use and carry this compact device wherever at any time. The purpose of this initiative is to lessen the workload for health workers by focusing on patients who are low risk or severe. The output for this project is to display their status whether normal or dangerous depending on the value obtained.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.





Member Biographical Data

Nik Nur Amira is currently a student at UiTM Pasir Gudang, where she is majoring in electronics and taking a system elective. She has learned about electrical hardware and software during the last nearly two and a half years. She is familiar with a variety of simulation software, including Matlab, Proteus, Cx-Programmer, LabView, and many more. She has experience in handling a few events under her counselling club and has been awarded as dean list two times.

Fadila Mohd Atan is a senior lecturer specializing in electronic and communication engineering, holds a Master of Science degree in Telecommunications and Information Engineering from Universiti Teknologi MARA. With a decade of unwavering dedication, she has meticulously advanced her expertise in constructing prototypes to address real-world challenges within the engineering domain. Throughout her career, she has been actively involved in planning, design, circuit analysis, troubleshooting and Printed Circuit Board (PCB) fabrication and/or software application development of an electrical and electronic system. She has contributed significantly to multiple publications and projects.

68. INTELLIGENT DUSTBIN MONITORING SYSTEM WITH CHEMICAL DETECTOR

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Abstract

Nowadays, keeping a clean environment can be attributed to one of the major issues in most cities, particularly in areas of manufacturers and hospitals that dispose of chemicals. This area is very unsanitary and may contain many viruses. This area is unsanitary and might contain a variety of infectious agents. The dustbin is one of the items that may cause contact and hence be a source of illness distribution. To avoid any harmful scenarios and keep the environment clean, this project is developing an Intelligent Disposal Monitoring System with A Chemical Detector. Surely, using this prototype, users will be able to dispose trash without encountering any viruses that may infect them.

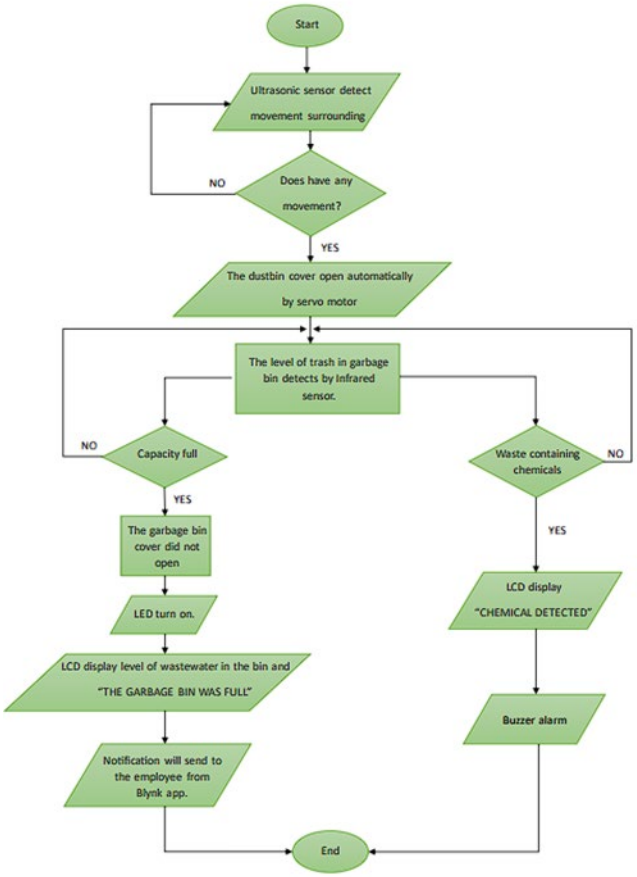
Keywords

Blynk app, ultrasonic sensor, Infrared sensor, gas sensor, Waste bin, Arduino IDE.

Product Description

Using the Blynk platform, this project worked on the IoT-based automatic dustbin lid. This invention employs an infrared sensor to detect the level of waste in the dustbin. The ultrasonic sensor detects movement and allows the lid to open without any contact. When the waste in the dustbin is full, the LED will show "The garbage is full" and the LED will light up. ESP32 also sends notifications to workers when the garbage is full. Aside from that, if someone places trash containing chemicals, the lid will not open, and a bell will sound to inform others nearby.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Nor Haizan Amer Fitri bin Sulaiman a third-year student of Diploma in Electrical Engineering (Electronics) form Universiti Teknologi Mara Johor Branch, Pasir Gudang Campus and takes communication subject as their elective. The duration of their diploma took 3 years from 2021 until present. Currently he is undergoing his final year project (FYP) about Intelligent dustbin monitoring system with chemical detector.

Ts. Shakira Azeehan Binti Azli obtained her Msc (Electrical Engineering-Power), B.Eng (Hons) Electrical Engineering and Diploma in Power Electrical Engineering from Universiti Teknologi Malaysia, Johor. Ts. Shakira is one of the academic staff at Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus.

69. BOWLING SHOES CONTACTLESS SYSTEM USING IOT

Nur Afina Aliah Binti Rusli, Siti Aliyah Binti Mohd Saleh

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Abstract

The current manual bowling shoe system is inefficient and risky, requiring more workers and increasing monthly salary costs. A project aims to develop a contactless system using Arduino Microcontrollers to ensure a safer environment. The IoT-based automated bowling shoe system consists of an IR sensor, PIR sensor, keypad, LCD, Wifi-module ESP8266, motor, and LED output. The hardware is connected via an Arduino Mega 2560 microcontroller, while the software is Proteus 8 Professional, Arduino I.D.E, Blynk and Tinkercad. This system will provide a more efficient and safe environment.

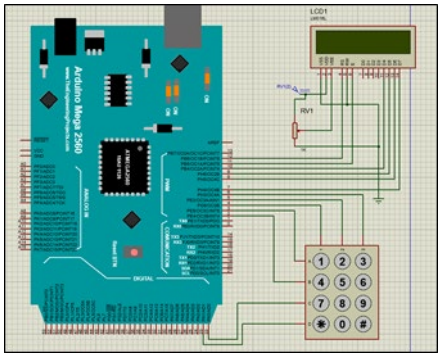
Keywords

bowling shoes, Internet of Thing, PIR sensor, IR sensor, Arduino Mega 2560

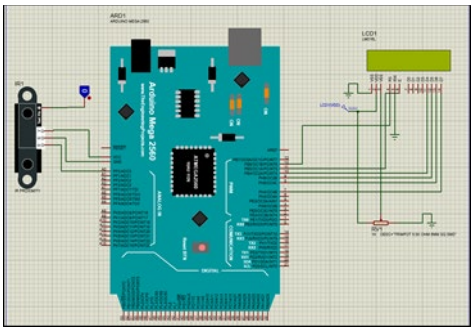
Product Description

The current manual process for bowling shoes involves one employee handling each pair, increasing the risk of virus or bacteria spread between staff and customers. This product aims to enhance consumer safety by introducing a contactless system for bowling shoes. The use of IoT systems can help solve this issue by developing an automatic system that allows customers to self-serve. The objective is to create a safer and more efficient environment for bowling shoes management, enhancing the overall experience for customers.

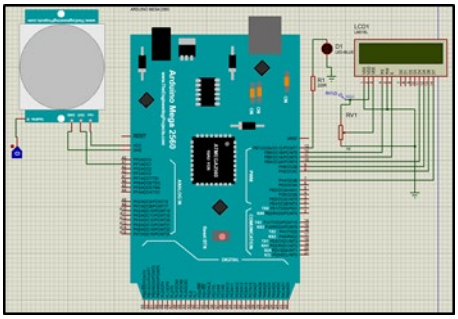
Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Schematic diagram of keypad



Schematic diagram of the IR Sensor



Schematic diagram of PIR sensor.

Member Biographical Data

Nur Afina Aliah is currently pursued diploma in electrical engineering major in electronic at Universiti Teknologi Mara Cawangan Johor Kampus Pasir Gudang. My passion for studying electrical engineering has been a driving force in my academic journey. As a dedicated and curious student, I am always looking for opportunities to expand my knowledge and skills.

Siti Aliyah Mohd Saleh has a Master's degree in Engineering (Applied Science) from Tokai University, Japan (2012). She is currently serving as a lecturer at Universiti Teknologi MARA (UiTM), working in the Power department of Electrical Engineering Studies. Her research interests include high voltage technology and power system.

70. IoT BASED INTELLIGENT TRANSLATING AND MONITORING GLOVE

Nur Aliah Fathiah Binti Md Yusof, Dr. Muhammad Asraf Bin Hairuddin

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Abstract

The primary goal of this project is to lower barriers to communication between regular people and special people who are unable to have a typical discussion, such as speech impairment people. Humans interact and get to know one another by their thoughts, ideas, and expressions of their feelings and intentions. The best technique to convey your thoughts is orally. However, some people lack the ability to speak, and must instead interact with others using sign language. The limitation of sign language to those who are also speech-impaired is its main drawback. We can infer that it only affects the same group of speech-impaired people. Therefore, technology that uses systems to translate sign language into speech is needed to close this gap.

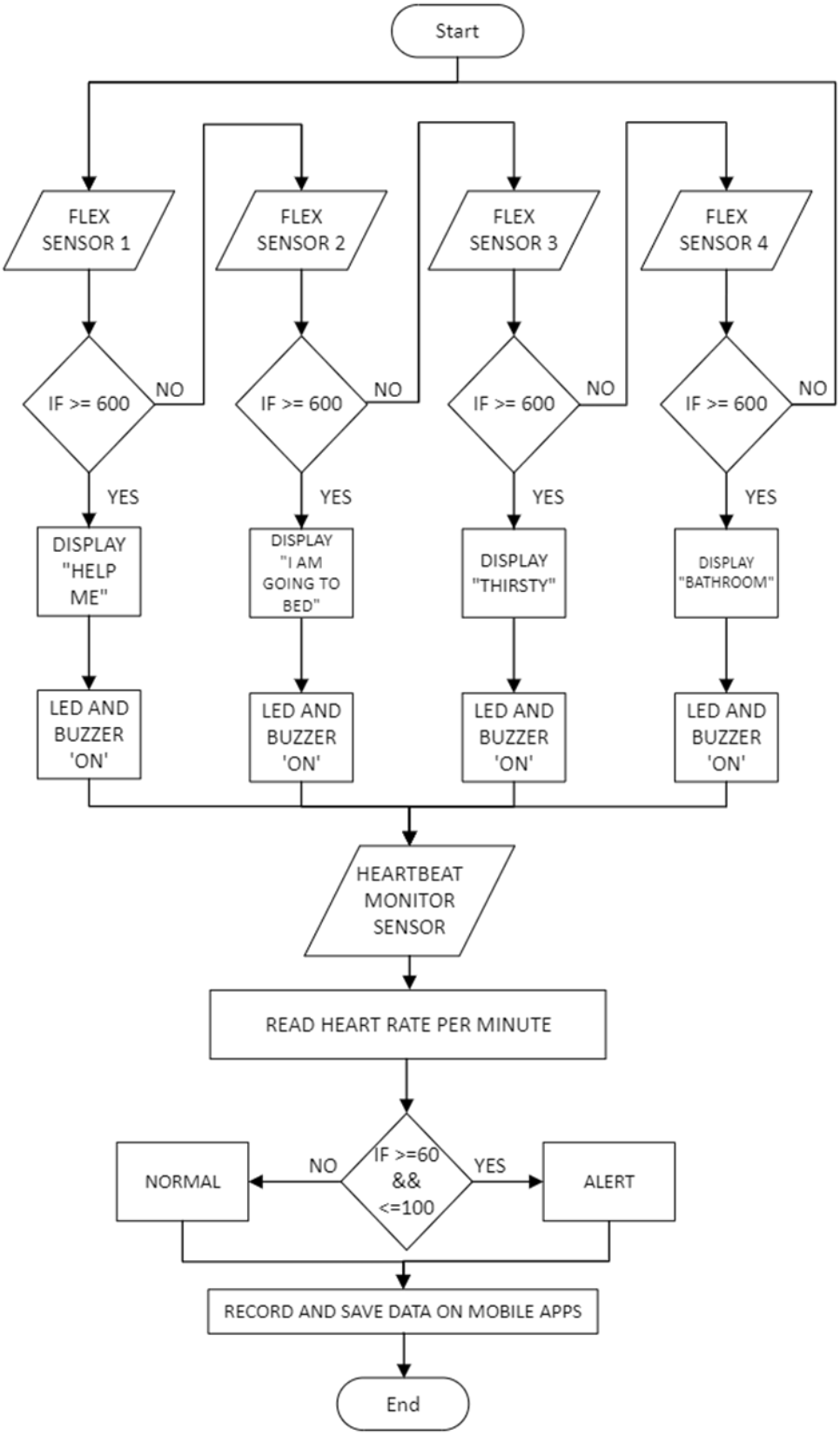
Keywords

IoT based, smart glove, disabled people, flex sensor, heartbeat sensor.

Product Description

The product being described is a smart flex sensor glove that is intended to help those who are bedridden or have speech problems or paralysis communicate. The glove converts Sign Language to Common Language by sensing finger movements via flex sensors, which measure the angle and degree of motion and adjust resistance levels correspondingly. A microcontroller translates these values into digital form, and responses are given via an app on the user's phone. Additionally, the glove functions as a heart monitor, tracking the user's heart rate and sending alerts if it deviates from normal ranges, utilizing Wi-Fi for notifications. This innovative device aims to overcome communication barriers and provide health monitoring for individuals with specific needs.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Nur Aliah Fathiah Binti Md Yusof is an aspiring electrical engineering professional currently pursuing a Diploma in Electrical Engineering (Electronics) at Universiti Teknologi Mara (UiTM), expecting to graduate in July 2024. With a solid academic background reflected in her 3.48 CGPA, Nur Aliah is deeply engaged with her field, having taken specialized elective subjects such as Electronics 1, 2, and 3, Electronics Design, Basic Power Engineering, Digital System, Microprocessor System, and more.

Muhammad Asraf Hairuddin senior lecturer at the Centre for Electrical Engineering Studies, Universiti Teknologi MARA, Johor Branch, Pasir Gudang Campus. He graduated with a diploma, degree, and a Ph.D. from the Universiti Teknologi MARA in Shah Alam. His research interests include Image Processing, Artificial Intelligence, Deep Learning, and Process Control.

71. INTEGRATED HOME CONTROL SOLUTION

Nur Atiqah binti Mohd Nazri, Mastura binti Omar

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Abstract

People are often busy with work, family, and other aspects of life, which can make it easy to forget simple things like turning off lights and fans before going to bed or leaving the house. This oversight can lead to higher electricity bills. Additionally, with Malaysia's frequent rain seasons, a common issue is leaving clothes outside during sudden weather changes. The Integrated Home Control Solution is designed to effectively tackle two key challenges. Firstly, it enables remote control and monitoring of lights and fans through the Blynk application, facilitating efficient energy management. Secondly, the system features an automated pulley clothesline equipped with a rain sensor, an indispensable tool in areas prone to sudden rainfall, such as Malaysia. This innovative feature aids in safeguarding clothes from unexpected rain. In this project, rain sensors and Light Dependent Resistors (LDR) are used as inputs, while the outputs include LEDs (lights), DC motors, and fans. The rain sensors detect rain, and the LDRs measure light levels. To create and control this system, software platforms like Proteus, Blynk, and Arduino IDE are utilized. The LEDs indicate the system's status, the DC motors manage the automated clothesline's movement, and the fans contribute to air circulation.

Keywords

Arduino Mega, rain sensor, LDR, IoT notification, ESP32

Product Description

Each component of the project is equipped with its own hardware, enabling functionality according to pre-set coding instructions. In this project, a DC motor is utilized to adjust the fan's blade speed as per the user's preference. The system also includes an automated pulley clothesline, which employs a rain sensor and an LDR to automatically engage a stepper motor that retracts the clothesline. Additionally, LEDs are used to produce and adjust light brightness. The project is designed to process and transmit data and information to a WiFi Module via Blynk, allowing users to control these features remotely. The system initiates when the rain sensor detects rain and the LDR senses darkness, subsequently retracting the clothesline indoors. There are three scenarios that trigger the clothesline to move inside, and one scenario for it to extend outside. The second feature of the system is a fan regulator with three speed settings, controllable via the user's phone. The third feature allows for phone-based control of a light, enabling users to turn it on or off and adjust its brightness. Lastly, the LDR responds to light presence, turning the LED off in bright conditions and on when no light is detected.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.

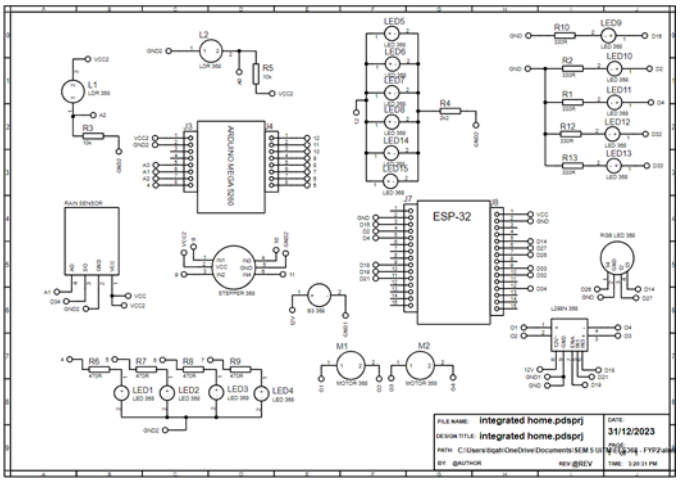

Figure 1: Schematic Capture of Integrated Home Control Solution

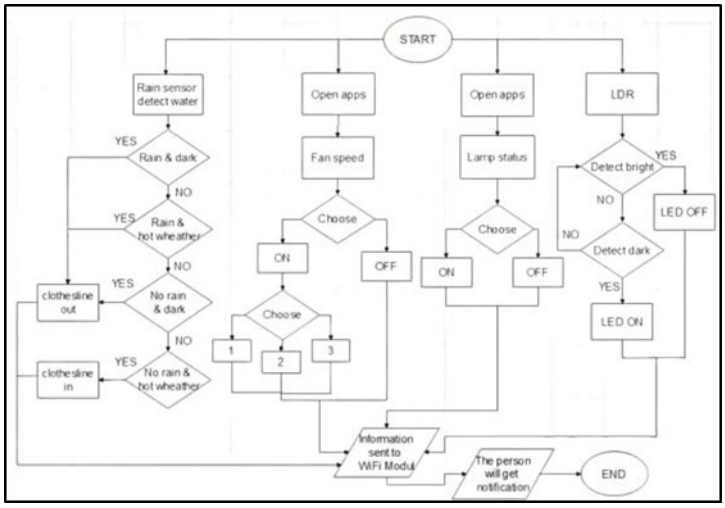

Figure 2: Flow chart of Integrated Home Control Solution

Member Biographical Data

Nur Atiqah binti Mohd Nazri is currently pursued her Diploma in Electrical Engineering major in Electronics at UiTM Pasir Gudang, Johor. She is interested in learn more about her major and try more tools, equipment and project that related with IoT. She has experience in Makers Club for a year. In that club, she learned about the production and operation of robots with the use of an application created by the UiTM lecturer.

Mastura Omar is a dedicated Senior Lecturer in the Electronics Department at the Electrical Engineering Studies, College of Engineering, UiTM Pasir Gudang. She holds a Bachelor of Engineering in Electrical and Electronics from Universiti Teknologi Petronas and a Master of Science in Microelectronics from Universiti Kebangsaan Malaysia. With over 10 years of experience in academia, Mastura specializes in Electronics System Design, blending her extensive knowledge with a passion for teaching and research.

72. IOT BASED INTELLIGENT SHOPPING CART WITH BILLING SYSTEM

Nurliyana Umairah Bt Irman Shah, Pn. Fazlinashatul Suhaidah Bt Zahid.

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Abstract

This project, an intelligent shopping cart with a billing system introduces a cutting-edge shopping experience by leveraging IoT technology. This system enhances traditional shopping carts with smart features to make the entire shopping process more efficient and convenient. The project is equipped with a sensor that tracks items added or removed, creating a live shopping list. RFID technology uniquely identifies products for accurate tracking. A built-in microcontroller communicates with a central server, ensuring real-time updates and transactions through wireless connectivity. Customers benefit from a user-friendly mobile app that mirrors the carts content and displays real-time prices. The system eliminates the need for traditional checkout queues, allowing users to pay through the app, streamlining the shopping experience.

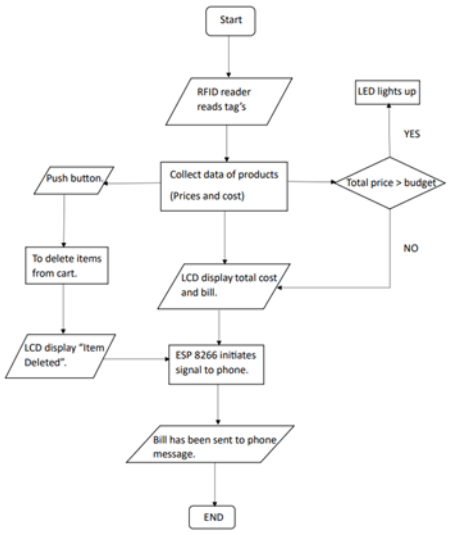
Keywords

RFID, IoT, LCD, LED, Arduino, ESP8266

Product Description

The project is an intelligent shopping cart with billing system that controlled by Arduino UNO and use an ESP8266 to make a Bluetooth connect with mobile phone. This project uses RFID reader instead as a main input to scan the data input cost of the products. The Arduino UNO act as a microcontroller and to implement the project by using the ESP8266 and Arduino App. The components that are used are RFID reader and push button as the input of the project, Arduino UNO as microcontroller and LCD, LED and Mobile phone as an output. The project is making a customer enter their budget in the cart while shopping. When the the total price is overbudget then the LED will light up. Then, the push button acts to delete the item from the cart. While the ESP8266 act to Bluetooth with the mobile phone to inform the total price to the customer.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Flowchart of this project

Member Biographical Data

Nurliyana Umairah Irman Shah graduated for SPM in the year 2020 from SMK Teknik Kuala Lumpur with various involvement of extra cocurricular. For example, active in playing sports in school by joining Softball club and robotic club. A student that currently pursuing diploma in electrical engineering (electronic) with a great grade. She had understood the process of designing printed circuit boards (PCB) during the course of his diploma. Electronics is currently the primary elective being studied.

Fazlinashahtul Suhaidah Zahid is a practice lecturer and researcher with 7+ years of experience teaching courses on undergraduates' level. Her research group focuses on the fabrication and integration of dimensional materials particularly graphene, carbon-nanotube (CNT) and other 2D materials into humidity sensor and organic solar cell applications as well as polymer nanocomposites.

73. SLEEP MONITORING SYSTEM USING HEARTBEAT SENSOR

Nurul Sakinah Binti Mohd Ghazaly, Siti Musliha Ajmal Binti Mokhtar

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Abstract

The rising concern about death while sleeping has been due to lack of sufficient monitoring. With the development of the Internet of Things (IoT), sleep monitoring systems can be improved, and heart rate can easily be monitored by the patient's caregiver and health personnel. This project utilizes a wearable device with a heartbeat sensor. This project's hardware development includes a heartbeat sensor, reset button for emergency calls, buzzer, LED, and Arduino UNO as the main controller. When an abnormal heartbeat is detected, alerts are triggered through a Wi-Fi module to notify healthcare personnel on their mobile phones. The complete prototype of this system aims to simplify timely action by healthcare providers, ensuring the well-being of patients during sleep.

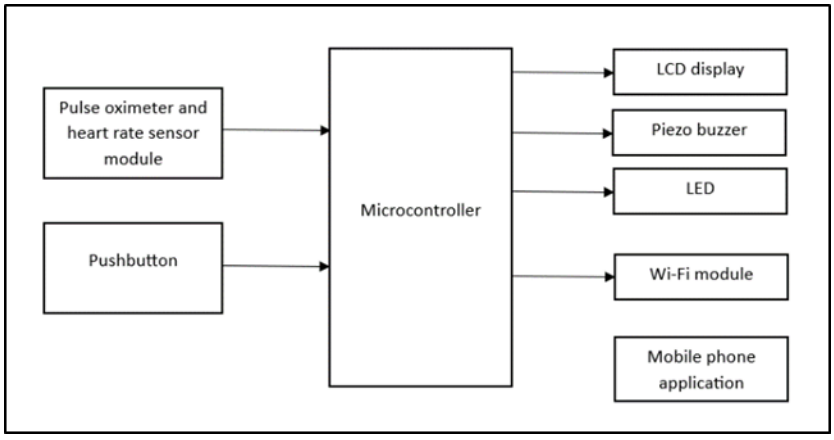
Keywords

Sudden cardiac arrest, heartbeat sensor, Internet of Things (IoT), emergency alert, real-time monitoring

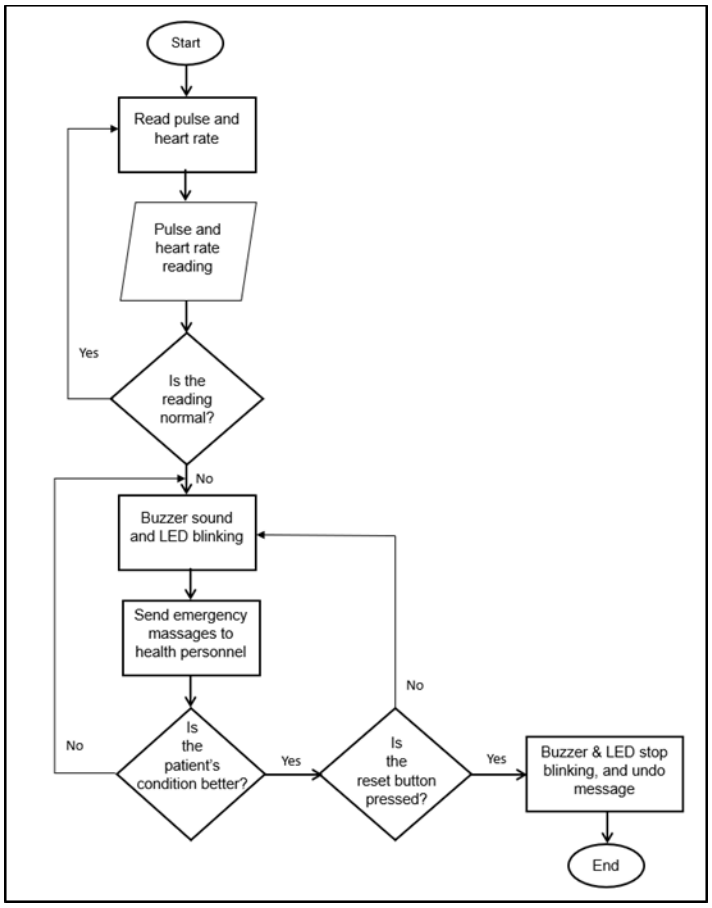
Product Description

This sleep monitoring system implements the use of IoT and heartbeat sensor for real-time monitoring and data collection on a patient's heartbeat. It will display the patient's heartbeat value on the LCD, providing the caregiver with insight into the patient's condition. By using a Wi-Fi module, it sends notifications to healthcare personnel's mobile phones to alert them to abnormalities in the patient's heart rate. This system aims to aid in timely intervention for patients, thus increasing the chances of survival in the event of a sudden cardiac arrest.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Block diagram



Flowchart

Member Biographical Data

Nurul Sakinah Binti Mohd Ghazaly developed an interest in electronics during her school years and is currently a student pursuing a Diploma in Electrical Engineering at Universiti Teknologi MARA, Branch Pasir Gudang Campus, Johor, majoring in electronics. She participates in extracurricular activities that complement her academic journey and enhance her technical skills. She hopes to advance her knowledge in the field and apply it further for meaningful contributions.

Siti Musliha Ajmal Binti Mokhtar obtained her Diploma in Engineering (Electronics & Electrical) from Universiti Industri Selangor (UniSEL) Selangor and Bachelor of Electrical & Engineering (Hons) Engineering from Keio University, Japan. After working for a year as a process engineer in Konica Minolta Glass Tech (M) Snd. Bhd, she continued to complete her master degree in Electronic Engineering from UiTM Shah Alam. She worked for a while as system solution engineer at Panasonic System Network (M) Snd Bhd before switching to academia as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. She completed her PhD in Advanced Energy and Manufacturing from University of South Australia (UniSA), Australia. Her main research interests are analog & digital circuit design, thin film coating, electrochemistry and microneedle for on-skin application.

74. AUTOMATED CLOTHES DRYING SYSTEM

Siti Asyiqin Nur Fitri bt Abd Ghani, Ts Kamaru Adzha bin Kadiran

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Abstract

This project presents an automated clothesline system which is made to improve the effectiveness of drying clothing. This project uses sensors, a microcontroller, Light Emitting Diode (LED), Liquid Crystal Display (LCD) and motor. The sensor used for the system is a rain sensor to detect rain and Light Dependent Resistor (LDR) to detect the presence of light. The clothesline will be automatically retrieved when it rains. The microcontroller used was Arduino and the motor used for this project was DC motor. The LED will light up upon detecting the rain. LCD will be used to display the percentage of light. LED indicators and LCD display provide visual cues and real time information, making the system user-friendly and responsive. This innovative approach, incorporating Arduino technology, aims to improve energy conservation and user convenience in traditional clothes drying practices.

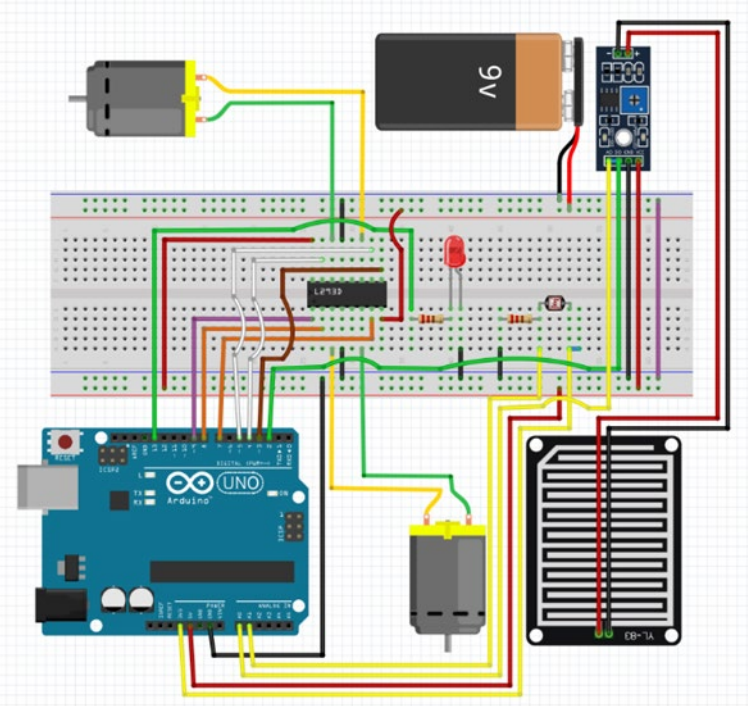
Keywords

Automated clothesline, Arduino, LED, DC motor

Product description

This product is an automatic retrieving clothesline which will act upon sensing the rain. This product uses a rain sensor to detect the rain and LDR to detect the light. Upon detecting the rain, the DC motor will move to retrieve the clothesline. The LED will light up and the LCD will display the percentage of light.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Siti Asyiqin Nur Fitri is currently pursuing a Diploma in Electrical Engineering (Electronic) major in communication at Universiti Teknologi MARA (UiTM), Pasir Gudang. She graduated from SMK Cheras Jaya for her secondary education. She is an active person of a QuarterMaster member in school. This course has made me gain more knowledge about electronics and made me interest to learn more.

Ts. Kamaru Adzha Bin Kadiran joined UiTM in July 2014 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering. He obtained his Bachelor of Engineering (Electrical - Telecommunications) (Hons) (1999 – 2004) and Master of Engineering (Electrical - Electronics & Telecommunications) (2004 – 2005) from Universiti Teknologi Malaysia (UTM). Currently, he serves as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in the Electronics Department. His main research interests are e-learning and machine learning.

75. SMART INDOOR MOBILE AIR QUALITY MONITORING SYSTEM

Siti Nurliyana binti Azli Amin and Dr. Zakariah bin Yusuf

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Abstract

Due to an enormous rise in the amount of time spent inside because of industrial growth, indoor air quality has emerged as a major issue in the preservation of human life. Public health experts, environmental regulators, and business experts are working to enhance the overall health, comfort, and well-being of building occupants. Despite ventilation and air purification systems being placed in several interior areas, the air's purity cannot be guaranteed without effective monitoring systems. In this study, we developed a smart indoor air quality monitoring device, measuring components of temperature, humidity, NH3, NOx, CO2, benzene, smoke, and other dangerous gases in the atmosphere. Using short and long-distance communication modules, the smart air quality monitoring system is connected to a built smartphone application to oversee the air quality in the area. As a result, a smart air quality monitoring system may be used to predict future air quality, which would help to enhance indoor air quality in real time.

Keywords

IoT, Air Quality Monitoring, Mobile, Indoor, MQ135 Gas Sensor.

Product Description

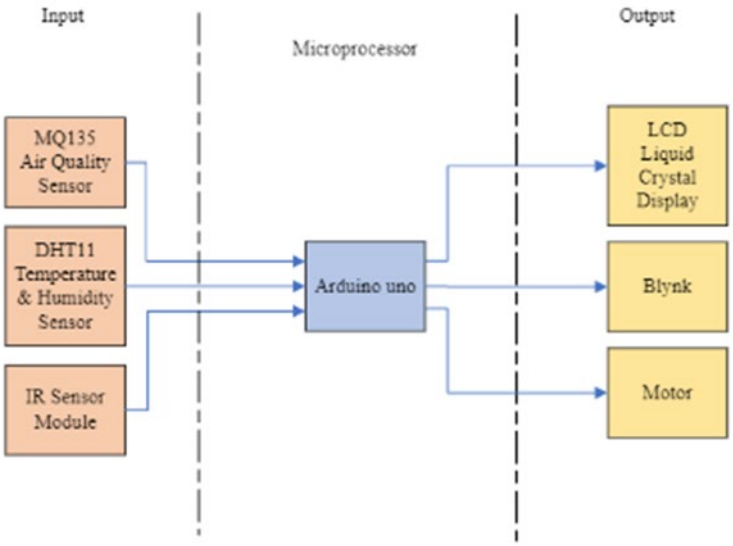
To achieve a successful study, the Smart Indoor Mobile Air Quality Monitoring System must demonstrate effective monitoring and optimal energy efficiency while tracking air quality and temperature. The project's focus on long-term data analysis and future development is emphasized, with the mobile application serving as a crucial tool for data accessibility and timely alerts about low air quality. By conducting this study, the system aims to provide comprehensive insights into environmental trends and facilitate informed actions, ultimately contributing to the maintenance of optimal air quality and improving human health in the monitored area.

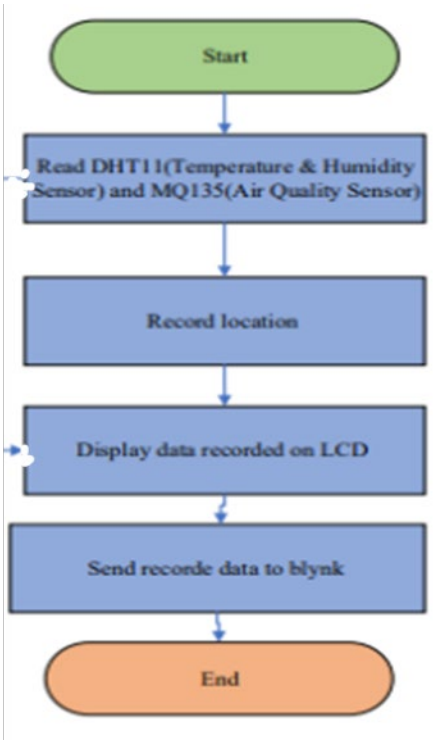
An IoT-based air quality monitoring system has been developed, leveraging components such as the DHT11 sensor for temperature and humidity, the MQ-135 gas sensor for air quality assessment, an LCD display for on-site information, and the ESP8266 module for online connectivity via Blynk. This comprehensive system is designed to be integrated into line-following robots, adding a new dimension to their capabilities. As the robot traverses through an area, the sensors continuously measure environmental parameters, and the collected data is transmitted in real-time to the Blynk platform. This integration not only enhances the robot's functionality but also provides users with a remote monitoring solution for assessing air quality conditions in various environments.

In practical terms, this innovative system addresses the growing need for real-time environmental monitoring. The DHT11 and MQ-135 sensors enable the collection of crucial data, including temperature, humidity, and air quality, while the ESP8266 module facilitates seamless communication with the Blynk

platform. The inclusion of an LCD display ensures immediate access to on-site information. By implementing this technology in line-following robots, users can deploy these devices in diverse applications, from smart cities to industrial settings, gaining valuable insights into the air quality of the monitored areas. This system represents a step forward in leveraging IoT for environmental awareness and contributes to the development of more intelligent and responsive robotic systems.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.





Member Biographical Data

Siti Nurliyana Binti Azli Amin is a dedicated and responsible Electrical Engineering (Electronic) student currently pursuing a Diploma at Universiti Teknologi MARA, Kampus Pasir Gudang, with a notable CGPA of 3.15. Possesses strong communication skills, adaptability, creativity, teamwork, and problem-solving abilities, coupled with proficiency in PLC programming and bilingual fluency in Malay and English. Siti Nurliyana actively contributes to volunteer work, participating in clubs such as Estech Club and Makers Club at UiTM Pasir Gudang, where she facilitated personal and professional growth through diverse activities and workshops. Overall, Siti Nurliyana's academic excellence, practical experience, and volunteer involvement make her a highly motivated and skilled individual, well-suited for collaborative and impactful contributions in the field of Electrical Engineering (Electronic).

Zakariah Yusuf presently serves as a lecturer at the School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA (UiTM) Cawangan Johor, Kampus Pasir Gudang. He earned his Diploma, Degree, and Masters in Electrical Engineering from UiTM Shah Alam in 2004, 2008, and 2012, respectively. In 2018, he successfully completed his Ph.D. in Electrical Engineering with a focus on Control Systems at Universiti Teknologi Malaysia (UTM). With a decade of professional experience, he has gained expertise in diverse industries, including process control engineering, automotive, and power system project management

76. SECURE PARKING PAYMENT SYSTEM (SPS) WITH DATABASE MONITORING CHANNEL

Syed Luqman Putra Bin Syed Putra Zainol Alam, Mdm Hanunah Binti Othman

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Abstract

Car parking systems play a vital role in managing the increasing demand for parking spaces in urban areas. According to statistical data, the number of vehicles on the roads has been steadily increasing, leading to overcrowded parking lots and time-consuming parking procedures. To amidst this situation, "Secure Payment Parking System (SPS) with Database Monitoring System" is built. This project addresses the need for an efficient and secure car parking solution, leveraging ESP32 and ESP32 CAM modules, infrared sensors, LEDs, and a custom mobile application developed with MIT App Inventor. The problem statement underscores the challenges associated with conventional parking systems, including traffic delays and inconvenient payment system such queuing at the payment counter. In response to the limitations of traditional gate-based parking systems, the project introduces a “one way step entry” approach. The focus of this project are to streamline the parking experience and enhance security. Also this project can develop an intelligent online parking payment system that allows users to conveniently check-in using QR code thus making online payment and exit the system with an exit gateway verification code. The project benefits include a more efficient parking process, reduced user waiting times, secure payment processing, and enhanced user experience. Future recommendations may involve expanding the system to include additional payment options, integrating with smart city infrastructure, and incorporating machine learning algorithms for predictive parking availability.

Keywords

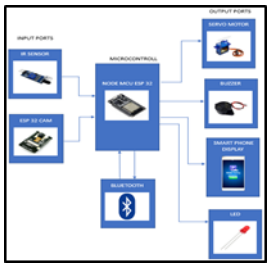
Car parking, payment, ESP32, ESP32 CAM, infrared sensors, LED, servo motor, MIT App Inventor.

Product Description

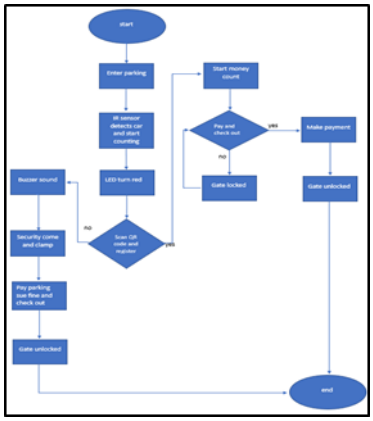
The project use ESP32 as a microcontroller. When there is a parking spot, the green LED will turn on. Then when the parking is occupied the green LED will turn into red that are detected by the infrared sensor. Upon enter the paring spot, the user must enter the SPS application within 5 minute by scanning the QR code or the buzzer will ring to indicate the user did not login into the SPS application. On the application, user must enter their phone number and the car number plate as a registration. Then the data will directly be recorded in the security monitoring excel. Upon registration the timer for the parking will automatically run. User must check out when they want to exit the parking spot and make payment through the application. When payment is complete, user will received a QR code that will be needed to be scan at the servo motor gate.

Photo/ Schematic Diagrams/ Flow Charts/Screenshots/Graphs And Etc.

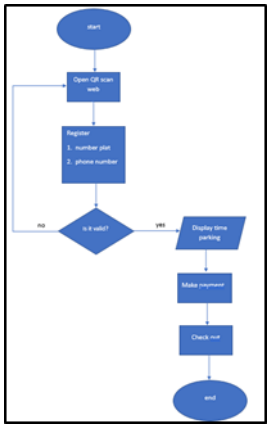
i) SPS prototype



ii) SPS block diagram



iii) SPS system flowchart



iv) SPS application flowchart

Member Biographical Data

Syed Luqman Putra Bin Syed Putra Zainol Alam is a third-year student of Diploma in Electrical Engineering (Electronics) from Universiti Teknologi Mara Johor Branch, Pasir Gudang Campus and takes communication subject as their elective. The duration of their diploma took 3 years from 2021 until present. Managed to achieve a CGPA of 3.51 throughout my 5 semesters. He is still on pursuit to grad his diploma with a first-class honor. He always being passionate about communication and innovation areas, and constantly seek opportunities to expand his knowledge and contribute to innovative solutions.

Hanunah Binti Othman graduated from Universiti Kebangsaan Malaysia (UKM), Bangi, Selangor, with a Bachelor (Hons) in Electrical, Electronic and System Engineering and a Master of Engineering (Communication and Computer Engineering). Formally worked as a lecturer in Electrical Engineering Studies (PKE), Universiti Teknologi MARA (UiTM) at Shah Alam Campus from year 2000 to 2014. She is currently employed with the Communication Engineering Department at PKE, UiTM Johor, Pasir Gudang Campus. She has taught over ten courses. Her areas of expertise include Mobile and Wireless Communication System, Privacy in Mobile Location-Based Services (LBS) and Circuit Theories & Analysis.

77. CHILD TRACKER WITH GPS AND IOT NOTIFICATION

Ungku Hafiz Ikmal Bin Ungku Shaharudin, Dr Khairul Kamarudin Bin Hasan

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Abstract

Child safety is a prevalent global concern, particularly in relation to risks such as abduction and missing children. The primary objective of this project is to establish effective communication between parents and children through a device equipped with a GPS tracker, thereby enabling the tracking of the child's location. This device leverages the capabilities of a WIFI module and IoT technology to facilitate seamless connectivity between parents and children. Through the implementation of the IoT-based Child Tracker using Proteus and the Telegram platform, parents can issue commands to a Telegram bot, eliciting real-time coordinates of the child and activating a buzzer at the child's end to alert the surrounding environment. By periodically accessing the information stored in the device, parents can ensure the safety of their children even when they are not physically present. Additionally, the device incorporates sensors that are triggered automatically in response to specific activities, providing enhanced monitoring capabilities.

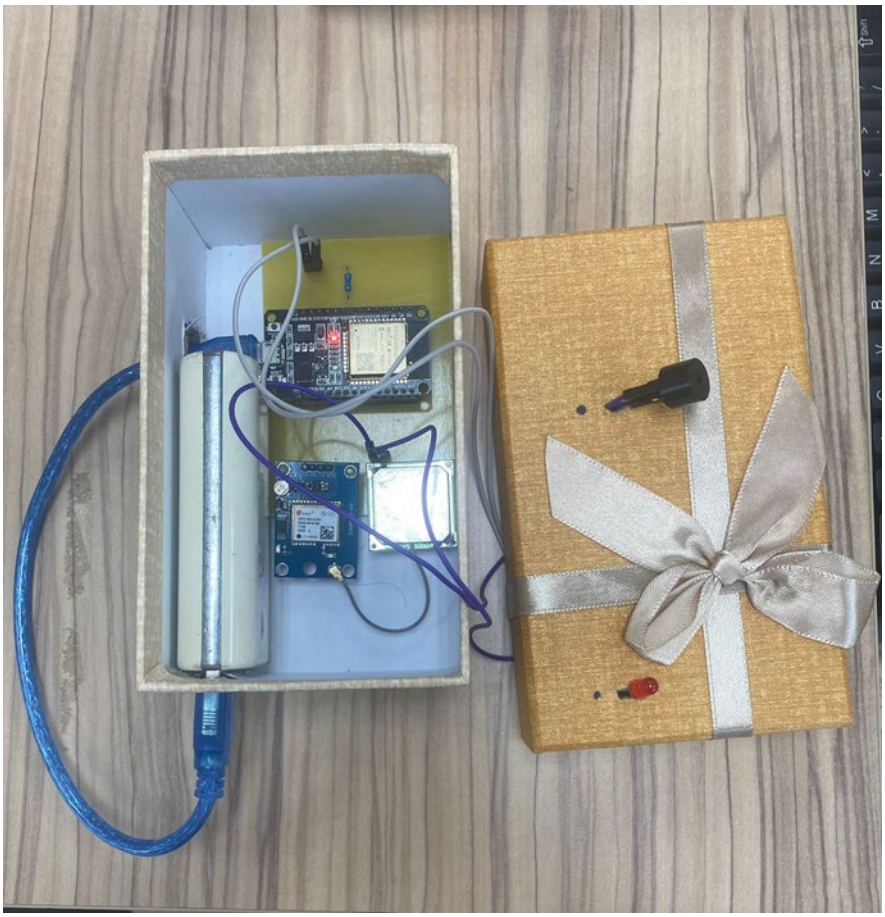
Keywords

Child Safety, WIFI module, IoT, GPS tracking

Product description

The goal of this project is to create an advanced effective tracker that is specifically designed to protect children. It uses an ESP32 microcontroller, GPS, and an integrated buzzer to work continuously and successfully track a child's location. Parents can receive automated location updates or specified interval updates through the easy-to-use Telegram app. This all-inclusive system, which combines cutting-edge instruments and technology, assures children's safety and gives parents crucial updates and peace of mind about how they're doing.

Photo/ Schematic diagrams/ Flow charts/Screenshots/Graphs and etc.



Member Biographical Data

Ungku Hafiz Ikmal bin Ungku Shaharudin is a third-year student at the Universiti Teknologi MARA Johor Branch College of Engineering, which is located on the Pasir Gudang Campus. He is majoring in Electrical Engineering. His birthplace in Johor on February 18, 2003, influenced his developing passion for video editing. His love of video editing has developed into a creative sanctuary where he can continuously improve his abilities, supporting his academic goals and enhancing his college experiences.

Khairul Kamarudin Hasan is currently working with School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA Cawangan Johor, Kampus Pasir Gudang, Malaysia. He received the B. Eng in Electronic Engineering (Electronic Industrial) in 2012, the Msc. Eng degree in Electronic Engineering (System), in 2014 and Ph. D degree in Electronic Engineering from Technical University Malaysia Malacca in 2021. His research interest Wireless Power Transfer, Power Electronic, Control system and Drive.

Diploma in Electrical Engineering (Power) CEEE112

1. CRASH DETECTION AND EMERGENCY RESPONSE (CRADER) SYSTEM

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Abstract

Several road accident victims who still survived the accident could not be saved because help arrived late due to injuries that were too severe and there were also accident victims who were trapped in cars that caught fire due to the accident. The aim of this project is to design a system that can detect crash of vehicles and emergency response during the accident by using Arduino Uno, Accelerometer, Flame Sensor, GPS and GSM Module. The process of this project starting with the input received by the Accelerometer for the crash detection, then if accident occur, the GPS Module will detect the location and send the location to the GSM Module where it will send notification to alert the people on their smartphone through SMS. The Flame Sensor is used if the flame or spark presence around the vehicles and if the flame presence, it will trigger the ABC Dry Powder to spread the ABC dry powder to the certain part of the vehicles. This system will help to solve the problem that occurs during an accident to save the lives of people and prevent the vehicles from being burned. Arduino Uno, Accelerometer, Flame Sensor to improve the accident detection and emergency system. CraDER System focused on developing a system tool that can assist accident victims and act as a preventative measure to stop vehicle fires and more serious injuries from occur. This project contribution focusing on society where most of the people use vehicles as a transport from one place to the destination every day.

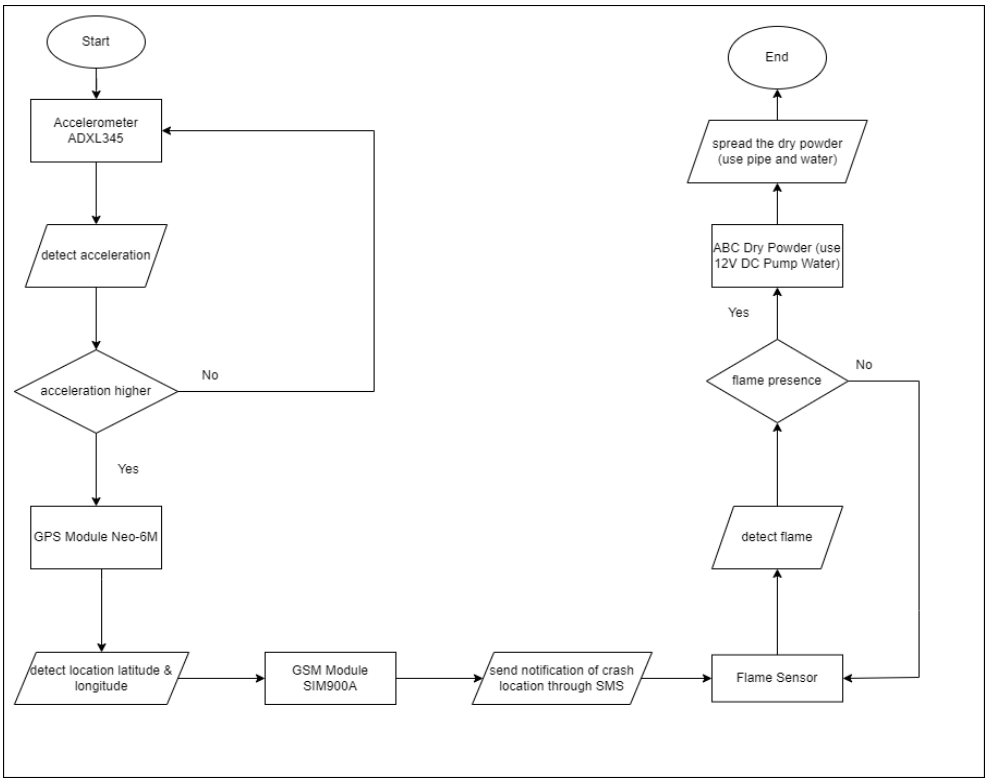
Keywords

Car Accident, Arduino, Flame sensor, GPS, GSM

Product Description

Crash Detection and Emergency Response (CraDER) System is a system that immediately recognizes many forms of accidents, such as collisions, falls, or unexpected impacts. The CraDER System provides GPS technology for accurate location tracking of the accident and enables real-time communication between accident victims and emergency responders. The CraDER System will help in sending the location of the crash location to the family members and emergency numbers and reduce the severity of accidents by allowing for immediate assistance.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Adam Luqman Bin Roslan is currently pursued his diploma in Electrical Engineering major in Power at UiTM Cawangan Johor Kampus Pasir Gudang. He is interested in machines and the power system. He is good at teamwork, leadership, analysing and problem solving. He also gained much knowledge about the use of software like Arduino IDE, Proteus and Microsoft Word and for hardware like Arduino Uno, Accelerometer, GSM SIM900A, GPS Neo-6M, Flame Sensor and other components through the Final Year Project with the title project “Crash Detection and Emergency Response (CraDER) System”.

Masmaria received B.Eng in Electrical Engineering from Universiti Teknologi MARA (UiTM) in 2006 and M. Eng in Electrical (Mechatronic and Automation Control) from Universiti Teknologi Malaysia (UTM) in 2011. She is currently a lecturer of Electrical Engineering Studies, College of Engineering at UiTM Branch Johor Pasir Gudang Campus.

2. AUTOMATED DOOR GATE FOR DAM WITH IOTS

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Abstract

The Internet of Things (IoT)-based automatic door gate system for dam monitoring and control is a cutting-edge solution that increases dam safety and efficiency dramatically. This project uses IoT technology to provide remote monitoring and control of dam-related parameters. Water level sensors, a microprocessor or Programmable Logic Controller (PLC), a communication module, and a motorised gate mechanism are key system components. The controller of the system analyses real-time data from water level sensors and uses established criteria to determine ideal gate placements. The motorised gate mechanism, which is powered by a motor or actuator, accurately responds to the controller's inputs, allowing for automated and exact control. Because remote access and control features have been integrated, authorised workers can monitor water levels and gate status in real time via a user-friendly web-based dashboard or application. In the event of an emergency, the system is prepared to generate alarms and notifications, instantly contacting the appropriate persons or authorities. The strong security measures put in place ensure the system's integrity and prevent unauthorised access, protecting the entire infrastructure. Overall, this automated door gate system improves dam safety by enabling proactive monitoring, improved water flow control, and informed decision-making. The system's importance in modern dam management methods is highlighted by the minimization of risks connected with potential disasters and the optimisation of dam operations.

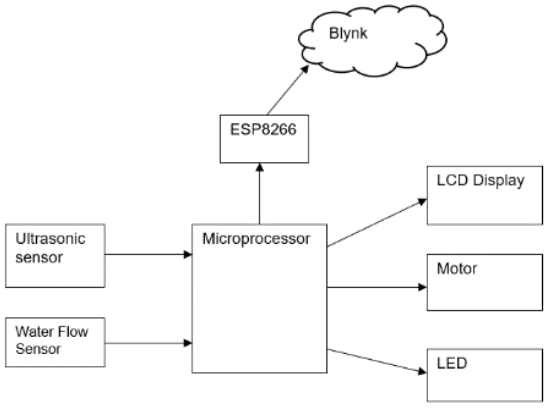
Keywords

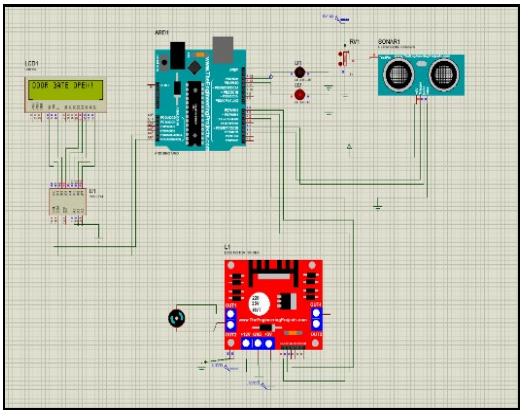
ESP8266 (IoTs); detection of water flow (ultrasonic sensor); measure of water flow (water-flow sensor); automated door gate system; microprocessor

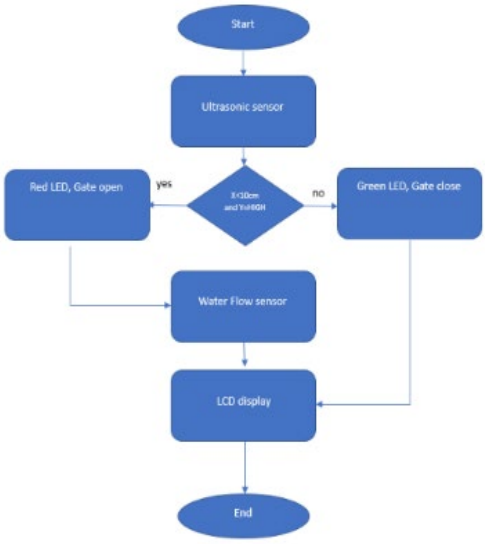
Product Description

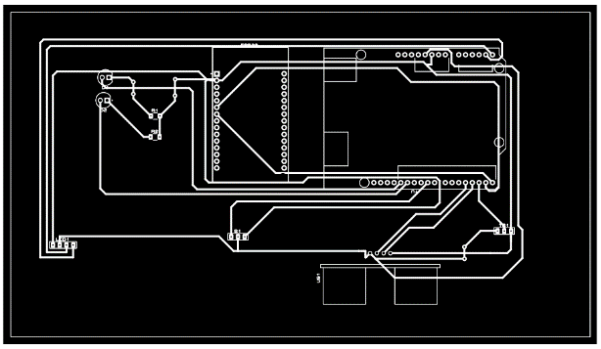
The Internet of Things-based Automated Door Gate System for Dam Management and Security is a cutting-edge solution that uses cutting-edge technology to improve safety and efficiency. The system offers remote monitoring and control via a user-friendly interface by utilising water level sensors, a microcontroller or PLC, a communication module, and a motorised gate mechanism. The motorised gate perfectly responds to real-time data, ensuring automated and exact control. Integrating security and emergency notifications improves system integrity and responsiveness. This initiative solves existing systems' shortcomings by providing proactive decision-making, enhanced water flow control, and optimised dam operations.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.









Member Biographical Data

Adib Muazzam Bin Mohamad Sidek, a dedicated and ambitious college student currently pursuing a Diploma in Power Electrical Engineering at Universiti Institut Teknologi Mara (UiTM), Kampus Pasir Gudang. He is interested in pursuing his studies in the field of electrical power engineering.

Siti Aminah Nordin is a distinguished senior lecturer currently affiliated with UiTM Pasir Gudang. She earned both her master's and Ph.D. degrees in Electrical Engineering from UiTM Shah Alam in 2014 and 2022, respectively, showcasing her commitment to academic excellence. With a specialized focus in the realm of Electrical Engineering, her research interests are notably centered around microwave filters, antennas, and electromagnetic wave area. Her academic journey and expertise reflect a deep dedication to advancing knowledge and contributing to the field, particularly in areas crucial to modern communication and technology. She can be contacted at email:
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3. ENERGY SAVING HOME ALERT SYSTEM

Afiq Suhail Bin Sazali, Muhammad Asraf Bin Hairuddin(DR)

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Abstract

Home break-ins always happen during nighttime due to fewer witnesses and homeowners being asleep. An outdated Traditional home alert system led to complications and high energy consumption, resulting in increased electricity bills. The Energy Saving Home Alert System's main objective is to develop an energy-efficient system, minimizing consumption to reduce costs for users. It aims to connect with the Internet of Things (IoT) using an ESP32 microcontroller for smartphone notifications. Utilizing Light Dependent Resistor (LDR), Passive Infrared (PIR), and Infrared (IR) sensors as inputs, while the outputs are lamps, buzzers, and LEDs. It will automatically be operating during nighttime to reduce energy usage. The programming is executed using the Arduino IDE, while Blynk will connect the IoT between the microcontroller and the user's smartphone via Wi-Fi.

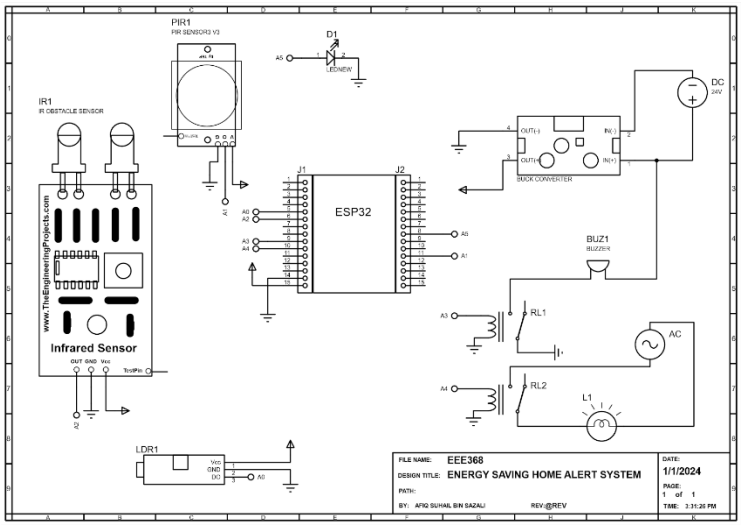
Keywords

Home alert systems, energy, reduce, components, Internet of Things (IoT).

Product Description

The Energy Saving Home Alarm System has been modified to be better than the existing previous home alarm system. One of its advantages is that it can save electricity consumption where it will automatically turn on during nighttime only. Next, the lights will only work if there is movement outside the house, this means at other times, the lights will stay off and can save electricity. This Energy Saving Home Warning System can also send notifications to the user's smartphone by connecting it to the Internet of Things (IoT). It will warn the user if there is something happening in front of his house at night.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Mr. Afiq Suhail Bin Sazali is currently pursued his Diploma in Electrical Engineering (Power), College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus. He is interested in continuing his studies in the future. During his study in diploma, he gained a lot of knowledge related to what he studies such as fundamentals of power generation, electrical systems, and the efficient use of engineering techniques to harness energy.

Muhammad Asraf Hairuddin senior lecturer at the Centre for Electrical Engineering Studies, Universiti Teknologi MARA, Johor Branch, Pasir Gudang Campus. He graduated with a diploma, degree, and a Ph.D. from the Universiti Teknologi MARA in Shah Alam. His research interests include Image Processing, Artificial Intelligence, Deep Learning, and Process Control.

4. RFID ATTENDANCE SYSTEM AND DATABASE

AHMAD DANIEL ASYRAF BIN AZILAN

MUHAMMAD ZAIRIL BIN MUHAMMAD NOR

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Abstract

RFID is common in the new era of modern world such as RFID that has been used to pay tolls. However in this case we are trying to focus on Radio Frequency Identification (RFID) based smart attendance system and database is a new system to record the students' attendance by using an RFID card that has been inserted their data collected from student database . This report aims to develop an attendance system using RFID technology with the assistance of microcontroller ESP8266. In this project, the inputs consist of RFID Reader, RFID tags while the outputs are the screen, buzzer and two colours of LED and cloud database. The simulation has been done with the help of Autodesk TinkerCAD. Even with the lack of some components we have been trying to replace all the components with the best possible alternatives to try to get the possible result. I really hope with this project, more or less could help to facilitate the community of an institution.

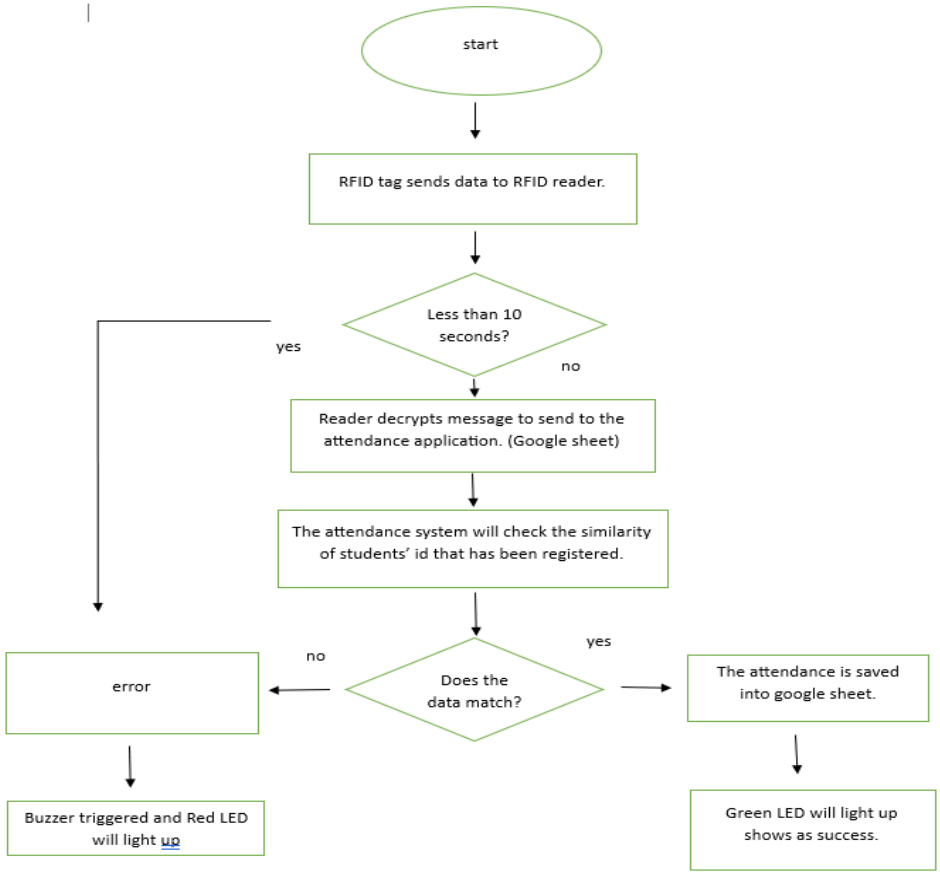
Keywords

RFID, Radio Frequency Identification, smart attendance system, database, microcontroller

Product Description

The RFID attendance system and database have been modified in order to track the students' attendance and to easily recorded the attendance in cloud. The system was improved in terms of safety, which there are buzzer installed and will triggered when error occurred such as wrong class or unregistered students. The 10 seconds time interval that will also trigger the buzzer helps to alert surrounding people of suspicious act and the lecturer also can take action of the students behaviour. This will prevent such as conspire friends that are late or absent to scan the RFID tags for them.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Ahmad Daniel Asyraf Bin Azilan currently pursued his Diploma in Electrical Engineering (Power), College of Engineering Universiti Teknologi MARA (UiTM) Johor Branch, Pasir Gudang Campus. He gains his interest in electrical engineering and hoping to continuing his studies further in the future. There was a lot of things has been learned to improve his knowledge in electrical engineering that can be use in the future and helping others in need.

M. Zairil M. Nor received the bachelor's degree in electrical engineering (telecommunication) from Universiti Teknologi Malaysia (UTM), Skudai, in 2009, and the M.Sc. degree in electrical engineering also from Universiti Teknologi Malaysia (UTM), Skudai, in 2013. He is a lecturer in UiTM Johor, Pasir Gudang Campus and currently pursuing their Doctoral Degree (PhD) in Wireless Communication Centre. He has published more than 15 journal papers and technical proceedings on smart antenna systems, microwave devices, and reconfigurable antenna in national and international journals and conferences. His research interest includes smart antenna on communication systems.

5. ADVANCED KITCHEN AUTOMATION & MONITORING USING IOT

Ahmad Faiz Hakim bin Ahmad Nazri, Nor Affida binti M.Zin

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Abstract

Automation systems in general are becoming popular around the globe because of their features that make life easier and minimize extra workloads. Since a household kitchen holds significant importance in any home environment, ensuring safety is crucial during any kitchen related activities. It was shown that a household kitchen is a place of various potential hazards such as gas leaks, fires, unbalanced temperature and humidity in the environment and a lack of security. As a result, thousands of households have become the victim of housefires and robbery because the safety was neglected by the individual. In terms of automation, the kitchen is often disregarded. Hence, there is a significant opportunity to further improve its system with the application of technology. This project aims to provide a dedicated system that automates and monitors the kitchen environment by using an internet of things (IoT), and to design a graphical user interface (GUI) by using Blynk Console for a smooth interaction with the automated kitchen system.

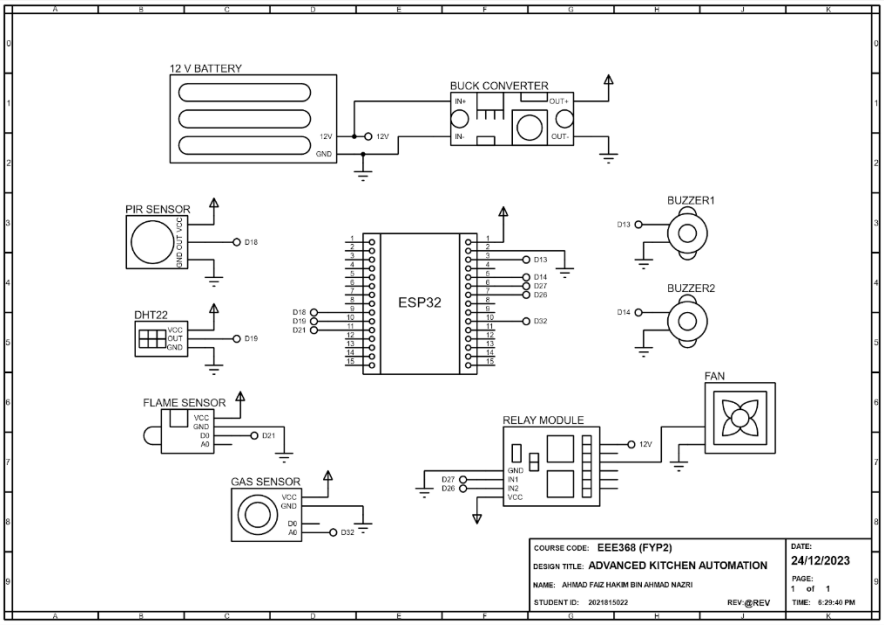
Keywords

Kitchen Automation System, Safety, Hazards, Environment, Internet of Things

Product Description

Kitchen automation system is a monitoring system that applies smart technology into a household kitchen. The system elevates surveillance efficiency which promising a safe and secure environment. The user will experience a connected kitchen environment with temperature & humidity monitoring that shares real-time data via smartphone application. Since safety is the major priority, hazard detection features that alerts users via smartphone notification will provide flexibility and peace of mind.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Mr. Ahmad Faiz Hakim bin Ahmad Nazri is currently pursuing his Diploma in Electrical Engineering (Power) at Universiti Teknologi Mara Johor Branch, Pasir Gudang Campus. He has shown excellence in both curriculum and skill-based activities. Aligned with his interests, he intends to pursue a Bachelor's Degree of Electrical Engineering after graduation.

Mrs. Nor Affida binti M.Zin joined UiTM in November, 2013 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering. She obtained her Bach. Degree in Electrical Engineering (Telecommunication) and Masters of Engineering, both from Universiti Teknologi Malaysia, Johor Bharu. She also gained industrial experience as an R&D Engineer in Qimonda (M) Sdn. Bhd. focusing on PCB design for CPU testing equipment. Currently, she is working towards her PhD studies in Energy-Efficient Passive Optical Network.

6. REMOTE MONITORING-BASED SOLAR SYSTEM TRACKING WITH DUAL AXIS CONTROL

AHMAD SYAMIL BIN MOHAMAD ZAIDI NUR ASFAHANI ISMAIL

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Abstract

The energy demands all over the globe are at an all-time high as various industries require mass production and manufacturing which requires steady and sufficient
amount of supply of electricity. Solar Photovoltaic energy in particular is widely implemented due to its cleanest and sustainable renewable energy. The energy production of a solar photovoltaic panel depends on various factors such as
solar irradiance, solar cell materials, solar cell surface temperature etc. A solar panel generates more energy with more exposure to sunlight. A fixed solar panel is unable to capture maximum sunlight during the day as the sun's position is always shifting. For this reason, the solar energy lacks the efficiency to become a much more dependable energy supply. This project is aimed to design and develop Remote Monitoring-Based Solar Tracking System with Dual Axis Control. The objective of this project is to increase the efficiency of solar power generation by orienting them toward the sun throughout the day. The main components required for this project is LDR which acts as the input sensor. Two servo motor is used to rotate the panel around two axes (plural). DHT11 will also be used as inputs and the inputs will be displayed on Blynk. To implement Remote Monitoring, Blynk app is used as to collect data from the system in real time. From this report, it is hoped that the efficiency and dependence on renewable and sustainable solar energy can be increased.

Keywords

Dual Axis, Solar Tracking System, IoT Monitoring, Solar Panel, Solar Power

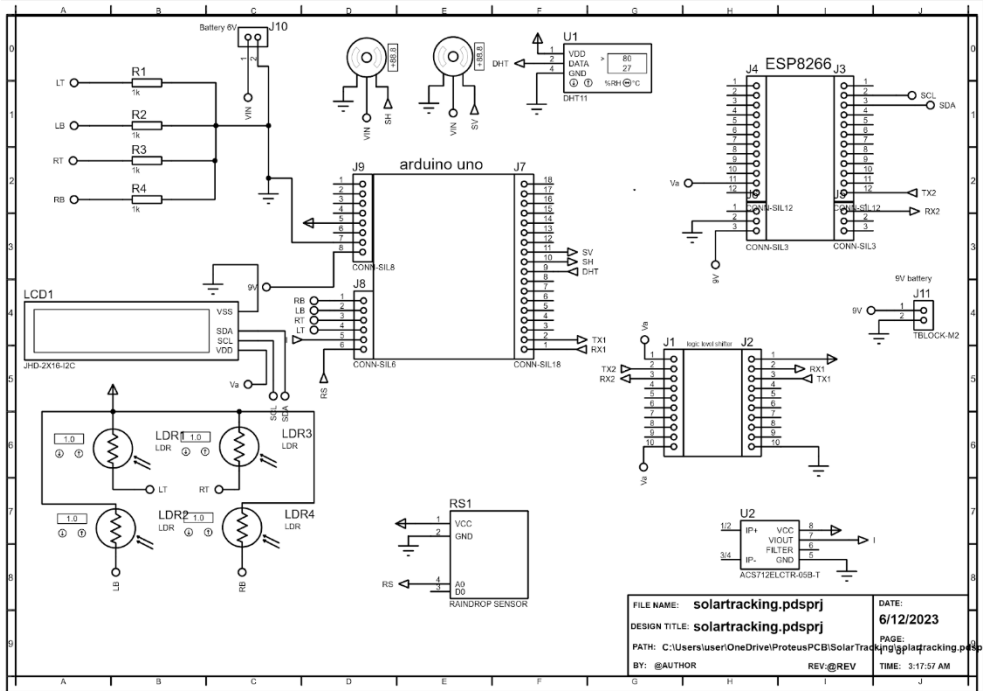
Product Description

Using four Light-Dependent Resistors (LDRs), the light reception can be determined by placing the LDRs in four corners. Each of the LDRs will be used as inputs of light from 4 directions namely top left, top right, bottom right and bottom left. From those readings, average readings can be calculated to obtain the average sunlight received at the top, bottom, left and right. By comparing the readings, any differences in input will result in rotation of the two Servo Motors. Each motor is responsible for controlling a single axis. The rotation of the motor is aimed to equalize the readings from all four directions in order for the panel to receive the light evenly across its surface.

Furthermore, DHT11 will be used to measure the surroundings temperature and humidity. Other sensors such as Current Sensor and Raindrop Sensor is also used. All of these sensors and motor will be interfaced using Arduino Uno R3. In order to upload to Blynk, microcontroller ESP8266 is used to connect to Wi-Fi.

The readings from Arduino Uno will be sent to ESP8266 using UART communication. Lastly, Blynk will display the data received on the phone.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Ahmad Syamil bin Mohamad Zaidi has been studying at UiTM Johor Pasir Gudang Campus for over 2 years for a 3 year program. He is 20 years old and lives in Hulu Selangor. He is a student under the Electrical Engineering (Power) Diploma Program. His main interest includes Sustainable Power Generation.

Nur Asfahani Ismail has been teaching at UiTM Johor Pasir Gudang Campus for 10 years. She has vast experience in supervising Diploma students for their final year projects and her projects interest include sustainable applications utilizing Internet-of-Thing (IoT).

7. TEMPERATURE AND HUMIDITY MONITORING USING IoT FOR CABBAGE FARMERS

Aiman Daniel bin Mohd Nazeli,TS. Zahari bin Abu Bakar

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Abstract

Humidity and temperature monitoring plays a crucial role in agriculture for optimizing crop growth and ensuring optimal environmental conditions. This paper presents a solution for humidity and temperature monitoring in agricultural settings using the DHT11 sensor, Blynk cloud platform, NodeMCU ESP 8266 and Arduino Uno microcontroller. The proposed system allows real-time data acquisition, processing, and visualization to enable farmers to make informed decisions for effective crop management. The DHT11 sensor provides accurate measurements of humidity and temperature, which are then transmitted to the Blynk platform via the NodeMCU ESP 8266. Blynk facilitates data storage, analysis, and visualization, allowing farmers to monitor and analyze environmental conditions remotely. The system offers a cost-effective and user-friendly approach, empowering farmers to optimize irrigation schedules, control ventilation, and prevent potential crop diseases caused by unfavorable humidity and temperature levels. The integration of the DHT11 sensor, NodeMCU ESP8266, and Arduino Uno provides an efficient and scalable solution for humidity and temperature monitoring in agriculture, contributing to improved crop yields and sustainable farming practices.

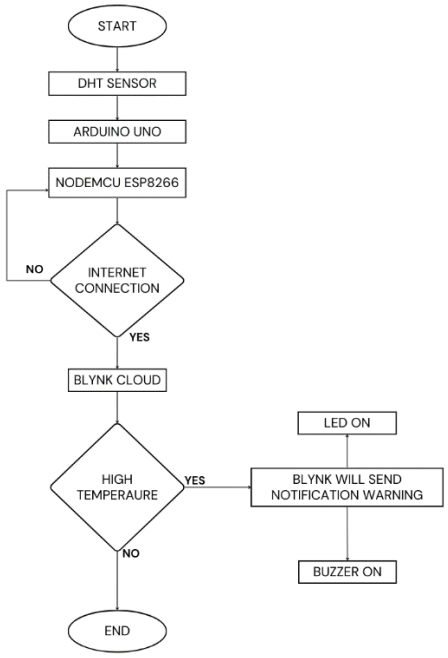
Keywords

humidity, temperature, DHT11, Blynk, agriculture,NodeMCU ESP 8266, Arduino Uno

Product description

This prototype consists of Arduino Uno, NodeMCU ESP 8266 V2, two DHT sensor LCD display, Buzzer and LED light. When the prototype is powered up by batteries, both DHT sensor which are connected at Arduino Uno and NodeMCU ESP 8266 separately and LCD display will turn on and both DHT sensor will sense the temperature and humidity of surrounding and will appear the value parameters on LCD display as indicator for farmer. At the same time, the NodeMCU ESP 8266 also turn on and will transmit the data that obtained from DHT sensor to the Blynk. The farmer also can get a Real-time temperature and humidity values in Blynk from a far and the Blynk will notify the farmer if the temperature and humidity are above of the temperature limits and the output such as Buzzer and LED will turn on as indicated the warning signs.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Aiman Daniel Bin Mohd Nazeli is a driven fifth-semester student at UiTM Pasir Gudang who is pursuing a diploma in engineering electrical power. His path has brought her to the apex of his undergraduate experience with an unwavering enthusiasm for invention and a passion for the complex realm of electrical systems. The title of his senior project, "Temperature and Humidity Monitoring for Cabbage Farmer," encapsulates his academic philosophy and demonstrates his dedication to advancing the subject of Electrical Engineering scholarship. Born on September 5, 2003, he has spent the past few years laying a strong foundation in fundamental areas like electronics, control systems, and circuit theory. As his undergraduate career comes to a conclusion, he thinks back on the challenges overcome, the wisdom acquired, and the invaluable support from friends and supervisor. His senior project is more than simply a capstone project; it's a symbol of his commitment to learning new things and his readiness to enter the workforce with the skills he's gained from this project. He can't wait to apply the knowledge he gained from his senior project to significantly impact the ever-evolving fields of innovation and technology. He is excited about the opportunities and difficulties that the discipline of electrical engineering will present.

Zahari Abu Bakar obtained his Diploma in Electrical Engineering (Electronics) from UiTM Pulau Pinang, Bachelor of Electrical (Hons) Engineering and MSc. in Telecommunication and Information Engineering from UiTM Shah Alam. Currently, he serves as a senior lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in the Electronics Department. His main research interests are e-learning and Machine Learning.

8. AIR QUALITY MONITORING SYSTEM IN RESIDENTIALS USING ARDUINO UNO WI-FI

AIMAR MUHAMMAD BIN KAMARUL ZAMAN, SIR KAMARU ADZHA BIN KADIRAN

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Abstract

'Basically, an overvoltage for a circuit that have a lot of component such as capacitors, wire, switches and also light bulb will damage it overtime. Undervoltage will also decrease the function since the component have to work harder. Either it is a DC circuit or AC circuit it will cause a lot of problem in the future. As we all know most of the house in the world are using AC to power all the electrical component in it and based on the statistic, it says that fire of a house caused by electrical fault were the second leading cause of electrical home fires in 2015–2019 accounting for 13% of home structure fires. The purpose of this project is to lower the chances of it to happen. The name given for this project is Smart Over Voltage Or Under Voltage With Relay Using Arduino. It detect if the voltage is over or under a certain limit. Arduino uno D1 R1 integrated with esp8266 is use as a microcontroller in this system such as to detect the voltage is in a stable limit or not and also make other component functional for example Led that will be blinking and buzzer will make a continuous 'beep beep' sound if there is undervoltage. The Arduino uno D1 R1 also will send the data to a lcd to display the current voltage and also send the ouput to a online software as it makes the user much more easier to access since the software is available on handphone. This project also helps the user to break the circuit using the software if the voltage is too high and user can seek for electrician to fix the problem. In this project a prototype system is developed and energy'

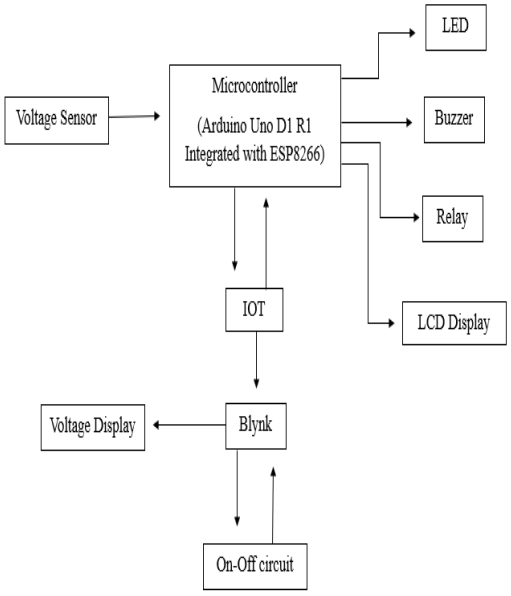
Keywords

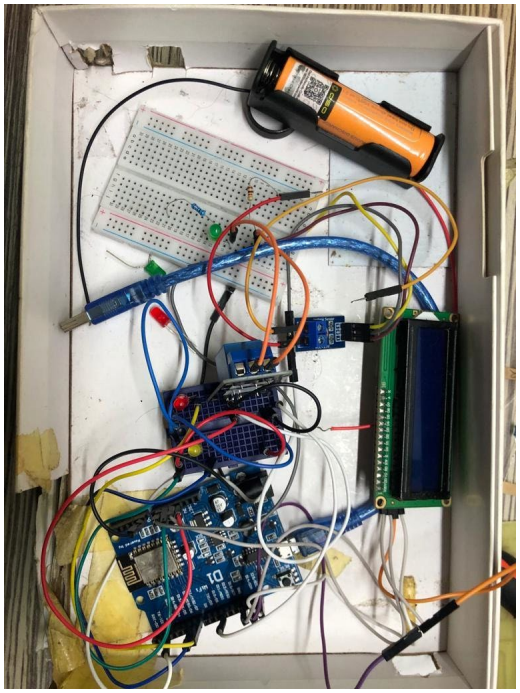
overvoltage, undervoltage ,detect, stable limit

Product Description

An overvoltage and undervoltage detector using Arduino uno D1 R1 integrated with esp8266 that using voltage sensor as it input and LED, Buzzer, LCD Display and also Relay module. There is also blynk IoT used in this project. Besides that Arduino ide also were used in this project

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

I, Aimar Muhammad Bin Kamarul Zaman were born 18/2/2003 at a hospital in Subang that name SJMC (Subang Jaya Medical Centre). My parent and My beautiful girlfriend has been my biggest supporters on push me to try my best on every aspect. Back in school I was a pure science student so by that it makes me interested on math and solving problems. And also by that it inspired me to work on electrical engineering jobs. As 2024 arrive , im 21 years old this year and im currently taking on diploma of electrical engineering (power)

Ts. Kamaru Adzha Bin Kadiran joined UiTM in July, 2014 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering. Kamaru Adzha Bin Kadiran obtained his Bachelor of Engineering (Electrical - Telecommunications) (Hons) and Master of Engineering (Electrical - Electronics & Telecommunications) from Universiti Teknologi Malaysia (UTM). Currently, he serves as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. His main research interests are e-learning and machine learning.

9. MODE ROOM WITH HOME AUTOMATION SYSTEM

AINNUR MASYITA BINTI ABDUL KADIR, EZRIL HISHAM MAT SAAT

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Abstract

Mode room is an advanced home automation system that is influencing the way we interact with our living spaces. It offers a smart environment that adjusts to the user's preferences and improves comfort and convenience in the house by seamlessly integrating numerous gadgets and sensors. Through smart control mechanisms, the mode room acts as a versatile environment that adjusts to diverse demands such as work or sleep. Moreover, it investigates the mode room technology's possible applications, such as energy efficiency. The mode room marks a huge development in home automation, allowing homeowners to transform their living areas into intelligent, responsive and highly functional settings.

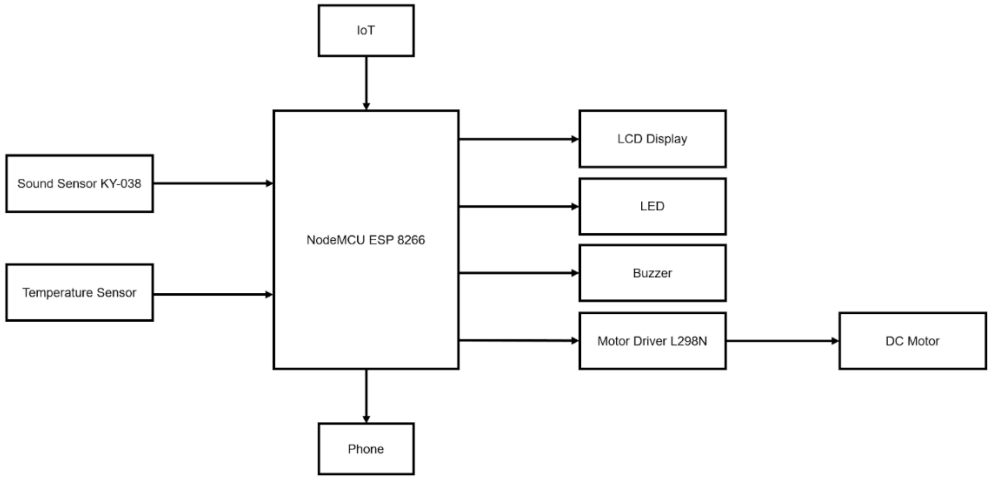
Keywords

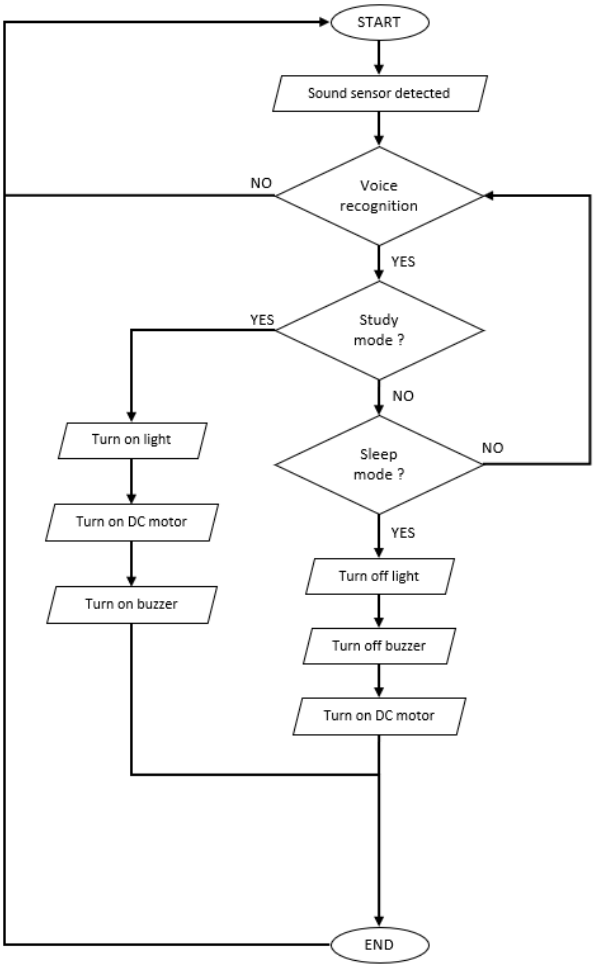
Mode Room, Living Spaces, Home Automation, Smart Control, Energy Efficiency

Product description

Mode Room with Home Automation System has two inputs, five outputs and ESP8266 as the microprocessor. This mode room has two modes which are sleep mode and study mode. In sleep mode, the LED and the buzzer are off while in study mode, the LED and the buzzer are on. The buzzer will produce the melody of Harry Potter theme song. For both modes, the DC motor that act as fan will on continuously. There is LCD that will display "Sleep Mode" or "Study Mode" and temperature reading.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Ainnur Masyita Binti Abdul Kadir developed her enthusiasm for engineering in high school and is currently studying for a Diploma in Electrical Engineering with a major in Power at University Teknologi MARA, Branch Campus Pasir Gudang, Johor. She engages in extracurricular activities and strives for practical applications of her studies. She desires to make significant improvements to the field with a solid academic background.

Ezril Hisham Mat Saat earned his Bachelor of Engineering with Honors in electrical engineering from the University Teknologi Malaysia and completed his Master of Science in electrical engineering at Universiti Putra Malaysia. He presently holds the position of a senior lecturer in the Electrical Engineering Department at University Teknologi MARA, Branch Campus Pasir Gudang, Johor. His primary research focus lies in the fields of Computer Engineering, Robotics, Embedded System and the Internet of Things (IoT).

10. BOOST CONVERTER LED DRIVER FOR SAFETY APPLICATIONS

ALIF HAZIQ BIN NOORZI, MUHAMMAD RAJAEI BIN DZULKIFLI

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Abstract

Boost converters are power converters that increase the voltage from the input to the output. For low voltage supply and high wattage LED power, a boost converter is appropriate. For an LED to be fully illuminated and produce its intended brightness, a high voltage supply is required. For this reason, LED requires a boost converter so that it can increase the voltage supply to match the wattage of the LED and turn on at maximum brightness, allowing the driver to see more clearly.

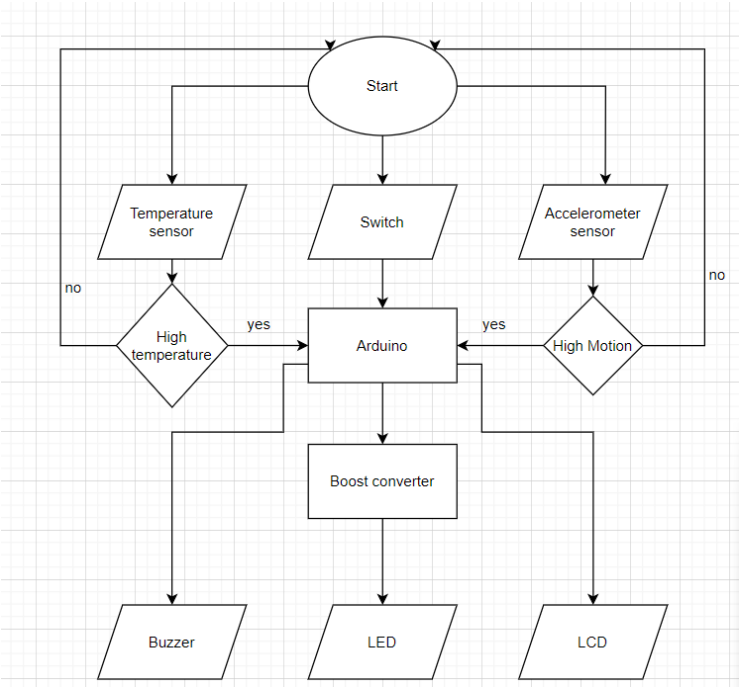
Keywords

high voltage, boost, Arduino, vehicle, safety systems, blynk

Product Description

A DC-to-DC power converter called a boost converter (also known as a step-up converter) has an output voltage higher than its input voltage. It is a type of switched-mode power supply (SMPS) that includes at least two semiconductors (a diode and a transistor) as well as one or both of the following as an energy storage component: a capacitor, an inductor, or both. To lessen output voltage ripple, filters built of capacitors are typically added to the converter's output (occasionally in conjunction with inductors).

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Alif Haziq bin Noorzi born in Shah Alam, Selangor. A student Diploma in Electrical Engineering from University Teknologi MARA (UiTM). Interested to pursue any electrical knowledge to develop engineering skills, knowledge, and other significant talents.

Muhammad Rajaei Bin Dzulkifli is a lecturer in Electrical Engineering Studies, College of Engineering, UiTM Johor Branch Pasir Gudang Campus. He teaches computer engineering courses with research interests in IoT, data analytics, wireless communication and network.

11. SMARTCARE: AN IOT BASED SENIOR CARE SYSTEM AND EMERGENCY ALERT

Amir Hadi Bin Suhaimi, Noor Hafizah Binti Khairul Anuar

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Abstract

There has been an increase in the percentage of aging population in Malaysia, which has implications in all sectors from workforce, housing, and care needs. This report aims to design a senior care system using ESP32 Microcontroller which helps facilitate the monitoring process of senior citizens. In this study, I designed a smart home system which includes low-cost sensor parts which are ultrasonic sensors. This system can be used to detect and monitor if any abnormal activity happens such as spend too long in the bathroom or sleep in a long period of time. Without the need of additional sensors only by using Millis function, this system can provide information such as the room resident is , or if he/she is actively doing his/her daily routine.t As a result, I show a working system and the ultrasonic sensors are able to detect the position of the resident, and we are even able to send an alert signal to the caretaker if any abnormal activity detected. In my opinion I believe my study can contribute to serving the elderly community which provide a monitoring system for the caretaker that is low cost.

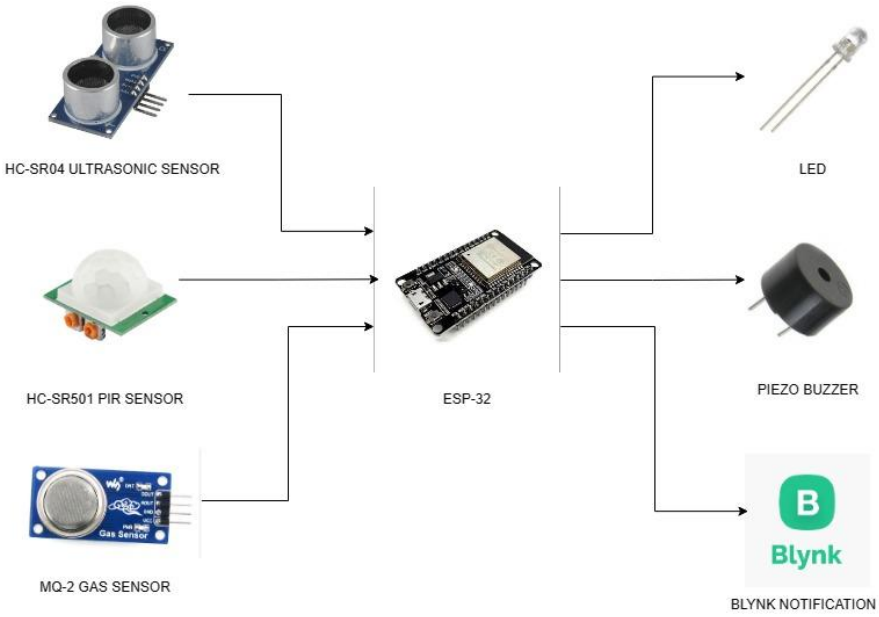
Keywords

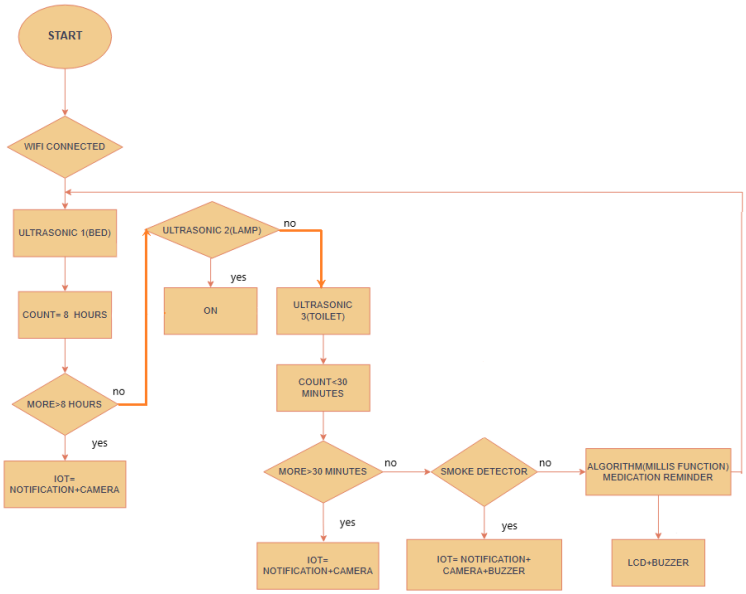
senior, low-cost, home, sensors, monitoring

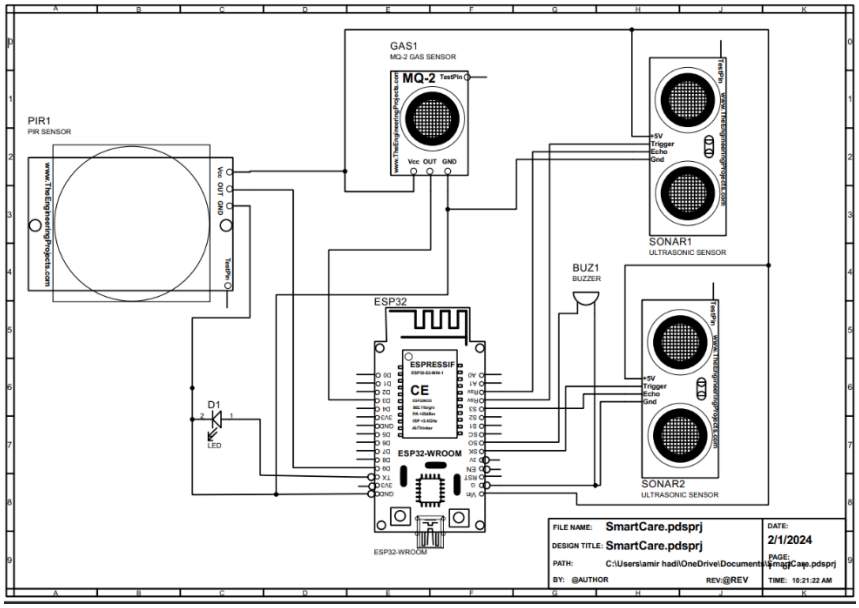
Product Description

SmartCare: An IoT Based Senior Care System and Emergency Alert using ESP32 Microcontroller which helps facilitate the monitoring process of senior citizens that live alone. This project does not implement any vision-based positioning systems such as camera since it can raise privacy concerns among the seniors. By using low-cost parts such that is ultrasonic sensor which is used to detect and monitor if any abnormal activity happens such as spend too long in the bathroom or sleep in a long period of time.MQ-2 gas sensor is equipped to detect any gas leakage that can cause harm and injury to the elderly. Blynk notification will be sent to caretaker as an alert signal if any abnormal activity and emergencies are detected. This project is powered by green and renewable energy which solar energy. Equipped with 2 rechargeable lithium-ion battery that are used to stored solar energy.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.







Member Biographical Data

Amir Hadi Bin Suhaimi, born on 20 January 2003 entered this world with a natural curiosity and a passion for learning. Growing up in Selangor. I was exposed to diverse cultures and perspectives from an early age, shaping the foundation of my open-mindedness. An avid learner, I have excelled academically throughout my schooling. Graduating with honours SMA Persekutuan Kajang and pursued higher education at Universiti Teknologi MARA, Johor. Here, I discovered a love for Electrical Engineering, exploring the depths of knowledge and fostering a keen interest in Engineering. I very appreciate the supports and loves of my family and close friends. My personal relationships play a vital role in my life, providing a strong foundation of emotional support and shared experiences.

Noor Hafizah Khairul Anuar received the B.Eng in Electrical Telecommunication from Universiti Teknologi Malaysia (UTM) in 2008 and M.Sc in Electrical Telecommunication Engineering and Information Technology from Universiti Teknologi MARA (UiTM) in 2012. She is currently pursuing her Ph.D. in Electrical Engineering at Universiti Teknologi Malaysia (UTM) in sensor development, instrumentation, and machine learning. She is a lecturer at the Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA, Johor.

12. BIOMETRIC DOOR LOCK

Amirul Rasyid Bin Mezalan Dr. Amalina Binti Muhamad

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Abstract

Traditional door lock systems have limitations and can be vulnerable to break-ins and unauthorized access. With advancements in technology and the emergence of the Internet of Things (IoT), there is an opportunity to develop smarter and more secure door lock solutions. By integrating IoT capabilities, such as biometric authentication, and remote monitoring, it is possible to create a robust and convenient biometric door lock system. This project aims to address the shortcomings of traditional locks and explore the potential of IoT technology in improving home security. This system will utilize hardware and software to achieve the objective. The hardware and software for this project are, Fingerprint sensor to provide easy and simple way to enter the house, keypad lock for a more secure way to enter the house by entering using own's password and by using an application through a smartphone such as Blynk which integrates IoT capabilities. These sensors work in the same way by using a more secure way other than usual traditional key to lock or unlock door houses. Therefore, the project contributes to the advancement of smart home security and offers practical insights for smart door lock systems.

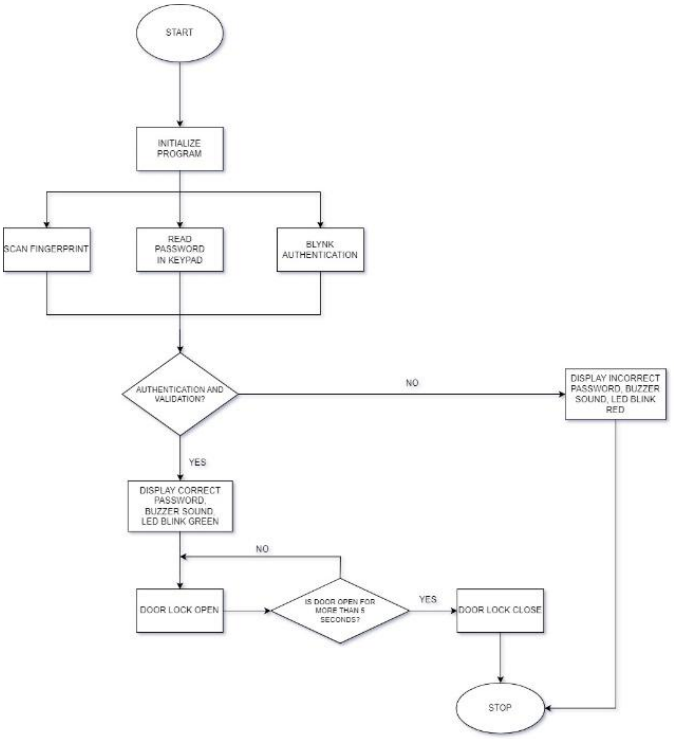
Keywords

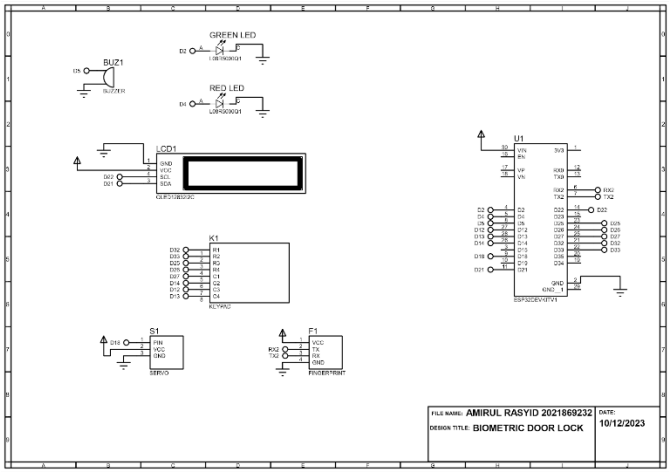
door lock, Arduino, IoT, Biometric door lock, Blynk, Fingerprint sensor, application

Product Description

The purpose of this biometric door lock is to create a secure and convenient door locking system with biometric authentication using this project. The system combines fingerprint recognition, password input, and remote control via a mobile app to provide flexible access control. This biometric door lock can display the state of the door lock whether it is lock or unlock via lcd display or in mobile app.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Amirul Rasyid Bin Mezalan is currently a student of Diploma Electrical Engineering (Power) at Universiti Teknologi MARA (UiTM), Johor branch, Pasir Gudang campus. He is currently on Semester 5 studying Power Electronics, Microprocessor, Control System, Programmable Logic Control, and is working on a Final Year Project.

Dr. Nur Amalina Binti Muhamad is currently the Head of Electrical Engineering Studies at Universiti Teknologi MARA (UiTM), Johor branch, Pasir Gudang campus. She graduated Bachelor's and PhD in Electrical Engineering from UiTM. Her expertise is on the fabrication of nanoelectronic devices, semiconductors and advanced materials.

13. ADVANCED OUTDOOR COURT LIGHTING SYSTEM

Ammar Bin Abdul Jalil , Madam Norbaiti Binti Sidik

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Abstract

Sports play a crucial role in human life, providing us with facilities to enjoy our favorite activities like football, basketball, volleyball, and more. However, challenges such as poor visibility during nighttime play and the risk of injuries on outdoor courts have been observed. To address these issues, this project proposes the implementation of an advanced outdoor court lighting system. The system integrates smart monitoring capabilities to ensure user safety and elevate the overall sporting experience. The project's primary goal is to simulate an automatic lighting system for outdoor courts, accompanied by the development of a smart hardware system. This system is designed to alert users to hazardous conditions, utilizing sensors such as IR sensors, photoresistors, and rainwater sensors to provide real-time environmental data. With the input received from these sensors, the system will trigger outputs, including LED lights, LCD displays, Servo motor and a buzzer, contributing to a safer and enhanced outdoor sports environment.

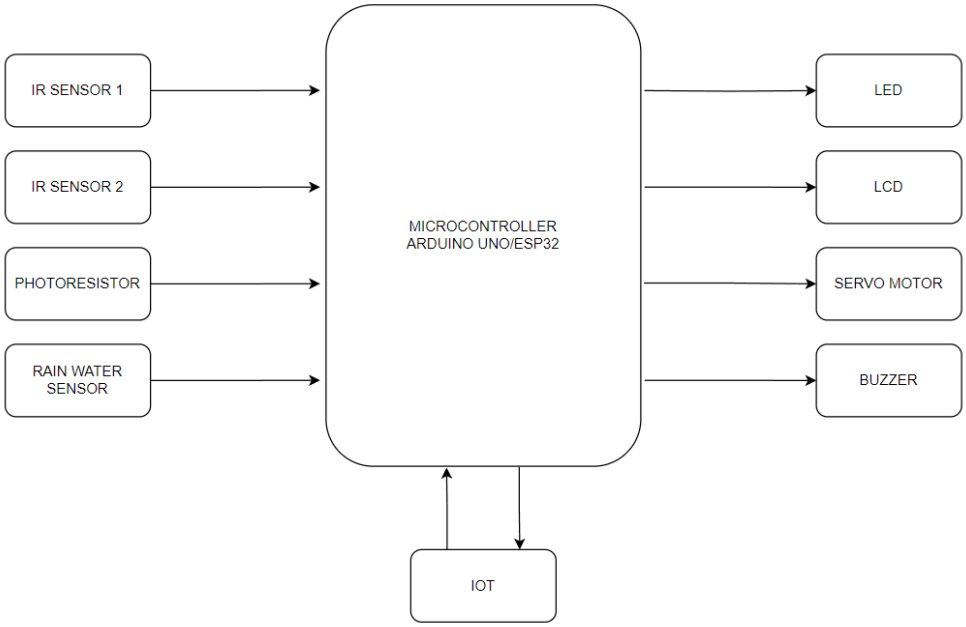
Keywords

lighting, injuries, sports, safety, prevention

Product Description

The advanced outdoor court lighting system proposed here is a groundbreaking solution set to enhance the sports experience, especially in outdoor settings. Acknowledging challenges like poor visibility at night and injury risks on outdoor courts, the project introduces a comprehensive lighting and safety system. Smart monitoring capabilities ensure user safety, with an automatic lighting system tailored for outdoor courts. A smart hardware system, equipped with cutting-edge sensors like IR sensors, photoresistors, and rainwater sensors, continuously monitors environmental conditions. This triggers various outputs, including LED lights for visibility, LCD displays for communication, a Servo motor for controlled entering door, and a buzzer for immediate alerts. This approach ensures user safety and improves the overall outdoor sports environment.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Ammar Bin Abdul Jalil is currently pursuing his diploma in Electrical Engineering with a major in Power at Universiti Teknologi MARA (UiTM) Pasir Gudang Campus, Johor. His specific interest lies in Power System. Following the completion of his diploma, he intends to further his studies by pursuing a degree in the field of engineering.

Mrs Norbaiti Binti Sidik was born on April 21st 1977 in Kedah Darul Aman. She got her first education in government primary school Sekolah Kebangsaan Batu Lima in Sik Kedah. She was accepted to further her studies in Arabic high school known as Maktab Mahmud Alor Setar also in Kedah after passing main interview to be one of the lucky student in Maktab Mahmud. Her studies continued in Universiti Kebangsaan Malaysia in Bandar Baru Bangi Selangor right after completed 1 year Science Matriculation Certificate in Pusat Matrikulasi Sains, Ipoh Perak Darul Ridzuan in 1995. She graduated her Bachelor Engineering Degree in Electrical, Electronics and System within 3 years from Universiti Kebangsaan Malaysia, Bandar Baru Bangi Selangor Darul Ehsan and she successfully completed Master Engineering Degree in Communication and Computer also from the same university in 2002. She is very committed, passionate and dedicated in education line who is now a senior lecturer and having experienced more than 10 years in teaching & learning and lecturing in Faculty of Electrical Engineering, Universiti Teknologi MARA, Cawangan Johor Kampus Pasir Gudang, Johor Darul Takzim.

14. SMART MONITORING SYSTEM FOR HOME PLANTS

Andi Mohammad Rezza Bin Andi Amiruddin and Ts. Rozi Rifin

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Abstract

Home plant care entails giving adequate watering, sunlight, and nutrients to encourage growth and health. Regular monitoring, pruning, and pest management are required to keep indoor plants lively and healthy. People frequently neglect the demands of indoor plants in the midst of their hectic daily routines. Neglected watering, poor sunlight, and care deny these green companions the attention they deserve, negatively harming their vitality and overall well-being. This technical report describes the creation of a smart monitoring system for home plants that uses a NodeMCU module to regulate appliances, especially for people who are unable to taking good care of their plants due to their priority and daily routine. The objective of this project is to design and simulate a Home Plant Smart Monitoring System using proteus 8 professional and any simulation software. This report aims to design Home Plant Smart Monitoring System using Arduino Microcontroller. The are 5 inputs being in this project to detect the light intensity, soil moisture, temperature, and the presence of insect. These 5 inputs then will give results as the output for this project which can supply enough nutrient and the suitable environment for the home plants. This project will make it easier the people to monitoring, treating, and pruning effectively their own favorite indoor plants during workday or busy with daily routine.

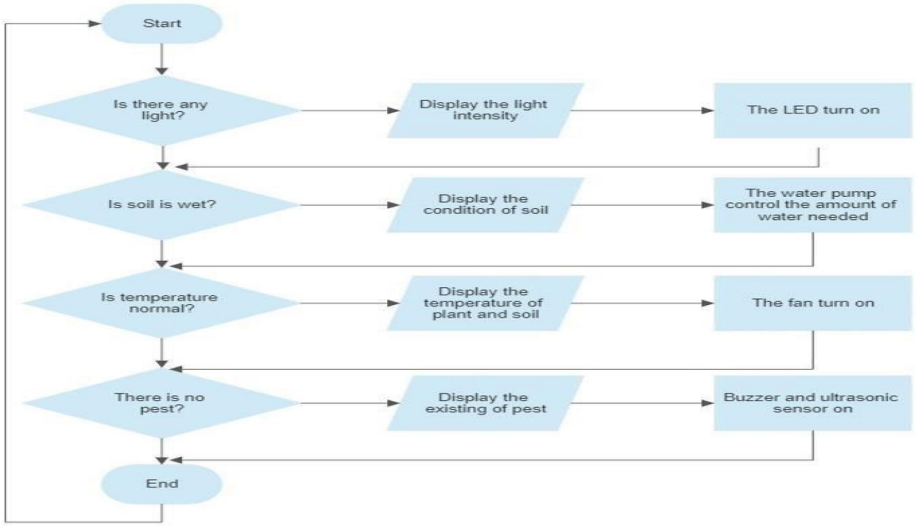
Keywords

Home plant, Arduino microcontroller, NodeMCU(ESP32), Indoor plant, monitoring

Product Description

The device will successfully run when the soil moisture sensor detects the soil is too dry, the water pump will turn on about 1 minute to supply the water to the plant. Therefor the plant will receive sufficient water supply. If the temperature and humidity sensor detect that the temperature in the room or house is too high, it will inform the user about the room temperature and humidity. If there is any pest detected by the motion sensor and ultrasonic sensor, it gives a notification to the owner of the plants. All these sensors will send information to the microcontroller, which is Arduino mega or NodeMCU(ESP32), then the coding in the microcontroller will give an order to the other components to run as it is build. This information then will transfer to the other components and display it on LCD by using NodeMCU that act as communication module. The owner will receive a notification about the condition of their plants in the house in the Blynk software.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Andi Mohammad Rezza Bin Andi Amiruddin graduated from the Middle Year Programs International Baccalaureate School at MRSM Tun Mohamad Fuad Stephens Sandakan, Sabah in 2020. He is currently pursuing his diploma in electrical engineering major in Electrical Power at Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus. He is interested in the Power Electrical course. He has experience in coding and developing a prototype for Mini project for half a year.

Ts. Rozi Rifin earned a Bachelor of Engineering in Electronic from USM in 2005 and a Master of Science in MicroElectronics from UKM in 2013. Currently, he serves as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in the Electronics Department. Prior to joined UiTM, he served 9 years of experience as an engineer, working in different local and multinational companies that focused on various aspects such as Manufacturing, Process and Equipment Engineering, Quality Control, and Cost Reduction within the Integrated Circuit and Photovoltaic Solar Cells Fabrication industry. His main research interests are in Microelectronics, IC and VLSI design, solar cells fabrication, embedded systems and IoT.

15. AIR QUALITY MONITORING SYSTEM IN RESIDENTIALS USING ARDUINO UNO WI-FI

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Abstract

'In recent times, the significance of air quality surrounding residential areas has been declining rapidly, which in turn may cause severe long-term effects to residential's health. If said problem is not adequately addressed, uninformed residents may be subjected to adverse health effect such as coughing or itchy eyes that may cause or worsen a variety of lung and respiratory illnesses. With this motivation, this project presents an air quality monitoring system by using an Arduino Uno Wi-fi as a microcontroller which detects the air pollutants in the air and converts the data ~~it~~ into units of part per million. This data can be used to evaluate the conditions of the air quality in the surroundings. Readings from the sensors will then be sent to an online application, Blynk, in order to view air quality conditions which is helpful for~~.~~ Environmental data monitoring is beneficial for many purposes. Through Arduino Uno wi-fi and online application, this project enables the accessibility of the monitored data that could be challenging due to factors such as time, distance cost, and energy.

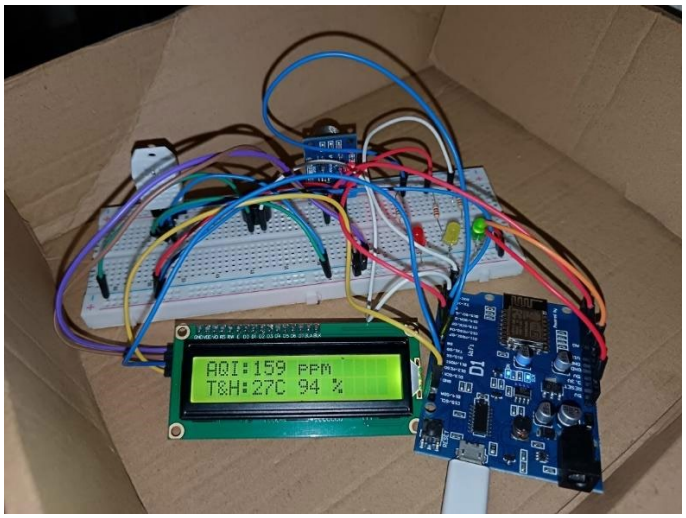
Keywords

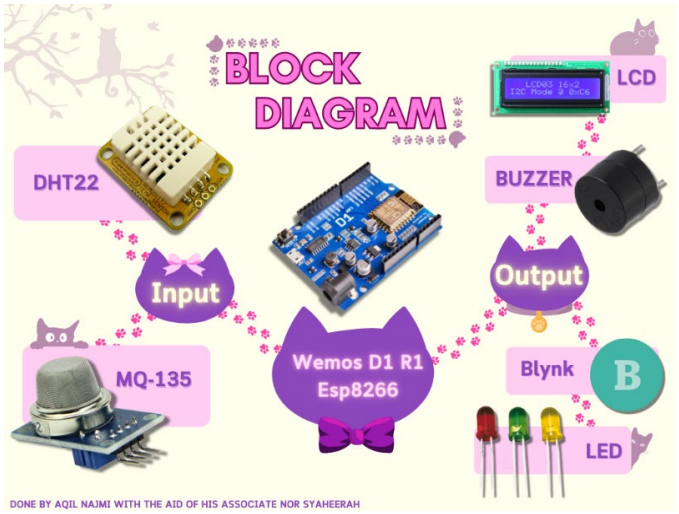
Air quality monitoring ,Arduino Uno wi-fi, Air pollution, IoT

Product Description

An air quality monitoring system using an integrated ESP8266 Wemos D1 R1 that is equipped with a lcd display, a buzzer, and a light emitting diode to indicate the condition of the air quality in parts per million, and temperature, and humidity and sends the readings to Blynk using the Wi-fi for easy monitoring.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

I, Aqil Najmi bin Anuar was born in Malaysia, Putrajaya in 2003, 1st of October. Growing up, I've had the most supportive parents in the world and who have pushed me to always try my best. Like my parents who both major in math heavy majors, I grew an interest in understanding mathematics and numbers. Which in turn, inspired me to pursue a job in the electrical engineering major. As of now, I am 20 years old currently pursuing my diploma in electrical engineering (power) major in Universiti Teknologi MARA , located at Pasir Gudang, Johor.

Atiqah received her Ph.D in electrical engineering on life cycle assessment of photovoltaic system from UiTM Shah Alam. Her research interest is towards sustainable and responsible transition to cleaner energy system. She currently serves as a senior lecturer at Electrical Engineering Studies UiTM Johor Pasir Gudang Campus.

16. GUARDIAN ANGEL: THE WHEELCHAIR FALL DETECTION SYSTEM FOR ELDERY AND DISABLED INDIVIDUALS.

Arieanna Nadtasya Binti Dalizan,Dr Siti Hazurah Binti Indera Putra

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Abstract

When a patient falls from wheelchair, the IoT-based wheelchair fall detection system is employed to identify the incident. The Internet of Things-based wheelchair fall detection system is used to identify when a patient has fallen from their wheelchair via a mobile device. This project aims to develop an intelligent fall detection and alert system using IoT, an accelerometer, a gyroscope sensor, and a pushbutton. The suggested control system configuration includes an input accelerometer sensor, a gyroscope sensor, a push button, and with outputs of an Esp32 module, led, and a buzzer. Through the Esp32 module, the sensors transmit a command signal from the Blynk application. A notification will be sent via the application to the nurse or carer, to warn anyone nearby, the buzzer and LED will be used as alarms. If the individual did not fall and the warning given as false, the
framework allows the alarm to be disabled when the individual presses the snooze button within 5 second.

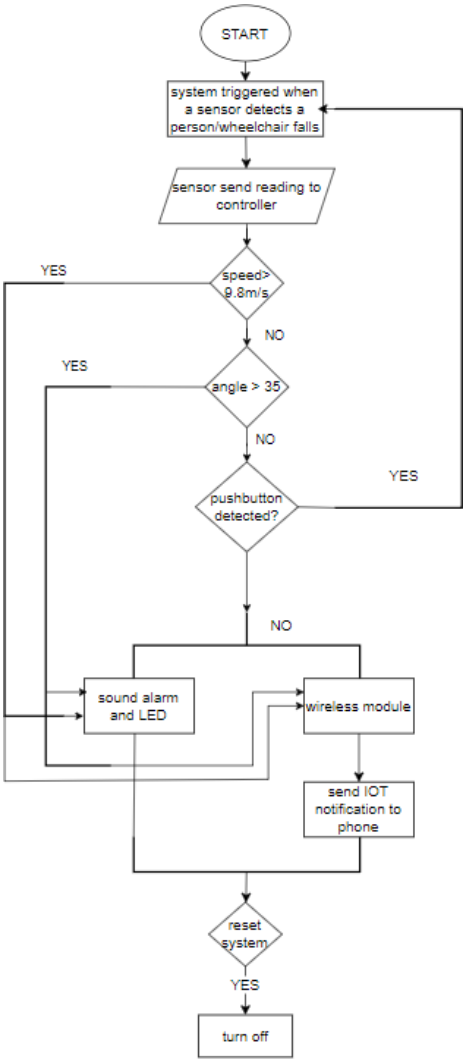
Keywords

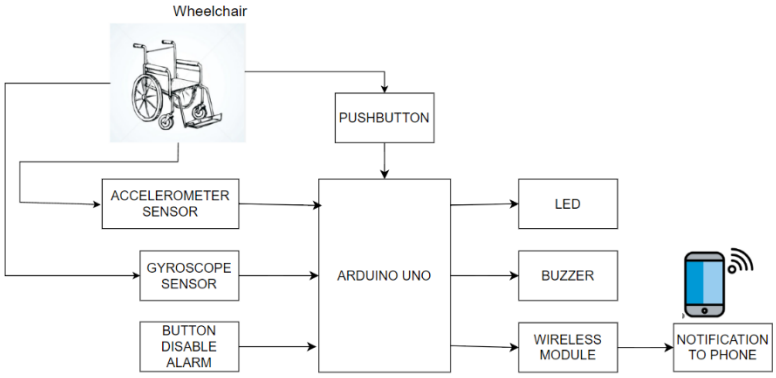
Wheelchair, Fall Detection, Accelerometer, Gyroscope, IoT (internet of things)

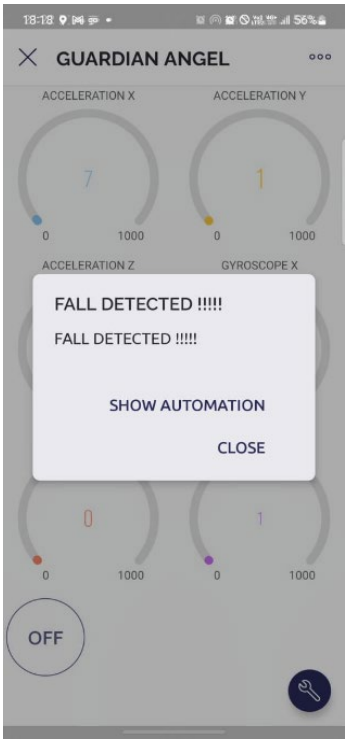
Product Description

This project consists of an accelerometer and gyroscope sensor to detect fall. There will be 2 pushbuttons used in this project where one of which will be put at the wheelchair to tell people that someone is presence in the wheelchair. Another one is to stop the output (buzzer and led) when the accelerometer and gyroscope detect. To notify a nurse, caregiver, or other close individuals that someone has fallen from a wheelchair, a led and buzzer is utilized as an output. Additionally, a led is also utilized by the deaf, who are unable to hear the alarm sound. If the caregiver not close to the individuals that has fallen the esp32 will sending alert by notify at telephone through blynk apps.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.







Member Biographical Data

Arieanna Nadtasya Binti Dalizan, an ambitious semester 5th student pursuing diploma Engineering Electrical (Power) at UiTM Pasir Gudang. With a relentless curiosity for innovation and a passion for the intricate world of electrical systems, her journey has led to the pinnacle of her undergraduate experience. This final year project, titled “Guardian Angel: The wheelchair fall detection for elderly and disabled Individuals” captures the spirit of her academic career and shows her commitment to expanding the field of Electrical Engineering knowledge. She was born on 1 January 2004 and has dedicated the last few years to building a solid foundation in core subjects including electronics, circuits theory and control systems. As she draws closer to the end of her undergraduate career, she considers the difficulties surmounted, the knowledge gained, and the priceless assistance from supervisor and friends. More than just a capstone project, her final year project represents her dedication to expanding the limits of knowledge and her preparation to start a career where she can use the abilities she's developed through this endeavor. She is excited to use the experiences from her final year project to make a significant contribution to the rapidly changing field of technology and innovation. She looks forward to the chances and challenges that lie ahead in the field of Electrical Engineering.

Dr Siti Hazurah received her Bachelor of Engineering in Electrical (Electronics) Engineering from Universiti Teknologi Malaysia (UTM) in 2003, followed by her Masters of Engineering in Mechatronic and Automatic Control also from UTM in 2008. She then obtained her PhD in Automatic Control and Systems Engineering from The University of Sheffield, United Kingdom in 2019. She has 20 years of experience in the engineering field both as an engineer and as an academician. She is currently serving as a Senior Lecturer at the College of Engineering, Universiti Teknologi MARA (UiTM), Pasir Gudang campus.

17. INTEGRATED IOT AND VOICE-CONTROLLED HOME AUTOMATION SYSTEM

Ariel Lihan Robert, Dr. Zatul Iffah Abd Latiff

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Abstract

Advancement in smart home technology system by using voice recognition devices to control all home appliances has become a trend. With that in mind, the integration of Internet of Things (IoT) technology and voice-controlled home automation systems has revolutionized the way we interact with our homes. Moreover, there are presumably many individuals who wish their homes were installed with IoT and voice-controlled technology to maximize the efficiency of tasks such as controlling home appliances while sleeping on the couch with minimal effort, in addition to improving home security. In the current scenario, IoT is considered an active research area for providing security, comfort, and reliability. Additionally, IoT is widely used in controlling appliances or gadgets from far away. This study proposes voice-controlled household appliances and IoT monitoring capability. The aim of this study is divided into two parts. The first one is to stimulate a home automation system to control household appliances using voice with Arduino, utilizing a voice recognition microphone to detect and convert the command into specific actions. The second aim of this study is to develop a model of a user-friendly home automation device that can be easily customized by allowing the user to manually change the voice commands for specific actions. Therefore, this system will help many households become more reliable, marketable, and comfortable.

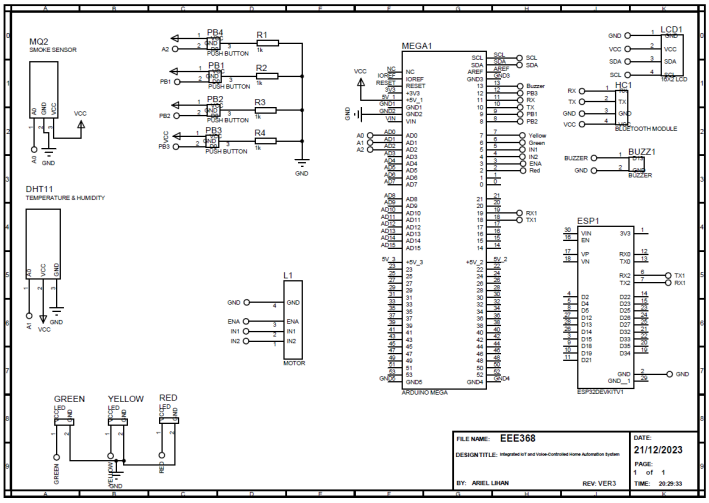
Keywords

Automation, Voice Recognition, IoT (internet of things)

Product Description

This project consists of HC-05 Bluetooth module will detect voice via microphone to transmit data to Arduino. The command will carry out various output such as starting the DC motor and turn on the led. Pushbuttons will also be used to control these appliances. Hence, there are 2 methods to control the appliances (voice and push buttons. There is also temperature and humidity sensor(DHT11) and mq2 sensor to detect smoke level. When the smoke level is above the threshold, buzzer will sound and ESP32 that was connected to Arduino via RX/TX pin will send the data to blynk and blynk will send the notification alert to user’s phone and email.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Ariel Lihan Robert, a 5th-semester Electrical Engineering (Power) student at UiTM Pasir Gudang, is actively advancing smart home technology. Born in Sarawak, Malaysia, Ariel's final year project, "Integrated IoT and Voice-Controlled Home Automation System," showcases his dedication to improving accessibility, security, and comfort in modern households. Studying at UiTM Pasir Gudang has provided him with a strong academic foundation, shaping both technical skills and a deep appreciation for technology's societal impact. Known for his passion in engineering, Ariel's forward-thinking approach is evident in his commitment to creating solutions that enhance individuals' quality of life. Ariel is poised to make significant contributions to the field of electrical engineering, exemplifying a commitment to learning, innovation, and excellence.

Zatul Iffah Abd Latiff serves as a senior lecturer at the Faculty of Electrical Engineering, Universiti Teknologi MARA, Malaysia. She earned her bachelor’s degree in electrical engineering from Korea University, South Korea, in 2010, and her Master's degree in Telecommunication and Information Engineering from Universiti Teknologi MARA (UiTM), Malaysia, in 2013. Currently pursuing a Ph.D. in Space and Earth Electromagnetism at UiTM Shah Alam, she is actively involved as a co-researcher in the MAGDAS (Magnetic Data Acquisition System) network. Zatul Iffah is responsible for monitoring and maintaining one of the MAGDAS observatories located in Johor, Malaysia. Her research focuses on various aspects, including geomagnetically induced currents (GICs) activity in the equatorial and low latitude region, space weather activity, ionospheric currents, Earth's electromagnetism, and the application of ground magnetic and satellite data.

18. OCEAN AND RIVER MONITORING BUOY SYSTEM FOR SAFETY ALERT

Hamizan Bin Azram , Ts. Sufian Bin Mohamad

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Abstract

This project is aim to provide a buoy system that is more robust and can measure the depth of water accurately with no ceiling value in ocean or river while still being cheaper than other buoy system in the market. This study proposed the idea of measuring depth of water by using gravity water pressure sensor for better accuracy and longer life span with low maintenance. By using a wireless transceiver module, it is possible to monitor the ocean/river from a remote location. With a little bit of adjusting, alarm system can easily and cheaply be integrated into the system for early threat detection system. The main objective of this study is to see if it is possible to provide easy access of ocean and river information to the public.

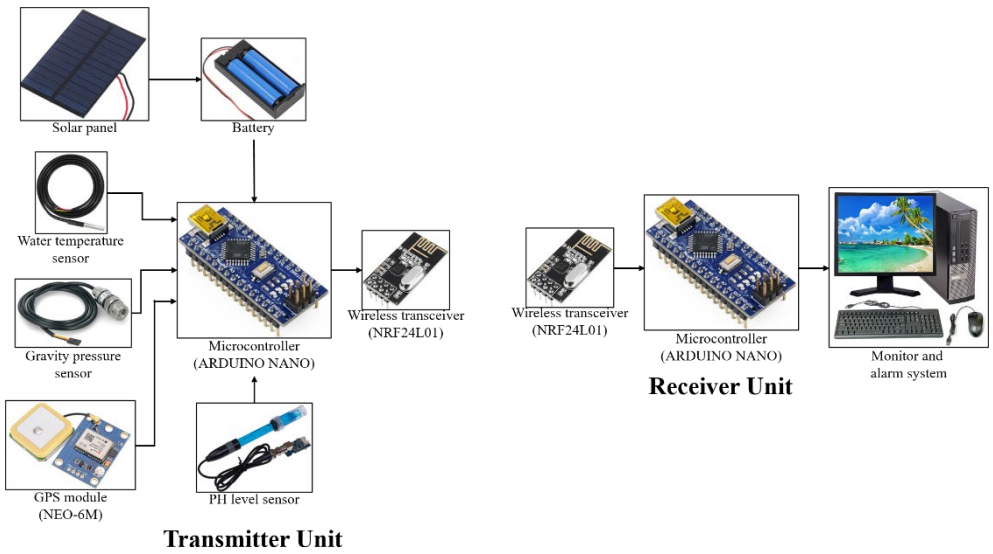
Keywords

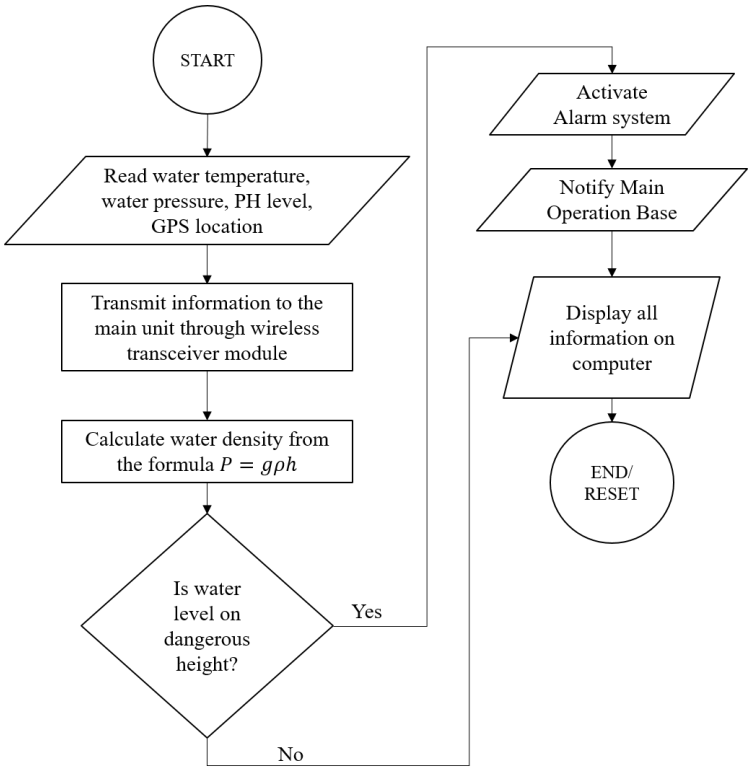
Buoy system, water level monitoring, gravity water pressure, flood threat detection system, alarm system.

Product Description

This project consists of a receiver unit and a couple of transmitter unit. The receiver unit consist of a microcontroller, and an NRF24L01 transceiver module. The transmitter unit consist of a microcontroller, a gravity pressure sensor, an NRF24L01 transceiver module, temperature sensor, PH level sensor, a GPS module, and a solar power supply unit to supply the whole unit.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Arman Hamizan Bin Azram was born 2nd June 2003 and the youngest out of 3 engineering major siblings. Greatly influenced by a traveling family that loves to explore other countries cultures and discover new things. A well-disciplined, goal-oriented person searching for new experiences to gain and conquer. Love exploring and uncovering reasons behind anything and everything. Desire to help people and share experiences with others. Strong understanding and great passion for mathematics. Always looking for improvement in a system to be more effective, convenient, and robust to withstand any abnormal condition. Strong background in teamwork, leadership, and organization. Believe that most knowledge and experiences come from interacting with other people.

Ts. Sufian bin Mohamad is a lecturer from Communication Department, Faculty Electrical Engineering, UiTM Kampus Johor Cawangan Pasir Gudang. He has experienced of 13 years teaching various electrical engineering subject. Besides, he gained lots of experienced in other fields such as student development activity in campus and faculty management.

19. IOT STRESS MONITORING SYSTEM

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Abstract

Stress has risen to prominence as a problem for people in today's fast-paced and demanding environment which are also impacting people in a various aspects of their life. Numerous kinds of physical, emotional and psychological responses are brought on by stress which can be caused by environment factors. However, the biggest concern is the severe negative effects that persistent stress has on a person's general health and quality of life. As a result, the Stress Monitoring System that based on the Internet of Things (IOT) is developed. This project is designed to monitor and alert an individual's stress level using variety of sensors and Arduino Mega microcontroller so the stress issue among today's society can be lessened.

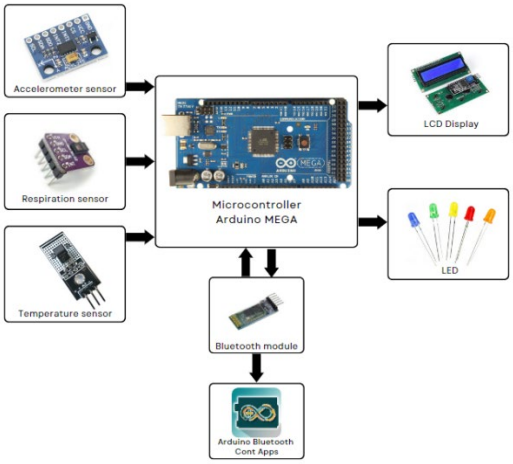
Keywords

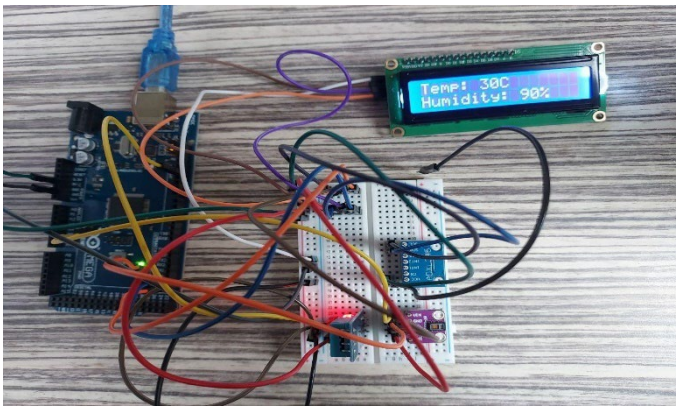
Stress, IOT, Monitoring System, Sensors, Bluetooth

Product Description

This project is about IOT Stress Monitoring System that consists of three input sensors and two output sensors that connected to the Bluetooth Controller application. The Arduino Mega microcontroller and Bluetooth module are used as a tool for sending to database or server application in order to run the system. The inputs that serve in this project are a accelerometer sensor which is ADXL335, a respiration sensor called MAX30102 and a temperature sensor (DHT11). Additionally, LED and a LCD display that act as an activity indicator is included into the output. The LCD display shows the individual's temperature and respiration level.Using Bluetooth Controller applications, this stress monitoring system may be remotely managed so the user aware of their stress level.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Balqis Umairah was born in 25th February 2003 and she lives in Johor Bahru. Her early years started at SK Taman Impian Emas and currently pursued her Diploma in Electrical Engineering major in Power at UiTM Kampus Pasir Gudang. She is dedicated to her academic performance and also actively participating in campus events and clubs because she loves gaining new experiences and knowledge. Beyond studies, she also enjoying outside activities like reading, netball and hiking so it will balance academically and personal achievement. Her future goals is to become a professional engineer where she can apply her knowledge to create a solution that benefit to society.

Norhalida binti Othman who is currently a senior lecturer in Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus. She is holding a Master of Engineering in Electrical Power from Universiti Teknologi Malaysia.

20. AUTOMATIC CAT FEEDER USING ESP WITH IOT APPLICATION

Danial Hakim Bin Khamis, Dr Nurul Nadia Binti Mohammad

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Abstract

Nowadays, humans are too busy with their daily life which leads them to find it difficult to properly feed and care for their pets. This project aims to develop an automatic cat feeder using Arduino with IoT application to provide automated and controlled feeding for cats. The main objective is to create a system that dispenses precise portion of cat food and drink at a desired times to ensure the cat get a proper nutrition and feeding consistency. The project uses a wide variety of input and output. The input includes userdefined feeding schedules through the IoT application and Ultrasonic sensor to sense the level of food and drink for the cat, while the output consists of a motor-driven mechanism that dispenses the cat food and drink, LED to show the food level and buzzer to indicate that the feeding process is starting. Simulation through software has been done and the findings indicate an accurate feeding operations and reliability. This project can help those busy with their daily life studying and working in improving pet care by enabling pet owners to automate and personalize feeding routines, ensuring their cats' well-being even in their absence. In conclusion such problems could be encountered by using an automated cat feeder system by using ESP32 with IoT application.

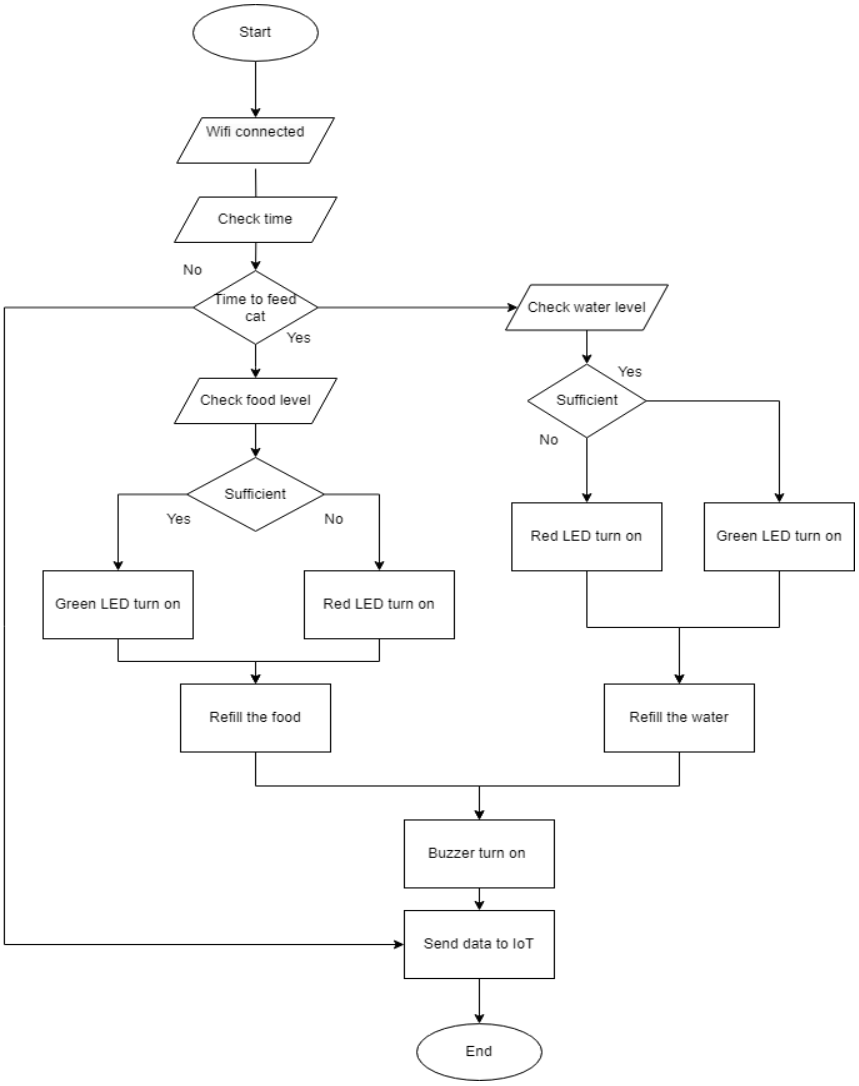
Keywords

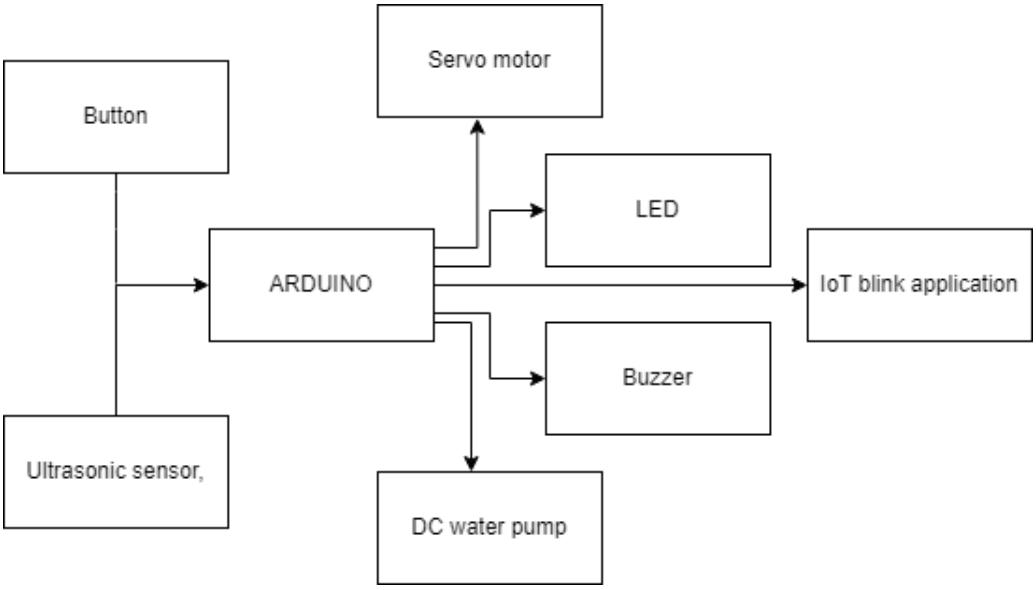
Automated cat feeder, IoT, ESP32, Blynk, monitoring

Product Description

This Automatic cat feeder utilize 2 input and 4 output which is Button and Ultrasonic sensor as input and Servo Motor, LED, DC Water pump and Buzzer as the output. The system make use of IoT to alert the owner of the level of food and drink in the storage. Two Ultrasonic sensors will be used to measure both level of food and drink to ensure that the pets and owners would have an ease of mind. LEDs would light up depending on the reading of the ultrasonic sensors. Feeding process could be done by either pressing the button or through the Blynk application. Servo Motor would rotate, DC Water pump would pump an amount of water and Buzzer would activate during the feeding process.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Danial Hakim Bin Khamis began his educational journey by continuing his studies at Maktab Rendah Sains MARA in January of 2016 and opted to delve into the world of pure science at the age of 16.
Upon completing his SPM, he embarked on the next phase by enrolling at UiTM Pasir Gudang in October of 2021 as a power engineering student. It is here that he started to delve into the intricate workings of electrical systems, power generation, and the application of engineering principles to harness energy effectively.

Nurul Nadia Binti Mohammad joined Universiti Teknologi MARA (UiTM) in January of 2020 as a senior lecturer at the Electrical Engineering Studies, College of Engineering. She obtained her Bachelor's Degree in Electrical Engineering (Hons) in October 2011, followed by Masters of Electrical Engineering from Universiti Tun Hussein Onn Malaysia (UTHM) in 2014. She then obtained her Doctor of Philosophy in Electrical Engineering from Universiti Teknologi Mara (UiTM) in 2019. Her area of expertise are modelling, control system, and process control.

21. CAR PARKING USING RFID

DANIAL HANIS ANAQI BIN AHMAD KASPI, NORLEE HUSNAFEZA AHMAD

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Abstract

This project is a car parking system using RFID that utilizes Arduino and ultrasonic sensors. The objective is to create an efficient, automated, and secure method for managing and controlling vehicle access to parking spaces. To accomplish the objectives, the design and planning phase starts by identifying requirements and selecting appropriate components, including an LCD to inform whether parking slots are full or available. Hardware assembly involves setting up the Arduino board as the central controller, installing RFID modules at entry and exit points for vehicle identification, and placing ultrasonic sensors to monitor parking space occupancy. The inclusion of an LCD enhances user interaction by providing real-time status of parking availability. The system contributes significantly to parking management by automating access and optimizing space utilization, leading to enhanced efficiency and reduced congestion. It increases security through authorized access, lowers operational costs by minimizing the need for manual supervision, and offers environmental benefits by decreasing idle time and emissions.

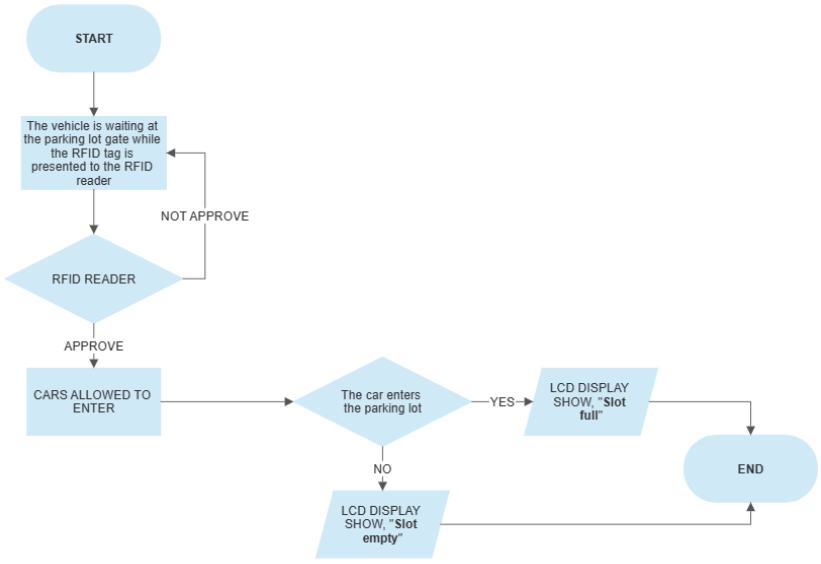
Keywords

RFID reader, Arduino Uno, Servo motor, Ultrasonic, LCD

Product Description

This product is user-friendly and operates with high efficiency. It is suitable for customers seeking a modern and secure parking solution on a limited budget. Additionally, it can be adapted for use in places like garages by simply adjusting the output.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Mr. Danial Hanis Anaqi bin Ahmad Kaspi is currently pursuing his diploma in Electrical Engineering, majoring in Power, at MARA University of Technology (UiTM). He has a keen interest in data communication and networking, as well as electronics and microcontrollers. After completing his diploma, he aspires to pursue a degree in Electrical Engineering.

Norlee Husnafeza Ahmad obtained her Ph.D. from UiTM Shah Alam with her research on the development of the generation market in Malaysia using System Dynamic modelling approach. She started her career at UiTM as a lecturer from February 2011 in the Power Department. Her main research interests are power system economic, AI optimisation technique, as well as System Dynamics modelling.

22. FACE RECOGNITION DOOR LOCK SYSTEM

DANIAL HAZIQ HAKIMI BIN SALAHUDDIN, WAN SUHAIFIZA BINTI W.IBRAHIM

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Abstract

The project aims to develop a secure door lock system using face recognition technology, enhancing security by accurately identifying authorized individuals. The integrated solution includes a camera module, image processing algorithms, and a microcontroller. As a person approaches, the camera captures their face, and facial recognition algorithms match it against a pre-registered database. Upon a successful match, the door lock is released, eliminating the need for traditional keys or access cards. The project prioritizes accuracy, speed, and robustness for a reliable and user-friendly face recognition door lock system.

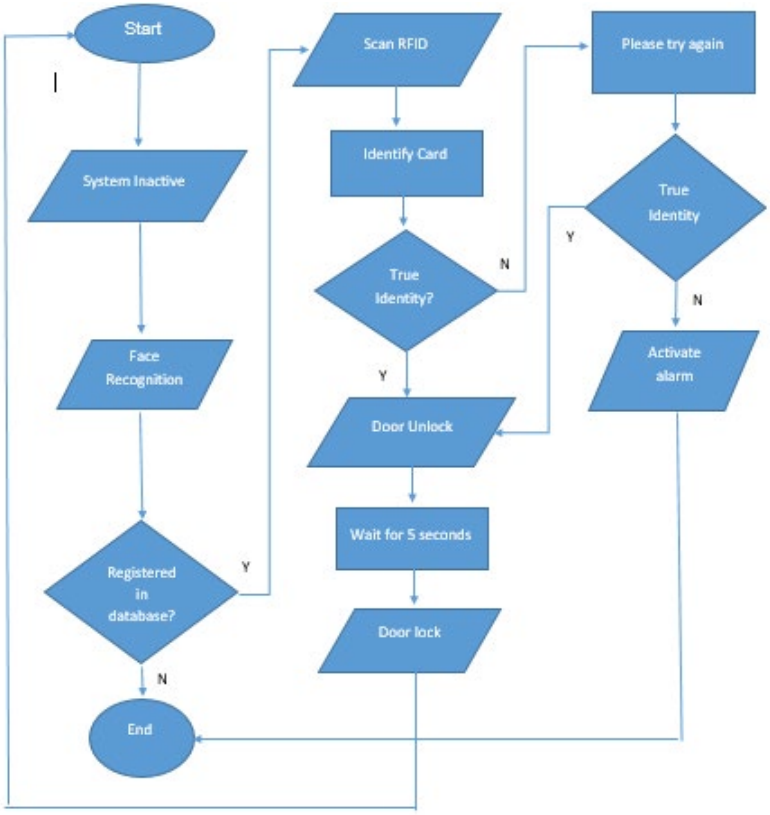
Keywords

project, camera, face recognition, secure, door

Product Description

The project aims to create a secure access control system by integrating facial recognition and RFID technologies. The system utilizes advanced facial recognition algorithms to verify a person's identity, followed by an additional layer of authentication through an RFID card. Access is granted only if both identification methods confirm the user's identity. The user-friendly interface facilitates easy navigation through the face scanning and RFID authentication processes. Security measures such as encryption and secure protocols protect sensitive data, while access attempts and incidents are logged for monitoring. The project is significant for its dual-layer security, applicability across sectors, user-friendly design, contribution to biometric security research, and overall enhancement of access control technology.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Danial Haziq Hakimi Bin Salahuddin joined UiTM in October, 2021 as an Electrical Engineering Student in the faculty of Electrical Engineering. Danial Haziq Hakimi Bin Salahuddin obtained 4A for SPM and got an opportunity to continue his studies in UiTM Pasir Gudang as an Electrical Engineering student. Currently, he is completing his 5th semester and he will continue his industrial training on March, 2024.

Ts. Wan Suhaifiza binti W Ibrahim joined UiTM in January, 2011 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering.
Wan Suhaifiza binti W Ibrahim obtained her Bachelor of Electrical (Hons) Engineering and Masters of Electrical Engineering (Power) from Universiti Teknologi Malaysia. Currently, she serves as a senior lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Power Department. Her main research interests are E-learning, high voltage technology and renewable energy.

23. WATER CONTAMINATION DETECTOR WITH IOT

DARREN NYALOI ANAK BAP, FADILA BINTI MOHD ATAN

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Abstract

Turbidity is essential for understanding liquid dynamics and determining the purity of water. Turbidity sensor determines a liquid's clarity based on the number of microscopic particles present, which affects its transparency. By measuring the ability of water ions to conduct electrical charge, a water conductivity sensor can help evaluate purity. Pure water conducts poorly, but high conductivity may indicate the presence of dissolved contaminants, salts, or minerals. Green and red-light emitting diodes are used to show the safety of the water from pollution, green is safe while red is danger. The system utilizes Internet of Things (IoT) technology for notifying the appropriate personnel.

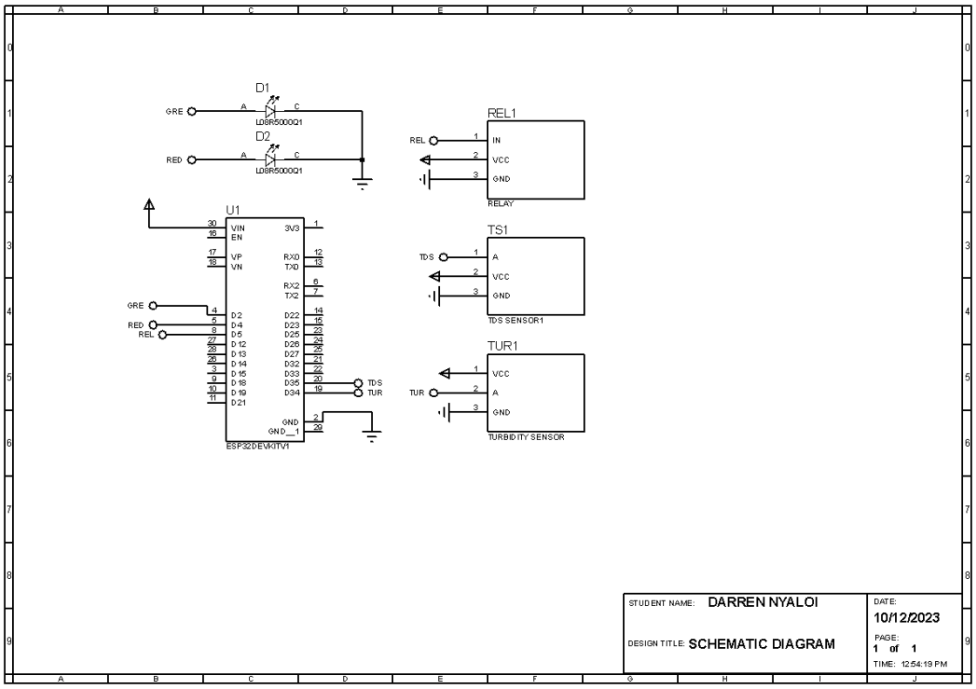
Keywords

Turbidity sensor, Total dissolved solid (TDS) sensor, Esp32, Light emitting diode, Internet of Things(IoT),

Product Description

This water contamination detection system is designed to monitor and analyse water quality to identify the presence of harmful contaminants or pollutants. The system typically includes sensors that are placed in the water supply to continuously monitor the water quality parameters such as turbidity sensor and conductivity sensor. The data collected by the sensors is transmitted to IOT for recording. If any contaminant or pollutant is detected red LED will light up and notify appropriate personnel, who can take action to address the issue and ensure water supply remain safe for consumption.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Mr. Darren Nyaloi Anak Bap is currently pursuing his diploma in electrical engineering major in electrical(power) at UiTM Johor Branch Pasir Gudang Campus. He is interested in electrical(power) because working with high voltage machines fascinates him.

Fadila Mohd Atan is a senior lecturer specializing in electronic and communication engineering, holds a Master of Science degree in Telecommunications and Information Engineering from Universiti Teknologi MARA. With a decade of unwavering dedication, she has meticulously advanced her expertise in constructing prototypes to address real-world challenges within the engineering domain.

24. SMART PARKING SYSTEM WITH BLYNK MONITORING

Faiz Nasruddin Bin Nazarnaserulazam, Shakira Azeehan Binti Azli

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Abstract

The smart parking system has emerged as a game changer. This intelligent system aims to optimize parking space utilization, enhance user convenience, reduce traffic congestion and improve environmental sustainability. The solution improves the entire parking experience, decreases search time, and reduces traffic congestion by delivering real-time updates on parking availability and directing cars to vacant spots. It also helps to enhance air quality and environmental sustainability by lowering emissions through effective parking management. Administrators can make educated judgements and execute successful parking rules if they can analyze parking occupancy patterns and trends. Furthermore, the Smart Parking System's connection with other smart city infrastructure encourages the creation of smarter and more sustainable cities. Although this approach necessitates early investment and infrastructure construction, the long- term advantages outweigh the expenses. The Smart Parking System is an important step towards tackling the issues of urban parking and determining the future of urban transportation.

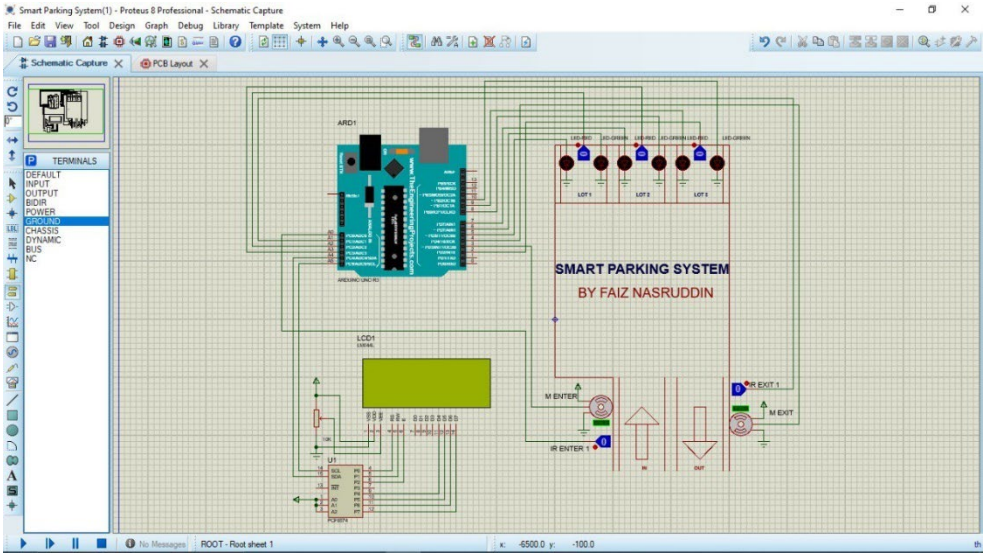
Keywords

Parking, traffic, IR sensor, LED, motor

Product Description

Smart Parking System with Blynk Monitoring is an internet of things (IoT)-based project that alerts users when a parking space becomes available. The Arduino UNO is an easy to use piece of hardware that functions as a microcontroller to read input. In this project, the input is an infrared sensor, which is converted into outputs such as a servo LED and a servo motor. The servo motor acts as a gate, allowing the car to enter and leaves the parking space. An IR sensor installed in the parking space is also utilised to detect cars. The input send information about parking availability to be displayed on the LCD. Wifi module is used to alert management that parking is full. The LED indicates to the user whether or not a parking space is available. When the IR sensor detects a car that is left of a parking place, the LED changes from red to green to signal that a parking spot is available, and the information is shown on the LCD.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Faiz Nasruddin Bin Nazarnaserulazam was born on the 28th of July 2003 in Setia Alam, Selangor. Faiz is an active member of the MASMED Club apart from the classroom. He participated in various charity and entrepreneurial events, that show his leadership and work ethic. Faiz developed elements that would eventually define his academic years while growing up: persistence, curiosity, and driven. These early encounters arranged his path for his education adventure at UITM Pasir Gudang, where he continues to pursue electrical engineering with enthusiasm.

Ts. Shakira Azeehan Binti Azli obtained her Msc (Electrical Engineering-Power), B.Eng (Hons) Electrical Engineering and Diploma in Power Electrical Engineering from Universiti Teknologi Malaysia, Johor. Ts. Shakira is one of the academic staff at Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus.

25. IOT BASED DETERGENT LEVEL MONITORING SYSTEM

FARHAN DANIAL ZAMRI, SITI ALIYAH MOHD SALEH

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Abstract

Monitoring the detergent level in real life might be difficult, particularly in places where significant volumes of detergent are frequently used. It might be challenging to manage inventories and avoid wastage without a reliable and precise method to measure the detergent level. Inaccurate readings may additionally impact the ways the detergent is being pumped, which might damage the machines or delay the cleaning process. This thesis aims to design an IoT Based Detergent Level Monitoring system by using Arduino Wemos D1 R1. This thesis proposed a detergent level monitoring system by using IoT technology. The system is composed of an ultrasonic sensor that measures the detergent level, an Arduino Wemos D1 R1 microcontroller that controls the pump and processes sensor data, a keypad for user input, an LCD screen to display the detergent level and other system status, an LED indicator to alert the user of low detergent level, and Blynk app to remotely monitor the detergent level. Hence, by using an accurate and efficient monitoring system, businesses can ensure that they are using the optimal amount of detergent, thereby saving costs.

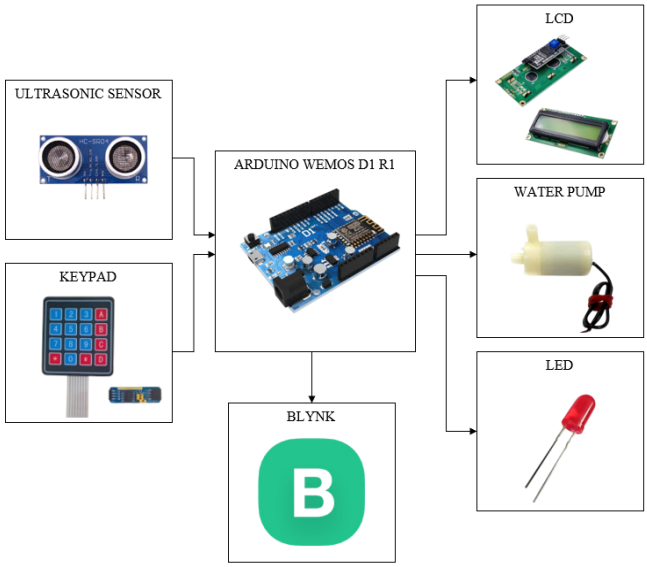
Keywords

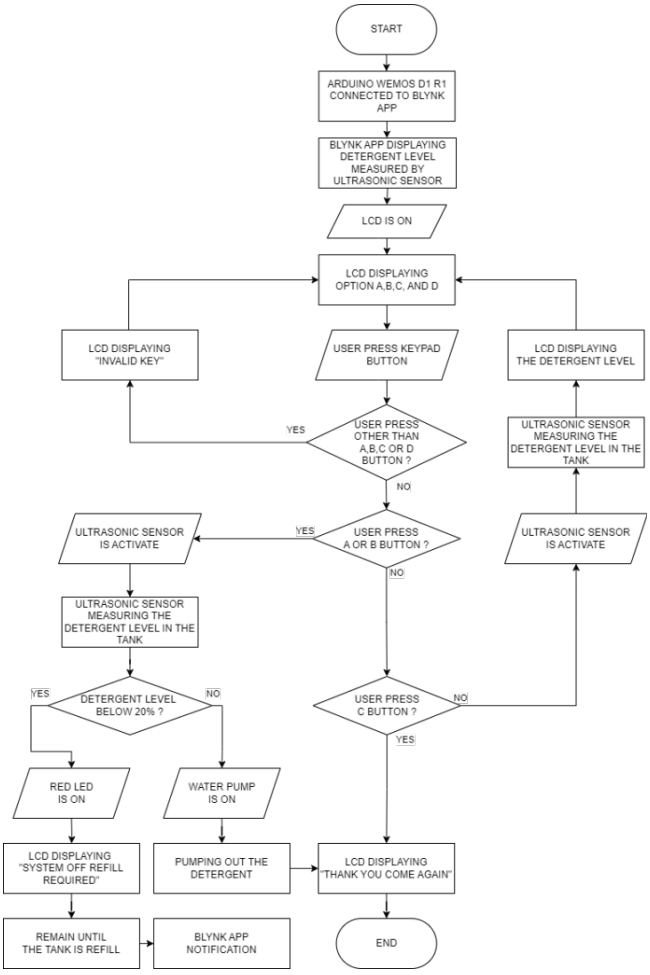
detergent, Arduino Wemos D1 R1,monitoring,IoT,sensor

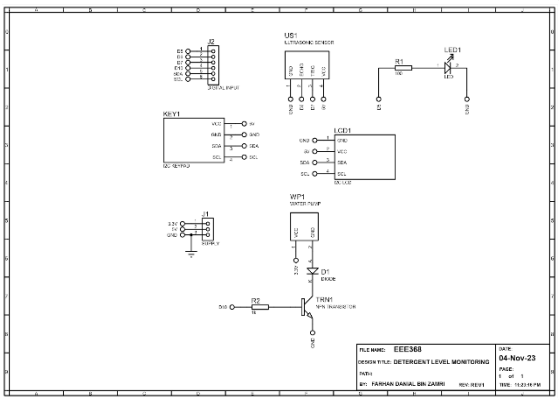
Product Description

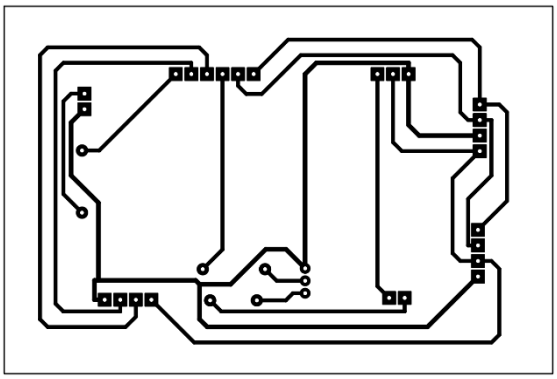
Microcontroller: Arduino Wemos D1 R1
Input: Ultrasonic sensor, Keypad
Output: LCD, LED, Water Pump, Blynk

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.









Member Biographical Data

Farhan Danial Zamri is currently pursuing his diploma in Electrical Engineering (Power) at UiTM Campus Pasir Gudang. His passion for the field ignited during high school at Sekolah Menengah Kebangsaan Putrajaya Presint 11 (2), where he opted for the science stream. Ever since then, he has been fascinated by the complexities of electrical engineering. His academic journey at UiTM reflects his commitment to gaining in-depth knowledge and skills in this discipline, and he is enthusiastic about contributing to advancements in the power sector.

Siti Aliyah Mohd Saleh has a Master's degree in Engineering (Applied Science) from Tokai University, Japan (2012). She is currently serving as a lecturer at Universiti Teknologi MARA (UiTM), working in the Power department of Electrical Engineering Studies. Her research interests include high voltage technology and power systems.

26. WATER POLLUTION OBSERVER WITH IOT TECHNOLOGY

Fawwaz Najmi Bin Nadimin, Muhammad Rajaei Bin Dzulkifli

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Abstract

As time moves forward, pollution becomes one of humanity's most pressing challenges. Water, like other elements, faces pollution in diverse ways. Hence, monitoring worldwide water sources is vital, ensuring their viability for both humans and the environment. This research seeks to aid in creating a tool to monitor and combat the increasing pollution. The paper centers on crafting a prototype called the Water Pollution Observer, incorporating an ESP 32 microcontroller linked to multiple sensors, detailing various conducted tests. The prototype gathers data from Temperature, Turbidity, and pH Sensors. Using this information, it assesses the location's condition and forms judgments based on preprogrammed historical reports. The connected LEDs illuminate based on the decisions made. Simultaneously, the collected data is displayed on a nearby LCD screen and through its connection to Blynk.

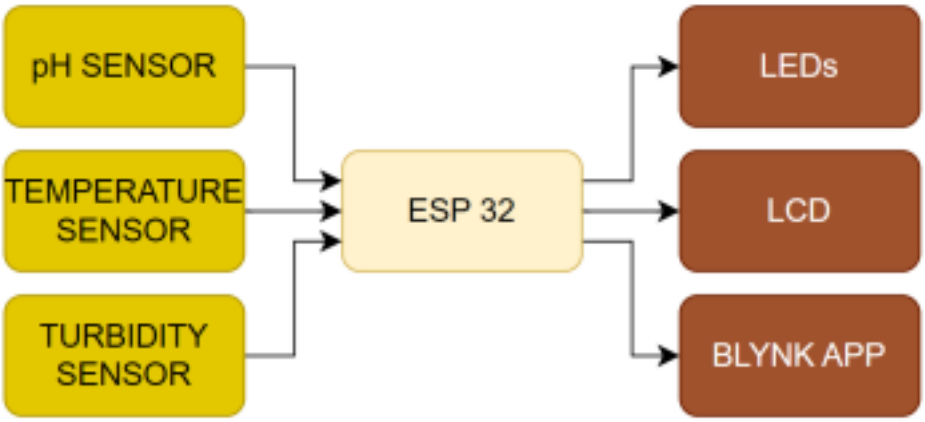
Keywords

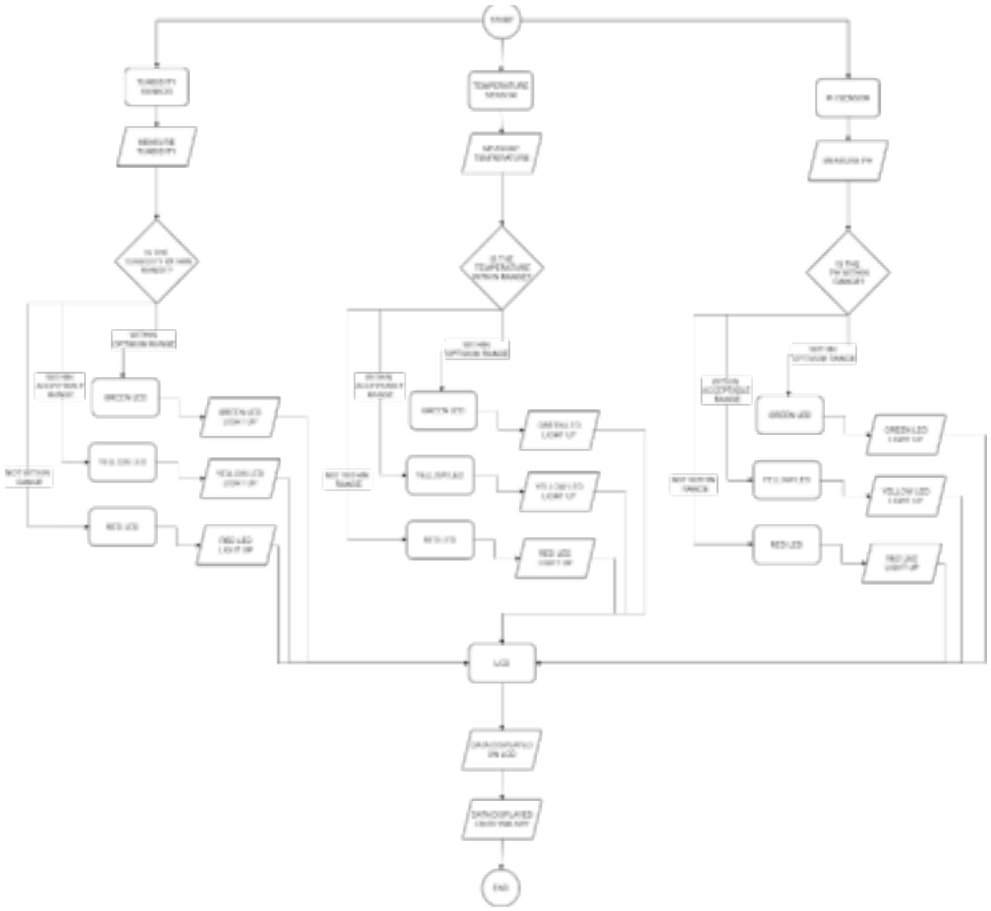
Pollution, ESP 32, Temperature, Turbidity, pH

Product Description

The Water Pollution Observer is a sophisticated system designed to analyze the qualities of a water body and continuously track any deviations from the norm. Operating in real-time, it utilizes historical data to assess the severity of potential issues. This tool enables authorities to closely oversee crucial water sources, swiftly identifying potential problems as they emerge.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Fawwaz Najmi Bin Nadimin is currently pursuing their diploma in Electrical Engineering majoring in Power at UiTM Cawangan Johor Kampus Pasir Gudang. They are interested in the designing more effective system to better their skills. They have acquired a great deal of knowledge on utilizing software such as Proteus, Arduino IDE and Microsoft Office application and possess hands on experience with Arduino Uno, ESP 32, Turbidity, Temperature, pH sensor, and many more through the Final Year Project titled "Water Pollution Observer With IOT Technology"

Muhammad Rajaei Bin Dzulkifli is a lecturer in Electrical Engineering Studies, College of Engineering, UiTM Johor Branch Pasir Gudang Campus. He teaches computer engineering courses with research interests in IoT, data analytics, wireless communication and network.

27. OPTIMIZED AQUARIUM CARE MONITORING SYSTEM

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Abstract

In today's world, many people are passionate about maintaining aquatic life as a hobby or raising fish for sustenance. A common concern is providing an optimal environment for their aquatic life, as constantly monitoring water conditions can be challenging and time-consuming. To address this, Optimized Aquarium Care Monitoring System has been developed using hardware such as a Temperature sensor, Total Dissolved Solids (TDS) sensor, pH sensor, and Nodemcu ESP8266, and software like Arduino IDE, Proteus 8, and Tinkercad. This device is specifically designed to assess water quality for freshwater fish by measuring pH, temperature, and turbidity. It enables quick and efficient water quality assessment, assisting both hobbyists and fish farmers. Additionally, the device can connect to the Blynk App, allowing users to monitor water quality remotely via a smartphone or directly on the Blynk website, thereby eliminating the need for manual testing. Ultimately, this innovation offers a significant time-saving solution for its users.

Keywords

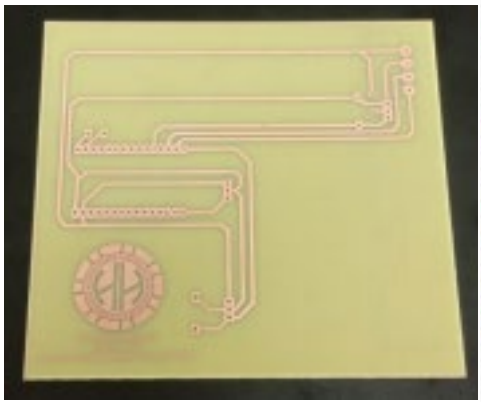
Monitoring device, Nodemcu exp8266, Blynk app, Ph sensor, TDS/turbidity sensor, Temperature sensor

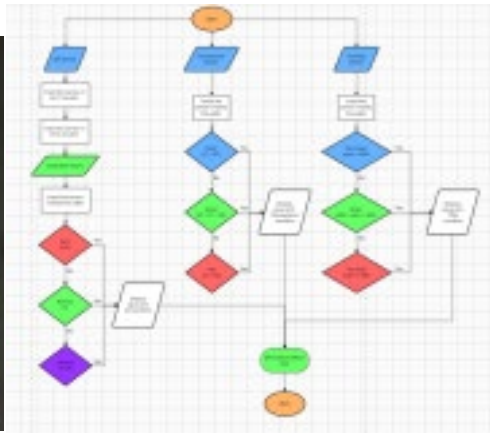
Product Description

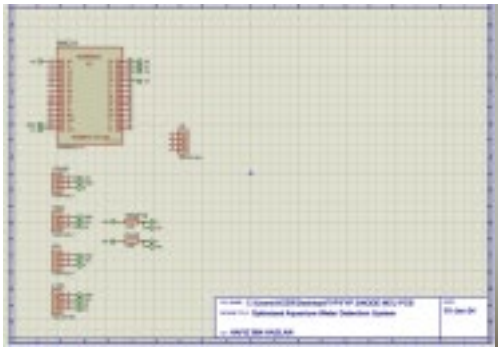
This product is designed to detect water quality for freshwater fish. All probes can be directly inserted into the water to be tested except for the pH probe because it needs to be calibrated in pH 7 solution and pH 4 solution when the screen shows "calibration done". Only then can the pH probe be inserted into the water to be tested. For the pH sensor, the value and condition of the pH of the water will be shown on the LCD. For example, a pH value of 0 to 6 is acidic, a pH value of 7 is neutral, and a pH value of 8 to 14 is alkaline. Next, this device can also detect the water temperature which is good for freshwater fish by using the temperature sensor to set the value and the water temperature condition will be shown on the LCD. For example, when it is below 27 C it will show "COLD", when the temperature is above 32 C it will show "HOT", and it will show "GOOD" when the temperature is between 27 C to 32 C. This device can also detect water turbidity which is good for freshwater fish by using a TDS sensor where the value and condition of the water turbidity will be shown on the LCD. For example, when it is below 400ppm it will show "Too Clean", when the temperature is above 450ppm it will show "Too dirty", and it will show "GOOD" when the temperature is between 400ppm to 450ppm. The Blynk application is also included in this device, but it can only show the temperature, TDS, and pH values of the water that have been detected by the sensor and not the water condition. This device uses Nodemcu ESP8266 as a microcontroller. The software used to prepare this device is Arduino IDE to compile the coding, proteus 8 is used to design the PCB layout Thinker Cad is used to design the 3D case for this device, and the Blynk app is used to monitor remotely by using a smartphone or through Blynk website. The expected result

of this project is that water conditions such as pH, temperature, and turbidity can be detected using the device.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.







Member Biographical Data

Hafiz Bin Hazlan is currently pursuing a Diploma in electrical engineering (power) at Universiti Teknologi Mara (UiTM). He once arranged a visit with the lecturer for subject Electrical Machine EPO243 to the Malakoff coal power station in Tanjung Bin in 2023. He is a hardworking person and likes to socialize with people. Therefore, he likes to attend events that are always held in PTDI such as blood donation programs, health programs, and counseling programs.

Mastura Omar is a dedicated Senior Lecturer in the Electronics Department at the Electrical Engineering Studies, College of Engineering, UiTM Pasir Gudang. She holds a Bachelor of Engineering in Electrical and Electronics from Universiti Teknologi Petronas and a Master of Science in Microelectronics from Universiti Kebangsaan Malaysia. With over 10 years of experience in academia, Mastura specializes in Electronics System Design, blending her extensive knowledge with a passion for teaching and research.

28. SAFETY VENTILATION AUTOMATED SYSTEM

Hafiz Faiz Bin Fazri and Dr Rijalul Fahmi Bin Mustapa

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Abstract

Proper ventilation plays a crucial role in creating a safe workplace environment, especially in the event of unexpected hazardous gas leaks. Besides, there are significant safety concerns related to hazardous and harmful gases in the workplace for human health. Insufficient ventilation systems in these buildings during emergencies, such as gas leaks, can lead to potentially dangerous incidents. Additionally, the lack of warning indications in available safety ventilation systems is critical, as it fails to alert occupants to take necessary actions in the event of a gas leakage. With the emergence of the internet, ventilation systems can be improved by using Internet of Things (IOT). This study proposed safety ventilation fan automated system by using IoT technology. The aim of this study is divided into 2 parts. The first part is the hardware development that consists of 4 sensors which are temperature, humidity, flame, and gas sensors. These 4 sensors are used to detect hazardous gas and potential fire inside an indoor workspace. Arduino UNO is used as the controller to control all the signals and data. The second part is to display the information and gives notification about the hazardous gas using a display and mobile approach. This system will improve the safety features in an indoor workspace to ensure a better work environment and reduce any possible accidents relating to hazardous gases.

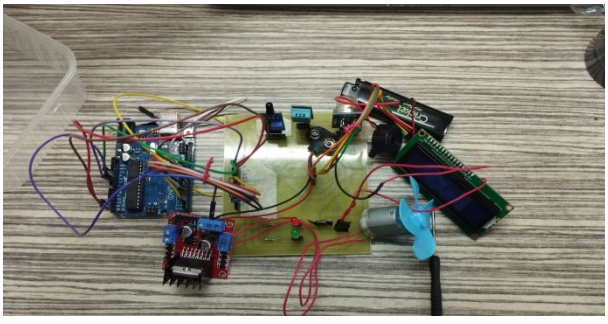
Keywords

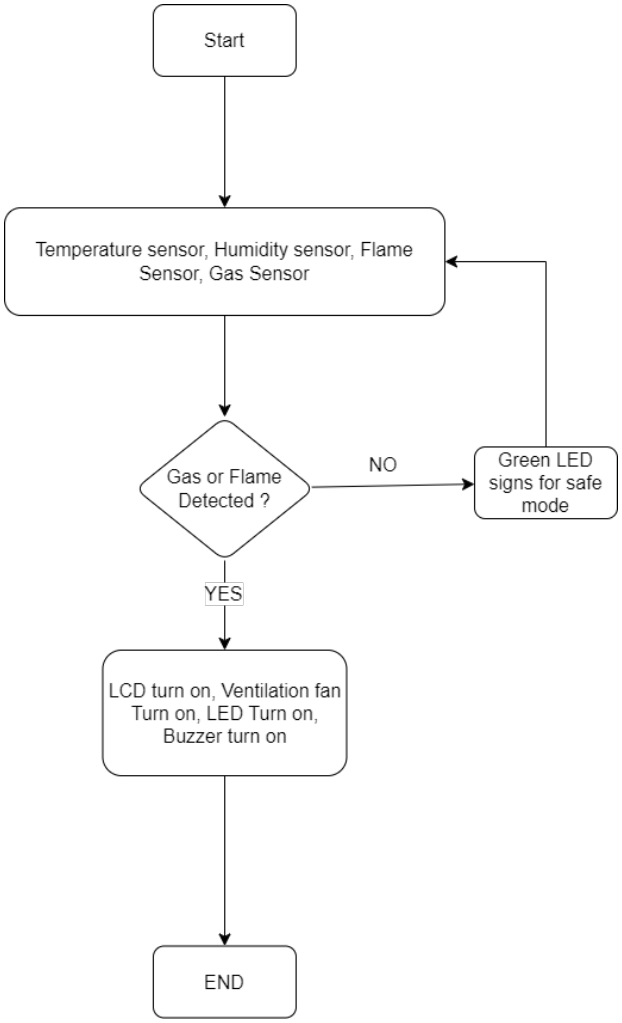
ventilation, hazardous, gas leakage, IoT, workspace, workplace

Product Description

Introducing our Safety Ventilation Autoamated System – a system that can improve the safety in an indoor workspace that requires the usage of hazardous gas such as hospitals, laboratories and many more. This system can accurately measure the value of temperature, humidity, presence of gas and presence of flame. When either gas or flame are detected, the system will alert the occupants inside the building to quickly evacuate the area. Moreover, a ventilation fan will help blew away the harmful gas and assisting on extinguisher the fire outbreak.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Hafiz Faiz Bin Fazri, born on 9th February 2003, is an Electrical Engineering (Power) student at UiTM Pasir Gudang, Hafiz actively seeks out theoretical and practical knowledge because he is fascinated by the vast influence that electrical systems have on our everyday lives. His commitment to understanding every aspect of power engineering is demonstrated by his coursework, projects, and practical experiences. Beyond the classroom, Hafiz hopes to positively influence society by helping to develop unique electrical engineering solutions. After completing his studies at UiTM Pasir Gudang, he hopes to become a valuable engineer with a strong foundation and a passion for lifelong learning.

Rijalul Fahmi Mustapa is a senior lecturer in UiTM Pasir Gudang. He graduated from UiTM Shah Alam in Electrical Engineering. He possesses a professional certificate as a measurement and verification and a certified energy anager. His current interest in research is energy consumption prediction and baseline energy modelling.

29. ARDUINO BASED ENVIRONMENTAL POLLUTION MONITORING AND ALERT SYSTEM THROUGH IOT IMPLEMENT

Hanif Faisal Bin Jeffry Fazlinashatul Suhaidah Binti Zahid

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Abstract

Environmental pollution is on the rise, accompanied by a steady annual increase in temperature. With this Arduino based Environmental Pollution Monitoring and Alert System through IOT implement, people can monitor the air quality, noise pollution, and temperature of the surrounding area. This project can prevent individuals from entering polluted areas due to health hazards.

The project aims to develop an environmental contaminant monitoring systems by utilizing Arduino as the microcontroller and implement IoT for recording the collected environmental quality information. The Arduino microcontroller is used to trigger the alert system, which consists of an LED, an LCD display, and a buzzer, once the MQ135 gas sensor, noise sensor, and temperature sensor are operating.

Subsequently, the primary component, the WIFI module ESP8266, can record the gathered data and transmit it to a smartphone for display the results. Eventually, this enables individuals to consistently stay informed about environmental quality, helping them steer clear of polluted areas for the sake of their health.

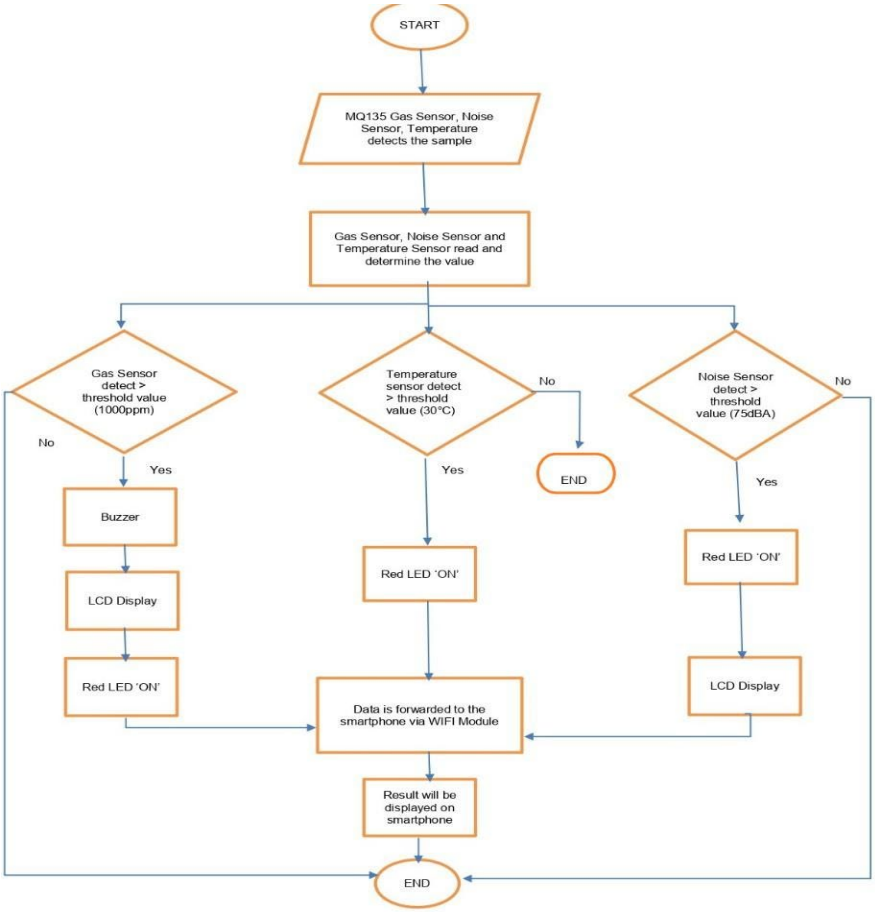
Keywords

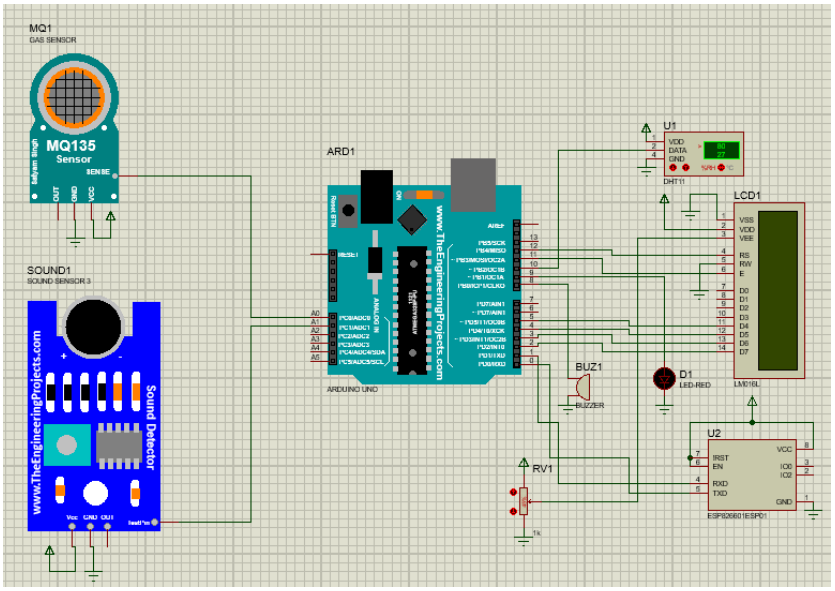
pollution, monitoring system, Arduino, IoT, WIFI-module

Product Description

This product use MQ135 sensor, sound sensor and DHT11 to detect the environmental pollution and make the people to avoid from polluted area. LED will blinking and buzzer will beeping if the sensor detect the polluted area. LCD display will show the reading of air, sound and the reading of the temperature to tell the
people to aware about that area. Then, all the reading will be send to the smartphone by using WIFI module ESP8266 to be monitor.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Hanif Faisal Bin Jeffry was born on 15 March 2003 at Melaka. He is a final year student in diploma of Electrical Power Engineering at UiTM Pasir Gudang, Johor. He used to work at Faiz Elektrikal Trading to wiring the house when semester break. He plan after complete the diploma, he want to continue the study in degree at UiTM Shah Alam and then find the job as an engineer.

Madam Fazlinashatul Suhaidah binti Zahid is a practice lecturer and researcher with 7+ years of experience teaching courses on undergraduates' level. Her research group focuses on the fabrication and integration of dimensional materials particularly graphene, carbon-nanotube (CNT) and other 2D materials into humidity sensor and organic solar cell applications as well as polymer nanocomposites.

30. GAS AND HUMIDITY INTELLIGENT DETECTION FOR ELECTRICAL ROOM

Harith Izzuddin bin Mohd Zaharin, Nor Affida binti M. Zin

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Abstract

Gas and humidity detection systems are beneficial for an electrical room in order to prevent dangerous occurrences from happening towards the electrical components. Many buildings have electrical components that might be dangerous when we do not care about their safety. For the environmental emergency management system, such as flood, fire, earthquakes, and other situations, the Internet of Things (IoT) is regarded as an active study topic. IoT has many benefits. It can be used for monitoring, notifying, can be as an alert system, and suitable for any design according to our requirements, by just modifying the related parameters. This fact shows that IoT is highly relevant and efficient in this era of technology. Therefore, this project aims to design an intelligent liquid and gas detection system which wirelessly integrated with an IoT notification system. This is to notify the users or technical personnel of the electrical room on the view of that area from a surveillance camera that can be connected to users' Telegram apps.

Keywords

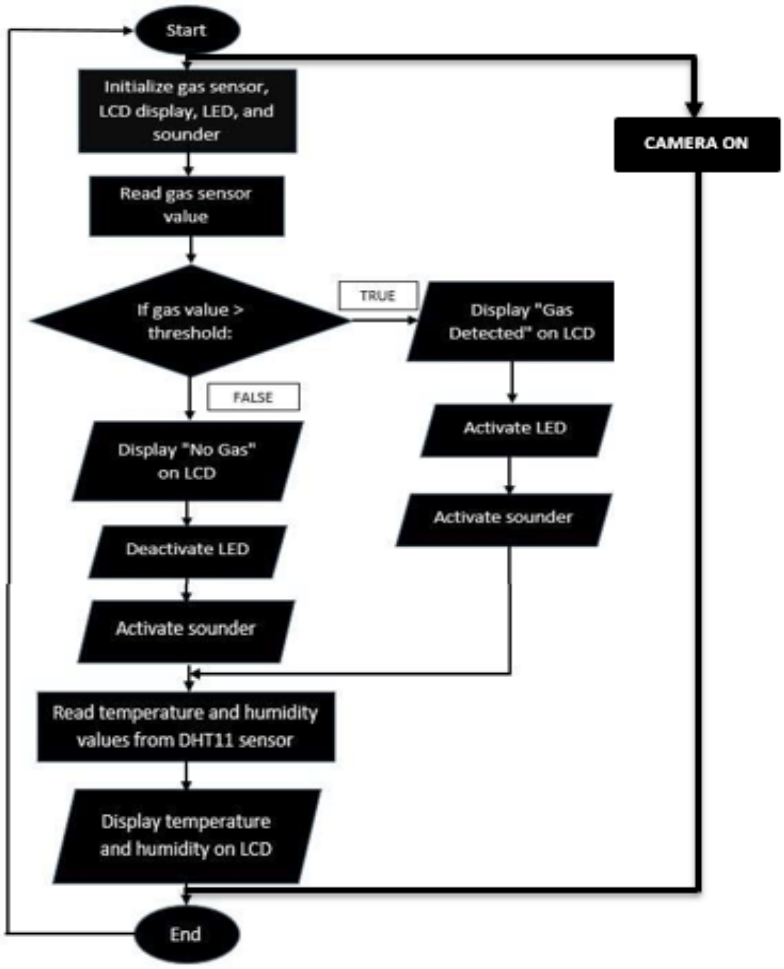
IoT Technology, system, detection, components

Product Description

The concept of the project addresses the issue of electrical room safety by developing a smart system that continually checks gas and humidity levels. This solution prevents accidents, maximises equipment longevity, and streamlines operations by utilising sophisticated sensors, machine learning, and automatic alarms. By using this solution, future electrical rooms where are always safe, efficient, and easy to control can be constructed.

In this project, there are two separate parts which are input and output. The first part is for the input, two sensors which are gas and humidity sensors are used. A surveillance camera to monitor the situation in that area is also included. Other than that, this project is using microcontroller ESP32 to be the brain of this system. The second part is the output which are LCD, Buzzer, LED and IoT notification. It will notify users when something is detected. This intelligent system will make the electrical room or any buildings equipped with high safety and at the same time it will make us easier in planning the safety procedures when some incidents occur. This intelligent system can as a future new technology to give flexibility for people doing their jobs.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Harith, an UiTM Kampus Pasir Gudang electrical engineering student, has electricity coursing through his veins. He enjoys building circuits and learning to code, and he excels in areas such as circuit analysis and microcontroller programming. But his ambition extends beyond the classroom. He envisions a brighter future powered by renewable energy and is eager to obtain hands-on experience in the subject. Harith isn't only book brilliant; he also knows how to use software like AutoCAD and MATLAB. And he thrives in cooperation, with communication abilities that light up every endeavour. His ultimate objective is to become a professional engineer who leaves a lasting impact on the world through sustainable solutions.

Mrs. Nor Affida binti M.Zin joined UiTM in November, 2013 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering. She obtained her Bach. Degree in Electrical Engineering (Telecommunication) and Masters of Engineering, both from Universiti Teknologi Malaysia, Johor Bharu. She also gained industrial experience as an R&D Engineer in Qimonda (M) Sdn. Bhd. focusing on PCB design for CPU testing equipment. Currently, she is working towards her PhD studies in Energy-Efficient Passive Optical Network.

31. AUTOLOCK MAILBOX WITH RFID

ILHAN MANSIZ BIN ABDUL SHUKOR DR. KHAIRUL KAMARUDIN BIN HASAN

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Abstract

This project introduces an Autolock Mailbox prototype in response to the increase in online shopping and parcel delivery. Traditional mailboxes are insecure, necessitating the need for a new alternative. The smart mailbox makes use of WeMos Arduino D1 R1 and RFID technologies. Its goals include creating a single-unit mailbox that locks goods upon delivery, alerts users via Blynk when an IR sensor detects the presence of mail, and uses RFID for mailbox access. This strategy intends to raise awareness of security concerns connected with traditional mailboxes, while also instilling trust in online buyers through enhanced delivery systems and protective mechanisms.

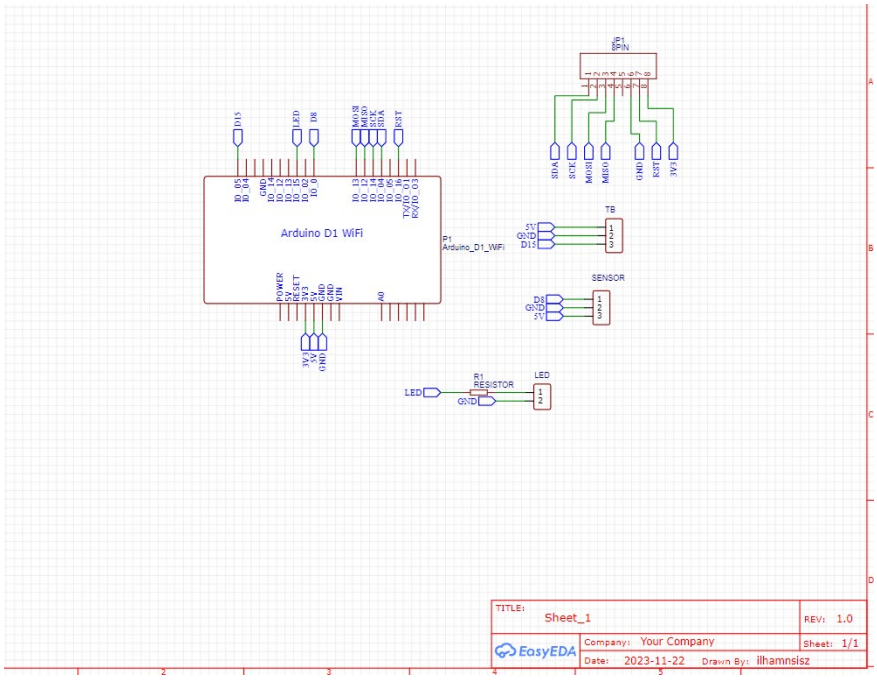
Keywords

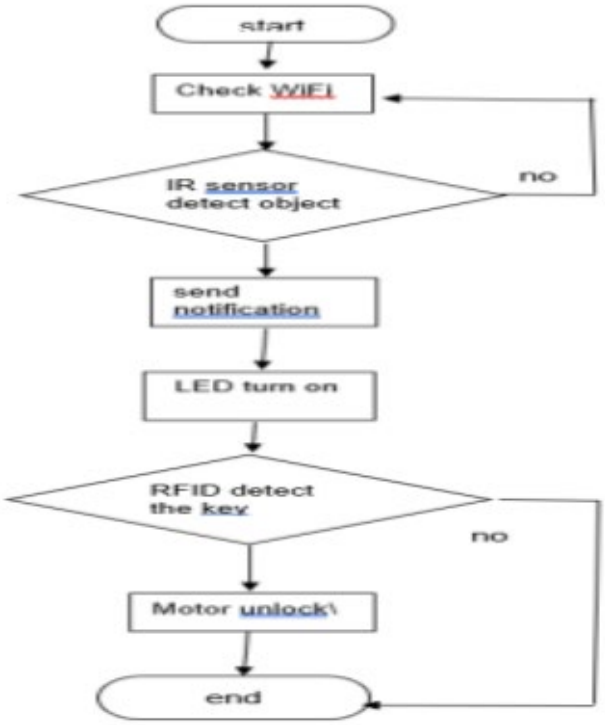
Mailbox, RFID module, Arduino D1 R1, WiFi connection, IR sensor, Blynk

Product description

Autolock Mailbox with RFID is a modern mailbox that utilize IR sensor to sense presence of incoming mail or parcels. The project primarily makes use of a Blynk app to inform users of arriving mail via pop-up notifications on their smartphones, as well as an RFID module to ensure that only users having the right RFID string may unlock the mailbox. This Autolock Mailbox use a WeMos Arduino D1 R1 as a microcontroller that are connected to WiFi to notify user via Blynk, which is an open source app.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Ilhan Mansiz Bin Abdul Shukor born in Selangor, live and raised in Johor. He pursue his study in Diploma of Electrical Engineering, majoring in Electrical Power (CEEE112) at UiTM Pasir Gudang, Johor. He is constantly achieved a good result for every semester. He also interested to explore a new environment and experience. His mission and vision are clear to be a successful engineer that will develop more friendly user project in future.

Khairul Kamarudin Hasan is currently working with School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA Cawangan Johor, Kampus Pasir Gudang, Malaysia. He received the B. Eng in Electronic Engineering (Electronic Industrial) in 2012, the Msc. Eng degree in Electronic Engineering (System), in 2014 and Ph. D degree in Electronic Engineering from Technical University Malaysia Malacca in 2021. His research interest Wireless Power Transfer, Power Electronic, Control system and Drive.

32. RFID BASED COMPUTER SECURITY SYSTEM

IMRAN SYAUQI BIN ABDUL RAHMAN , Dr NOR DIYANA BT MD SIN

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Abstract

In our daily lives, RFID has been used unintentionally when we use public transit, board airplanes with our passports, make purchases in stores, and pay tolls on motorways. These capabilities make it possible for users to access laptops and desktop computers using this technology. This is due to the fact that, like everyone else, we humans occasionally forget our own passwords for accounts on websites like Facebook, Google, and Windows. It is shown that users no longer need to memorize their laptop or computer's password to log into the Windows operating system, proving that technology is meant to make people's lives easier. An Arduino Uno and an RC-522 module can be used as microcontrollers to build a project that lets users access their computers without entering their passwords. However, to create such a programme, one must first understand and comprehend the C language that the microcontroller uses. This project's goals are to provide a different technique for users to log into computers, to make computers easier for users to access with an RFID system, and to find easy ways to access Windows devices.

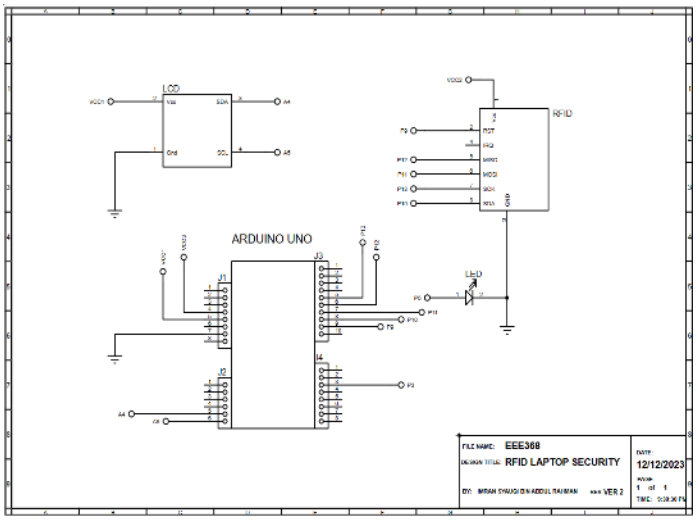
Keywords

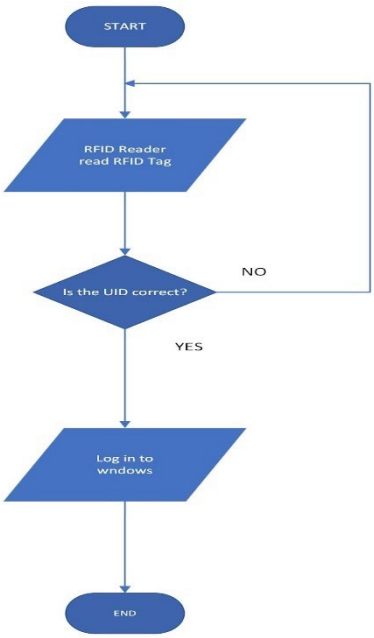
RFID based security system, access control and authentication, Arduino Uno, Computer security.

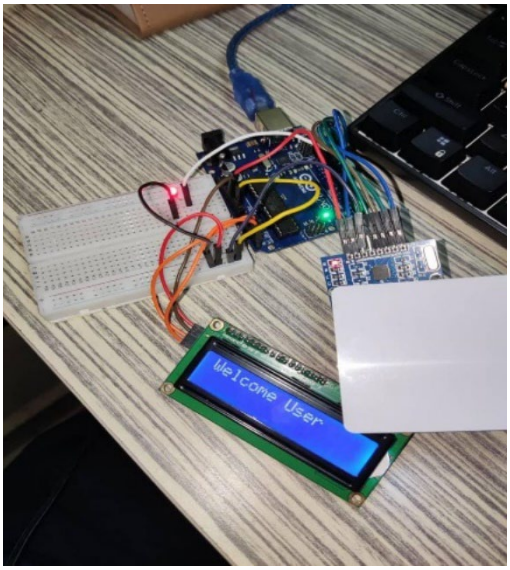
Product Description

This project is developed to introduce an RFID Based Computer Security System which use RFID system to unlock the computer. A prototype was designed primarily using a personal computer or laptop, Arduino Uno, RFID Tag and Reader, LCD 12c to display a message either the user is logged in or not.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.







Member Biographical Data

Imran Syauqi Bin Abdul Rahman was born in Kota Samarahan, Sarawak. He studies in Diploma of Electrical Engineering Studies (PKE), majoring in Electrical Power (CEEE112) at UiTM Campus Pasir Gudang, Johor. He constantly achieved good results in every semester, which is above 3.0 every semester. He is also interested in exploring new environments and experiences. He can manage his time between studies and daily routine such as exercise, hobbies, and others. His vision is to be an excellent engineer in the future.

Nor Diyana Md Sin is a senior lecturer in the Electrical Engineering Studies of the Universiti Teknologi MARA (UiTM), Malaysia. She received her PhD in Electrical Engineering (Nanoelectronics) from the Universiti Teknologi MARA (UiTM), Malaysia in 2014. She earned her degree in in Electrical Engineering with honors from Universiti Teknologi MARA (UiTM). Her research interest are in the area of sensor, metal oxide semiconductors, nanotechnology and nanodevices

33. IOT BASED VERTICAL PLANTATION

Irsyad Iskandar Bin Md Taib, Dr. Zakariah Yusuf

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Abstract

Agriculture's key role in a nation's development relies on efficient water usage, the primary resource for irrigation. The integration of Internet of Things (IoT) technology serves as a transformative solution for optimizing water management in agriculture. However, the slow adoption of modern farming equipment persists due to factors like small land holdings, large machinery/equipment, and high cost. To address these challenges, it is crucial to promote precision irrigation through IoT, enabling farmers to monitor and control water usage effectively. Simultaneously, efforts should be directed towards adapting advanced farming equipment to the specific needs of farmers and their types of crops. This study proposed farming plantation and agriculture system by IoT technology. The aim of this study is divided into two parts. The first part is hardware development that consists of two sensors which are capacitive soil moisture sensors and humidity temperature sensors that will activate water pump to irrigate soil. In this project the Nodemcu ESP8266 is used as the main controller. The second part is to display the information regarding the soil moisture, soil temperature and water level using OLED display. The development of this system is expected to improve plantation monitoring for farmers while also having a positive impact on enhancing crop yields.

Keywords

IoT, Plantation, Irrigation, Wi-Fi, Microcontroller

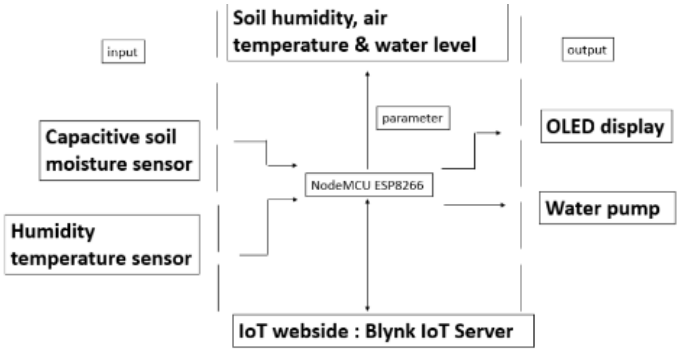
Product description

- Microcontroller: NodeMCU esp8266

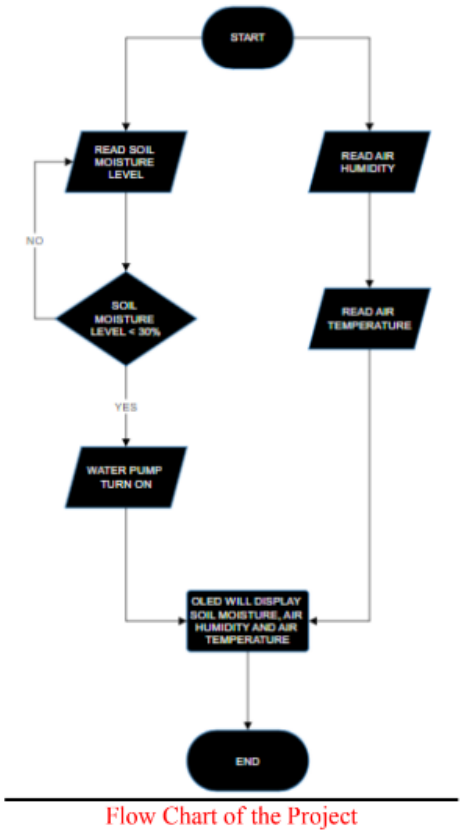
- Input: Capacitive Soil moisture Sensor, DHT11 sensor

- Output: 15v DC Submersible Water Pump, OLED display

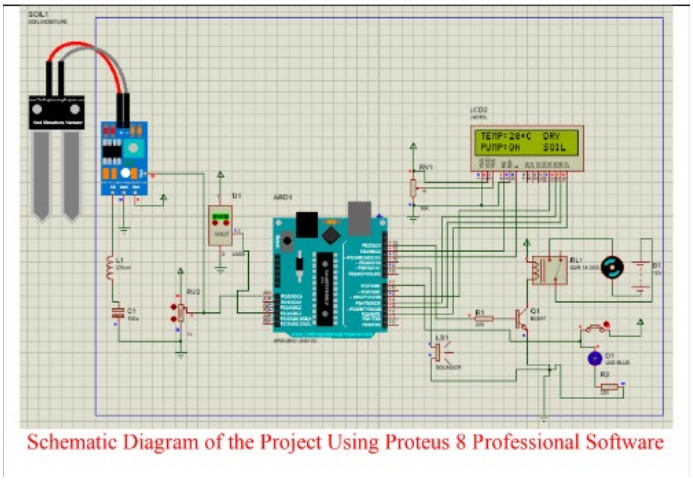
Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



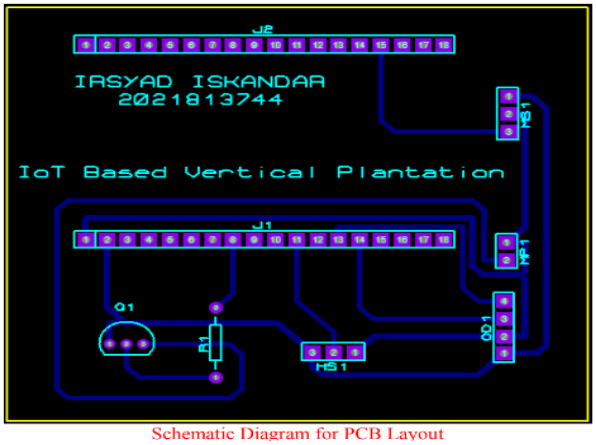
Block Diagram of the Project



Flow Chart of the Project



Schematic Diagram of the Project Using Proteus 8 Professional Software



Schematic Diagram for PCB Layout

Member Biographical Data

Irsyad Iskandar Bin Md Taib is currently pursued his diploma in electrical engineering major in power at Universiti Teknologi MARA Cawangan Pasir Gudang. He is interested in electrical and electronic since high school. He was studied at Sekolah Menengah Teknik Tuanku Jaafar, Seremban and take a electrical course. He has experience in electrical service for 2 years.

Zakariah Yusuf presently serves as a lecturer at the School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA (UiTM) Cawangan Johor, Kampus Pasir Gudang. He earned his Diploma, Degree, and Masters in Electrical Engineering from UiTM Shah Alam in 2004, 2008, and 2012, respectively. In 2018, he successfully completed his Ph.D. in Electrical Engineering with a focus on Control Systems at Universiti Teknologi Malaysia. With a decade of professional experience, he has gained expertise in diverse industries, including process control engineering, automotive, and power system project management.

34. BLYNK ACTIVATED SOLAR PANEL SHINER USING ESP32 AS MICROCONTROLLER

MOHAMAD IMRAN BIN NOOR HISAM , FADILA BINTI MOHD ATAN

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Abstract

In its simplest form, solar energy is the act of using photovoltaic panels (PV) to either directly or indirectly transform solar energy into electrical power. The majority of the energy that can utilize on earth comes from clean, green power. Solar energy holds the key to the future of power generation because of its ecologically beneficial. A lot of research is being done to maximize the power that sunlight can provide, but some major obstacles to doing so are dust accumulation on solar panels and air pollution, which can reduce the energy output of solar cells by more than 25% and 40%. Periodic cleaning is necessary to maintain the proper operation of the solar energy production process. Therefore, in this field, solutions like automatic cleaners are significantly needed to simplify, reduce time, and save manpower. This paper's primary goal is to develop a smart solar panel cleaner that can autonomously clean PV panel surfaces with water spray and a brush to ensure that any dirt is eliminated. In order to guarantee that the interior cleaning task is completed correctly, the ESP32 microcontroller in this system moves other parts like the dc motor and ultrasonic sensor. The intended system can now transmit data from input to output thanks to the usage of an ESP32 microcontroller. In this project, a whole prototype system is created, and its functionality is assessed. This system have several input component which is ultrasonic sensor and temperature sensor. While the output is DC motor, water pump and LED. The whole component will combine to keep the solar panel clean.

Keywords

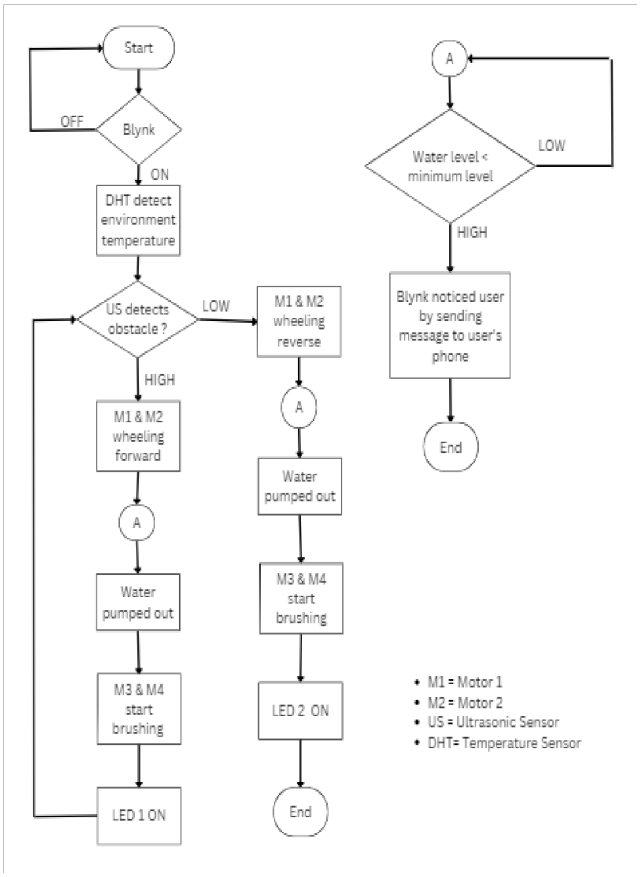
Photovoltaic panel cleaner, Sustainable energy system maintenance, ESP32

microcontroller, Internet of things, Eco-friendly solar cleaning

Product Description

The product is linked with solar panel which is to make sure the panel keeps clean with things that can reduce exposed surface from the sun. The prototype contained a movement motor, brusher, water pump and temperature sensor. The prototype making movement along the solar panel horizontally, will go in the opposite direction if arrive at the end of the panel. At the same time, the brusher and water pump will be operating to complete the cleaning system. The uniqueness of this product relates to IoT (Internet of Thinking). The button ‘ON’ and ‘OFF’ can determined by user through mobile phone, and the level of water in the tank and temperature with humidity of the solar panel will be displayed on the mobile phone. The benefit is user can clean and manage the solar panel only through mobile phone.

Photo/ Schematic Diagrams/ Flow Charts/Screenshots/ Graphs And Etc.



Member Biographical Data

Mohamad Imran Noor Hisam is a student in diploma of electrical (Power) engineering from Universiti Teknologi Mara and as a final year student. Having good performance in managing task from lecturer especially project that hands on. While being a university student, he has been actively involved well in completing tasks from lecturer and outside studies that improve his knowledge about his electrical engineering. He has been awarded more than one innovation competition and have experienced see higher level student present their project.

Fadila Mohd Atan is a senior lecturer specializing in electronic and communication engineering, holds a Master of Science degree in Telecommunications and Information Engineering from Universiti Teknologi MARA. With a decade of unwavering dedication, she has meticulously advanced her expertise in constructing prototypes to address real-world challenges within the engineering domain**.** Throughout her career, she has been actively involved in planning, design, circuit analysis, troubleshooting and Printed Circuit Board (PCB) fabrication and/or software application development of an electrical and electronic system. She has contributed significantly to multiple publications and projects.

35. WASTE MANAGEMENT SYSTEM VIA THINGSPEAK DATABASE CHANNEL

MOHAMAD MUIZZUDDIN BIN SAUFI ,HANUNAH BINTI OTHMAN

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Abstract

Humankind has generated enormous amounts of waste that can affect the environment and human health. Therefore, an effective waste management system is developed as an initiative to replace the traditional waste collection activity within an area. This can help the administrator and the cleaners to detect which dustbin needs to be collected without wasting a lot of time and energy. The idea of this project is to properly manage the information data of each dustbin condition around the UiTM campus. All data from the dustbin will be stored and analyzed by this smart system via a database channel. The three primary parts in this project are the hardware part, the,ThingSpeak database channel and the Telegram App. The administrators and cleaners will be able to receive notifications about the status, location, slot, motion detection and other details of each dustbin, by connecting the ThingSpeak database channel to the Telegram App on a smartphone. An ESP8266 NodeMCU board is mainly used by this system to attest with the onnline ThingSpeak database channel. The input port is equipped with PIR and ultrasonic sensors, while the output port is equipped with an LCD, LED(s), servo motor, and buzzer. The ultrasonic sensor is applied to measure the amount of space available and a PIR sensor is used to detect any motion in the dustbin that create an unhealthy environment. Consequently, this smart developed system has shown benefits to the community by averting hazardous situations and providing a practical and efficient waste management solution.

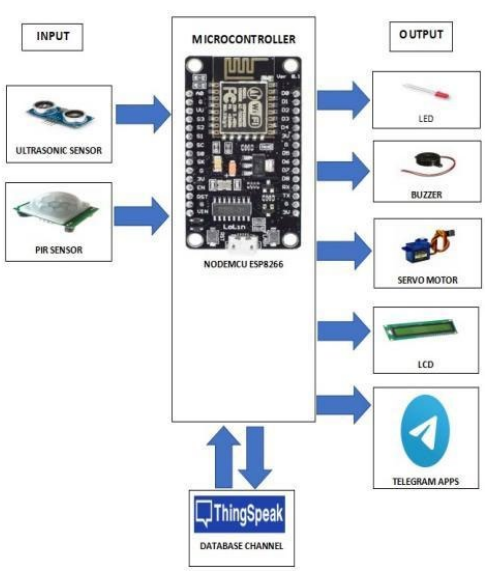
Keywords

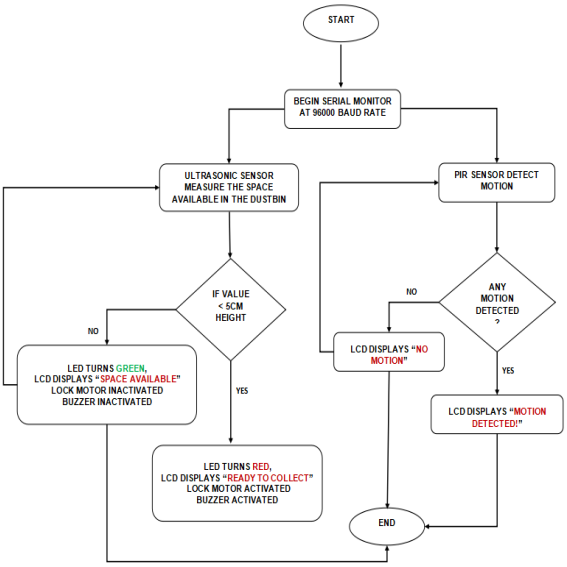
ThingSpeak, Telegram, waste management system, database channel, dustbin,ESP8266 NodeMCU

Product Description

The three primary components of this smart system the hardware part, the online ThingSpeak database channel and the Telegam App. The goal of this system is to introduce a smart waste management system that integrates with a ThingSpeak database channel, storing and analyzing all sensor data in order to send Telegram notifications. The ESP8266 NodeMCU, an ultrasonic sensor, and a PIR sensor are used in this smart prototype, which measures the amount of space available and detect any motion in the dustbin. Thus, the administrators and cleaners have saved time and energy as they can now receive notifications about each dustbin's location, slot, motion detection, and other details on a Telegram app group.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Mohamad Muizzuddin bin Saufi is born in Miri, Sarawak. He is pursuing a diploma of Electrical Engineering Studies (PKE) and majoring in Electrical Power (CEEE112), UiTM Pasir Gudang, Johor. He constantly achieved good results with dean's list in every semester. Interested in experiencing new things and environments as well. He has the ability to balance his time between his daily activities and his studies. His goal is to become a power plant engineer since he enjoys working hands-on, running operational tests, and collaborating with others while having excellent analytical and communication skills.

Hanunah Binti Othman graduated from Universiti Kebangsaan Malaysia (UKM), Bangi, Selangor, with a Bachelor of Electrical (Hons) in Electrical Electronic and System Engineering and a Master of Engineering (Communication and Computer Engineering). Formally worked as a lecturer in Electrical Engineering Studies (PKE), Universiti Teknologi MARA (UiTM) at Shah Alam Campus from year 2000 to 2014. She is currently employed with the Communication Engineering Department at PKE, UiTM Pasir Gudang Campus. She has taught over ten courses. Her areas of expertise include Mobile and Wireless Communication System, Privacy in Mobile Location-Based Services (LBS) and Circuit Theories.

36. FLOOD DETECTOR WITH IOT NOTIFICATIONS

MOHAMMAD FAZRUL FAHMI BIN MOHAMMAD RAZALI, DR. KHAIRUL KAMARUDIN BIN HASAN.

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Abstract

The introduction of effective early warning systems is imperative due to the substantial danger that floods pose to individuals, assets, and infrastructure. This abstract presents a cutting-edge Internet of Things (IoT)-enabled flood detection system that is intended to provide prompt notifications and alarms in the case of flooding. The system offers a comprehensive approach to flood monitoring by combining real-time communication, complex data processing algorithms, and sensor networks. The flood detector system is made up of multiple sensor nodes that are precisely and continuously monitoring water levels in flood-prone locations. To deliver real-time, exact water level measurements, these sensor nodes use cutting-edge technology such as ultrasonic and pressure sensors. The data gathered by these sensors is then wirelessly transferred to a centralized server for further processing. The advantages this proposed flood detector system offers distinguish it from conventional flood monitoring techniques. It is excellent at detecting floods in real time, cutting down on response times, improving situational awareness, and enabling efficient coordination amongst different parties. By using the potential of IoT technology, this system helps to build more resilient communities while also reducing the effect of flood-related calamities.

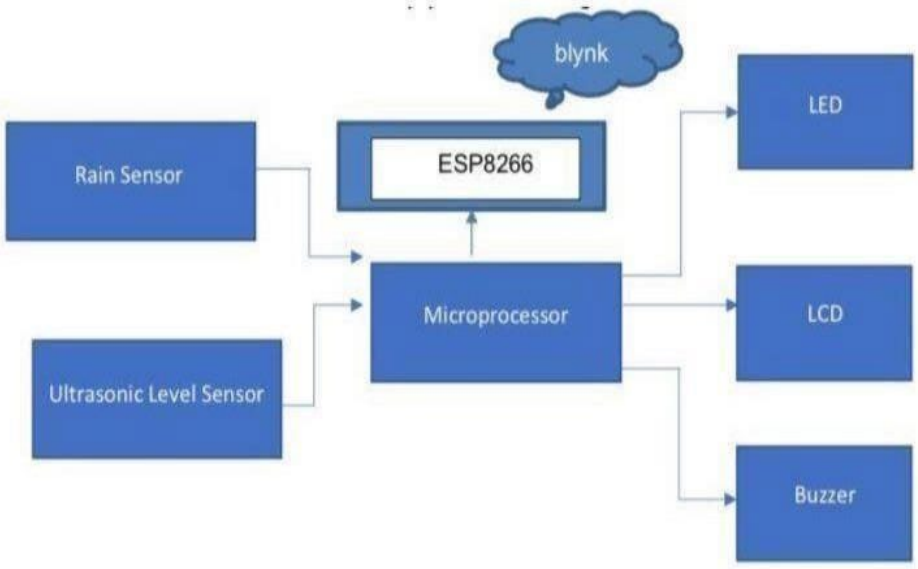
Keywords

Flood detections, IoT Notifications, Early Warning System, Real-Time Communication

Product Description

Our Flood Detector with IoT Notifications project is a game changer in protecting your home, with an advanced device equipped with ultra-sensitive sensors for quick water issue identification. Using Internet of Things technology instantly notifies you wherever you are with real-time alerts sent to your smartphone. Thanks to its customizable notifications and simple installation process, it is easy to use. It guarantees continuous monitoring even during a power outage because of its sturdy, waterproof construction and dependable battery backup. With the help of this low-maintenance option, homeowners may easily prevent water damage by acting proactively from a distance. Accept the future of home security with our Flood Detector project, where simplicity and ingenuity combine to provide a dependable and complete defense.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

21 years old Electrical Engineering student. Mohammad Fazrul Fahmi Bin Mohammad Razali is currently pursuing his diploma in Electrical Engineering (Power) at UiTM Pasir Gudang. Engineering Student with a passion for Electrical Engineering and is willing to gaining more knowledge regarding Electrical related matter.

Khairul Kamarudin Hasan is currently working with School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA Cawangan Johor, Kampus Pasir Gudang, Malaysia. He received the B. Eng in Electronic Engineering (Electronic Industrial) in 2012, the Msc. Eng degree in Electronic Engineering (System), in 2014 and Ph. D degree in Electronic Engineering from Technical University Malaysia Malacca in 2021. His research interest Wireless Power Transfer, Power Electronic, Control system and Drive.

37. ECO-FRIENDLY FERTILIZER: A COMPOSTING SOLUTION USING ARDUINO FOR FOOD WASTE REDUCTION

Mohammad Ikhmal Haikal Bin Md Yatim, Masmariah Binti Abdul Majid

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Abstract

Waste is a significant threat to our environment also to the human health, it influenced by issues of management practices. As for the issue, the Eco-Friendly Fertilizer: A Solution Using Arduino in Food Waste Reduction is introduced. The system is a combination of electronic devices like sensors, Arduino and few software used to conduct the project. The goals are to design a composting system to convert food waste to organic fertilizer that is eco-friendly to environment by applying electronic components like Arduino and to use software such as Proteus 8 Professional, Blynk and Arduino IDE. Other than that, to produce organic fertilizer by a system that monitor and controlling parameters to the compost. Lastly, to enhance environmental safety by producing and use organic fertilizer instead of chemical fertilizer as well as reducing the amount of food waste. Each of the input and output will be combined to get on complete system. Inputs in this project are sensors like temperature, pH and soil moisture. While outputs will be LCD and LED. Through this combination of components, the project expected to produce high-quality of organic compost that used for fertilizer while reducing the amount of food waste.

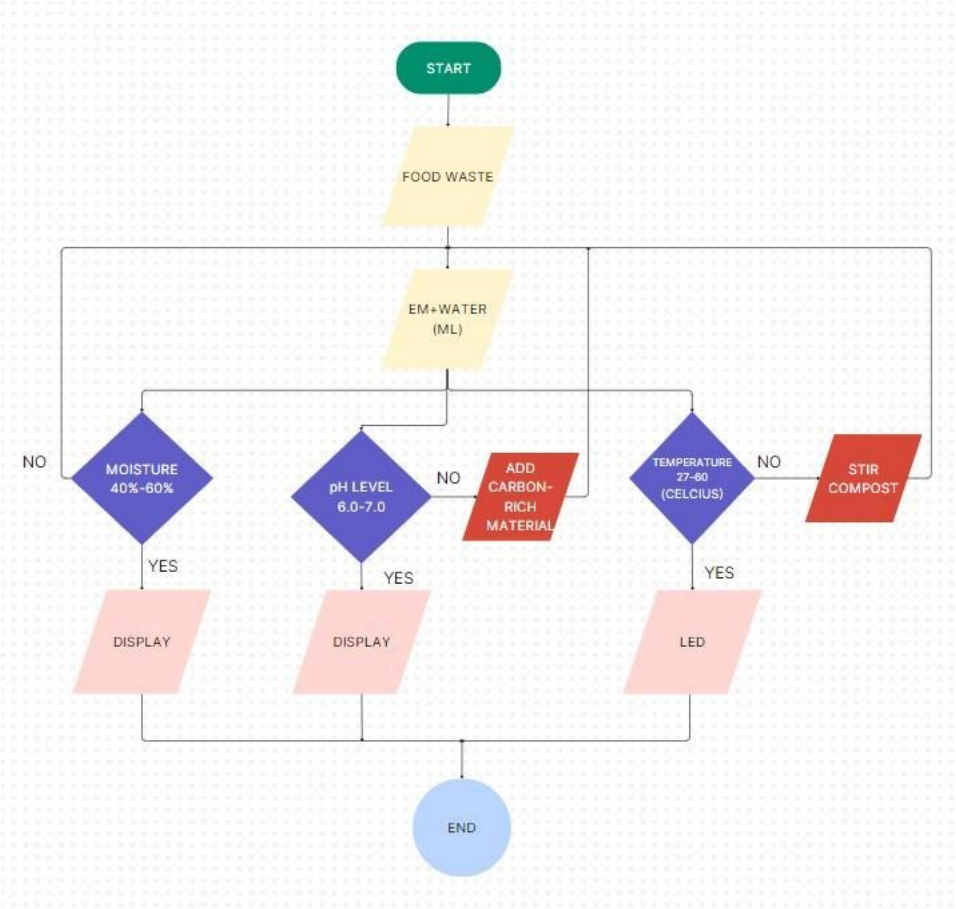
Keywords

Food Waste, Arduino, Compost, Sensors, Organic Fertilizer.

Product description

A system that used Arduino to convert food waste into organic fertilizer to solve environmental problems.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Mr Ikhmal Haikal is currently pursued his diploma in electrical engineering major in Power at UiTM Pasir Gudang. He has experience in studying electrical engineering for one and half years. He is interested to work that related to electrical and wish to continue study for higher level in electrical engineering.

Masmaria received B.Eng in Electrical Engineering from Universiti Teknologi MARA (UiTM) in 2006 and M. Eng in Electrical (Mechatronic and Automation Control) from Universiti Teknologi Malaysia (UTM) in 2011. She is currently a lecturer of Electrical Engineering Studies, College of Engineering at UiTM Branch Johor Pasir Gudang Campus.

38. EMOTIONAL POT MADE FROM ARDUINO (E.P.A)

Muhamad Haziq Farhan bin Muhamad Hanif , Ts.Dr Siti Aminah binti Nordin

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Abstract

Monitoring and controlling in planting system are imperative to human in order to enhance the way for keep plant to become better, fresh and fertile. As such, nowadays people being always forget about their plant as they go out to somewhere else, thus make the condition of the plant become unknown or maybe become worse. A enhanced approach is developed according to the existing smart planting system, the existing project is being enhanced using Internet of Things (IOT) to make the easier for users to monitors their plant at home from their smartphones using Blynk app and also an expression being added to this project for fun among the kids. The soil moisture sensor will detect the level of moist of the soil of the plant and sent the information gathered to the Blynk app. The user also can water their plant with water pump using their smartphone as the project is connected to the Blynk app with the help of Internet of Things (IoT).

Keywords

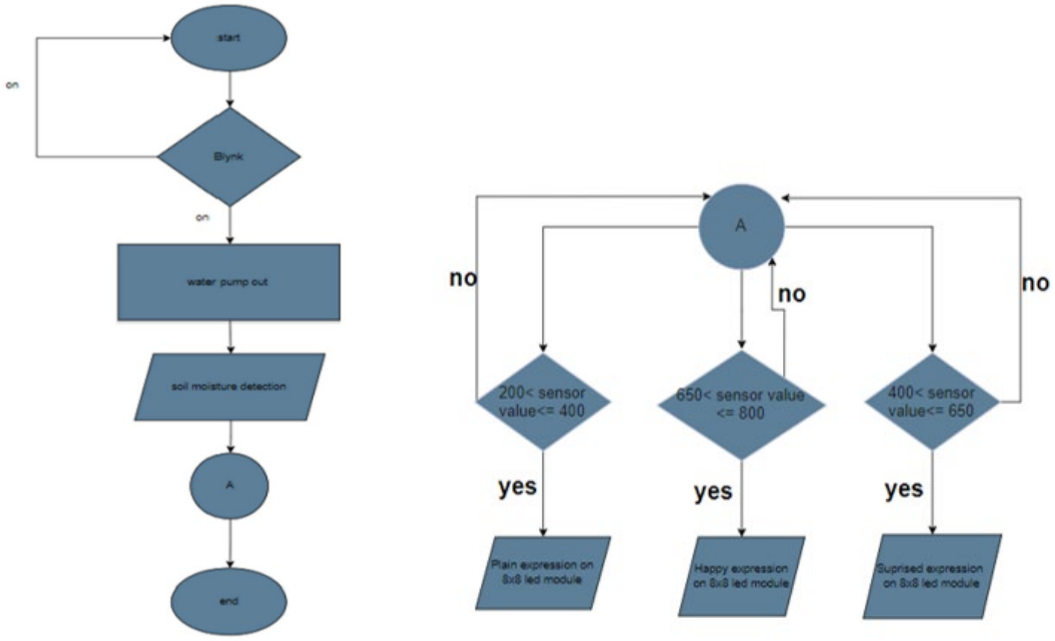
IOT; soil moisture level, Blynk App

Product description

-Able to show emotions based on soil moisture value

-Able to being watering plant wirelessly using blynk app

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhamad Haziq Farhan bin Muhamad Hanif is a diploma student from UiTM Pasir Gudang, Johor. He has joined many competition in his school days, and most highest competition that he achieved that was in Innovation & Invention Challenge in Engineering & Technology (IICET 2023). With a dedicated and determination to be the best & polite engineer, he maintained his total CGPA which is 3.12 for 4 sem in diploma with no disciplinary action taken. He can be contacted at email:

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Siti Aminah Nordin is a distinguished senior lecturer currently affiliated with UiTM Pasir Gudang. She earned both her master's and Ph.D. degrees in Electrical Engineering from UiTM Shah Alam in 2014 and 2022, respectively, showcasing her commitment to academic excellence. With a specialized focus in the realm of Electrical Engineering, her research interests are notably centered around microwave filters, antennas, and electromagnetic wave area. Her academic journey and expertise reflect a deep dedication to advancing knowledge and contributing to the field, particularly in areas crucial to modern communication and technology. She can be contacted at email:

sitia181@uitm.edu.my.

39. CHILD SAFETY AND CAR SECURITY SYSTEM

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Abstract

There are numerous instances of parents accidentally leaving their infants or young children in a car. The majority of those who died in incidents involving this error did so from a lack of oxygen or high ambient temperature. It because when the driver has arrived at their destination, they sometime forget to overlook the presence of children in the car for rushing out of the vehicle. Babies are exposed to dehydration, and this can cause them to go into coma or worse cause to succumb to death. Other that, there has been cases where robbers crouched under car seats to kidnap an abandoned youngster or rob a vehicle owner. Therefore, to deal with this problem warning systems are produced using ttgo call esp32. This project has used two sensors to which is sound and motion sensor and as the output the led will light up when detect a motion while the speaker will make a noise when detect sound. To make this project more convincing to deal with this problem GSM module will use to give notification to notify the owner's car. Here, this system will help reduce the accident rate of children in the car or the crime rate that occurs as a result of the theft of the car or items in it.

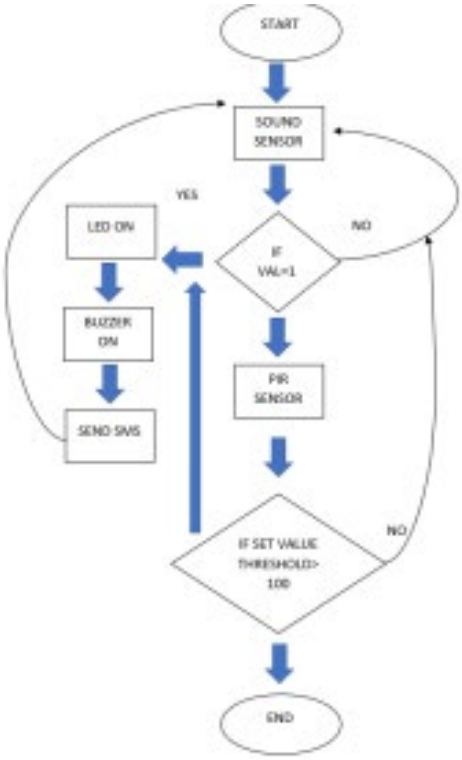
Keywords

Car safety project, infant safety, child abducation prevention, ttgo call esp32, GSM notification

Product Description

Introducing our Child Safety and Car Security System, a high-tech solution to prevent children from being left alone in vehicles. Using ttgo call esp32, it features advanced sound and motion sensors. When motion is detected, a bright LED lights up, and a loud alarm sounds. The GSM module sends real- time notifications to your phone, ensuring you're always aware of your child's presence and deterring potential crimes. More than just a gadget, it's a guardian for your loved ones. Invest in peace of mind and reduce accidentsand crimes related to unattended vehicles. Your family's safety is our priority.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Afiq Zikry Bin MD Sopian is born in Pasir Gudang, Johor. He is a UITM student of cost Electrical Engineering (Power) who is a final semester student. He very nice person and responsible in his things. Also like to get new experience and environment in doing something new. He is able to manage his time and good in hands on skill.

Muhammad Asraf Hairuddin senior lecturer at the Centre for Electrical Engineering Studies, Universiti Teknologi MARA, Johor Branch, Pasir Gudang Campus. He graduated with a diploma, degree, and a Ph.D. from the Universiti Teknologi MARA in Shah Alam. His research interests include Image Processing, Artificial Intelligence, Deep Learning, and Process Control.

40. ATTENDANCE SYSTEM USING FINGERPRINT SENSOR

Muhammad Aizeq Putera Bin Jamaludin, Nor Affida Binti M.Zin

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

A fingerprint scanner is a biometric security tool that identifies people by recognizing and authenticating their fingerprints. Some popular categories of fingerprint scanner use the thermal or optical scanning method. Hence, this project is using a fingerprint scanner for the purpose to be installed at educational building. This project is created to reduce the amount of time spent on recording students' attendance and thus, learning activities will not be interrupted. An Arduino microcontroller that outputs to an LCD display and a serial monitor will show the fingerprint scanning procedure to users. Because it is a foolproof method for documenting students' attendance without the possibility of deception, many institutions or schools may benefit from this initiative.

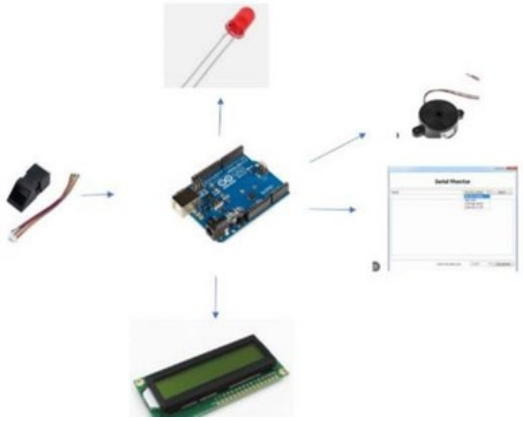
Keywords

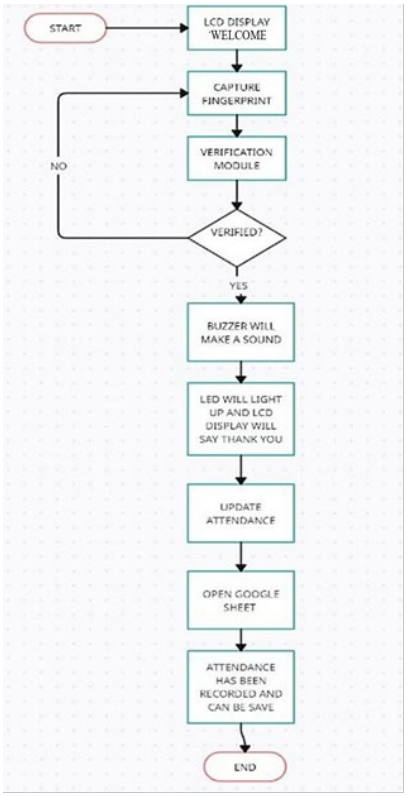
fingerprint sensor, attendance system, Arduino, foolproof, proteus

Product Description

As shown in the block diagram and flow chart, this project is to design a system circuit that can record student attendance automatically by using a fingerprint sensor as an input. The system records the student attendance into a google sheet as a database. Then, the eligibility of a particular student's attendance can be easily determined by the lecturer. Hence, this project can save more time in learning activities and without any interruption due to attendance recording problems. One of the issues that has been encountered while working on this project was that Proteus does not include a fingerprint sensor, so the user had to create a new block module as a simulation model. Hardware development has produced results according to the requirements

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Muhammad Aizeq Putera Bin Jamaludin is currently pursuing his Diploma in Electrical Engineering (Power) at Universiti Teknologi Mara Johor Branch, Pasir Gudang Campus. He has gained knowledge from the Technical Institute of Johor Bahru where he majors in electrical and electronic engineering. In this institute, he was trained with the basic of electrical and electronic engineering and continually, he shows excellent practical skills during his Diploma study.

Mrs. Nor Affida binti M.Zin joined UiTM in November, 2013 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering. She obtained her Bach. Degree in Electrical Engineering (Telecommunication) and Masters of Engineering, both from Universiti Teknologi Malaysia, Johor Bharu. She also gained industrial experience as an R&D Engineer in Qimonda (M) Sdn. Bhd. focusing on PCB design for CPU testing equipment. Currently, she is working towards her PhD studies in Energy-Efficient Passive Optical Network.

41. REMOTE WEATHER MONITORING SYSTEM

Muhammad Al Harith Bin Khairul Anuar

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Abstract

This project introduces a Remote Weather Monitoring System based on IoT on unpredictable weather conditions especially in remote areas that are far beyond our reach. By utilizing Arduino D1 with ESP8266 as the microcontroller and Wi-Fi module, the system integrates sensors to measure various weather parameters such as temperature, humidity, rainfall and air pressure. Added outputs including LED lights for system or readings abnormality signal and Blynk an IoT remote monitoring platform. According to test results, this weather monitoring system has potential to increase efficacy and accuracy. The goal of this project is to enhance real-time weather data collection remotely depending on the accessibility of the internet.

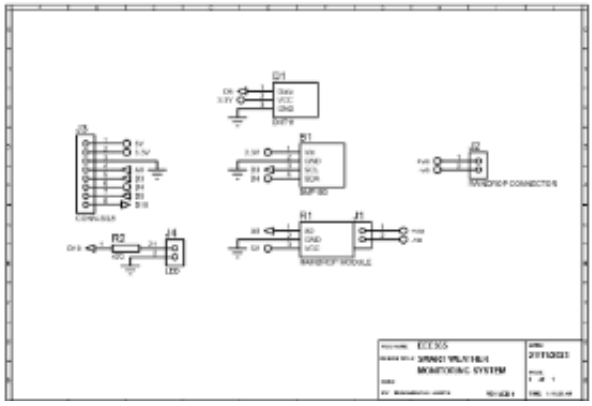
Keywords

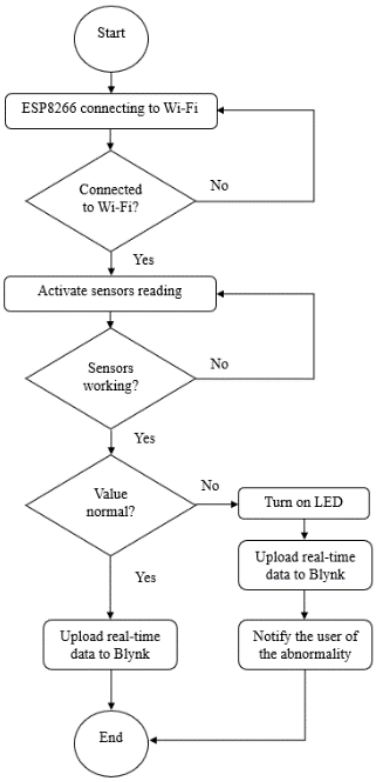
Weather Station, Arduino D1, ESP8266, Wi-Fi, Blynk

Product Description

Introducing a Remote Weather Monitoring System based on Blynk, IoT. An enhanced system for monitoring weather anywhere with internet access. This system will monitor temperature (°C), humidity (%), barometric pressure (hPa) and rainfall. All readings are real-time data and it can be accessed in Blynk online either via a PC or smartphone. LED light is attached on the product to signalize any abnormality in the system or the readings. If abnormality weather occur, Blynk will notify the user to raise awareness. With the help of our IoT-enhanced Weather Monitoring System, you can step up to a more advanced and efficient generation.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Muhammad Al Harith Bin Khairul Anuar, a student pursuing Diploma in electrical engineering at UITM Pasir Gudang. He studied at Technical Institute Kuala Lumpur, pursuing an Electrical Engineering course. He was raised by parents who worked as engineers, inspiring his passion in hands-on work.

Nur Asfahani Ismail has been teaching at UiTM Johor Pasir Gudang Campus for 10 years. She has vast experience in supervising Diploma students for their final year projects and her projects interest include sustainable applications utilizing Internet-of-Thing (IoT).

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42. REAL-TIME MONITORING OF WATER QUALITY

Muhammad Alif Ikram Bin Ayub , Zahari Bin Abu Bakar
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Abstract

The lack of real-time monitoring of water quality in diverse applications is addressed by the IoT water quality monitoring system. To deliver precise and timely data, the system uses sensors to measure turbidity, pH, and temperature. When water quality deviates from permitted levels, an Arduino Uno microcontroller, which processes the acquired data, activates alarms and messages, controls system functionality. An ESP8266 Wi-Fi module is incorporated into the system for cloud-based monitoring, allowing for remote access to real-time water quality data. The project entails designing and assembling hardware as well as writing, installing, and testing software. Users can efficiently monitor and guarantee the safety of water for drinking, swimming pools, and industrial processes by putting this system into place. Real-time water quality monitoring with the IoT water quality monitoring system is affordable, effective, and contributes to the preservation of clean and safe water supplies.

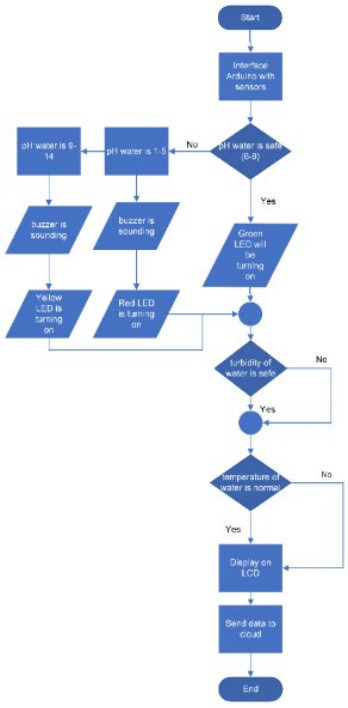
Keywords

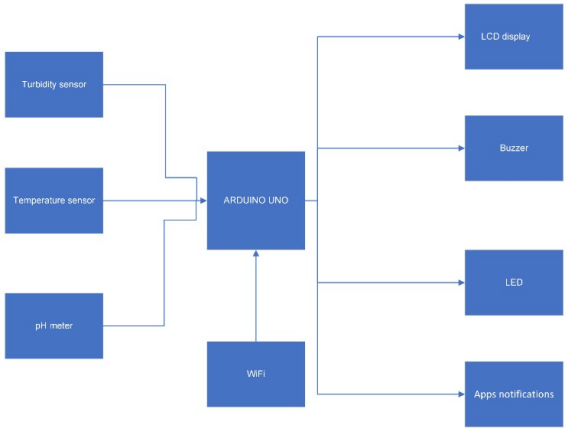
water, quality, pH, temperature, turbidity, Arduino

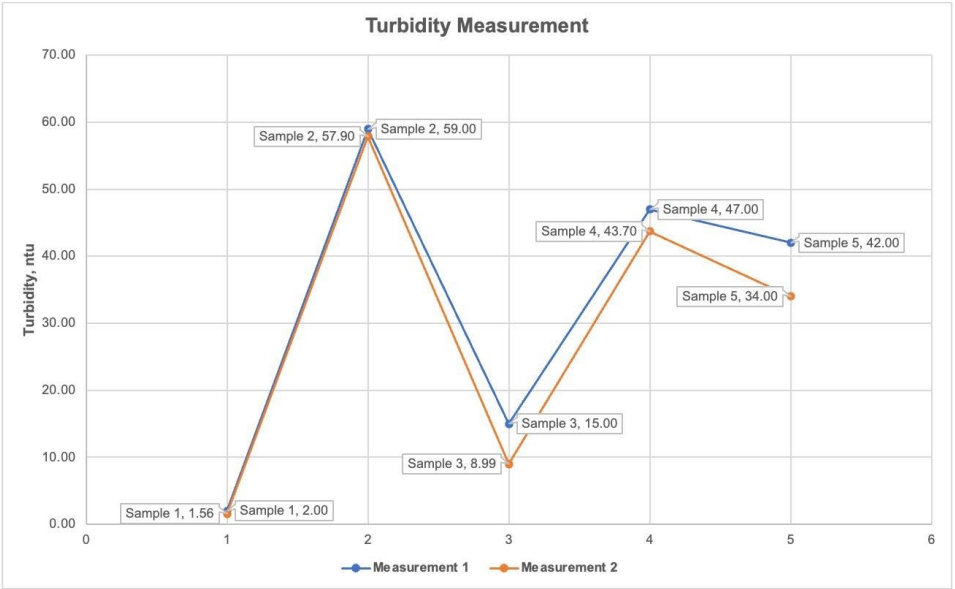
Product Description

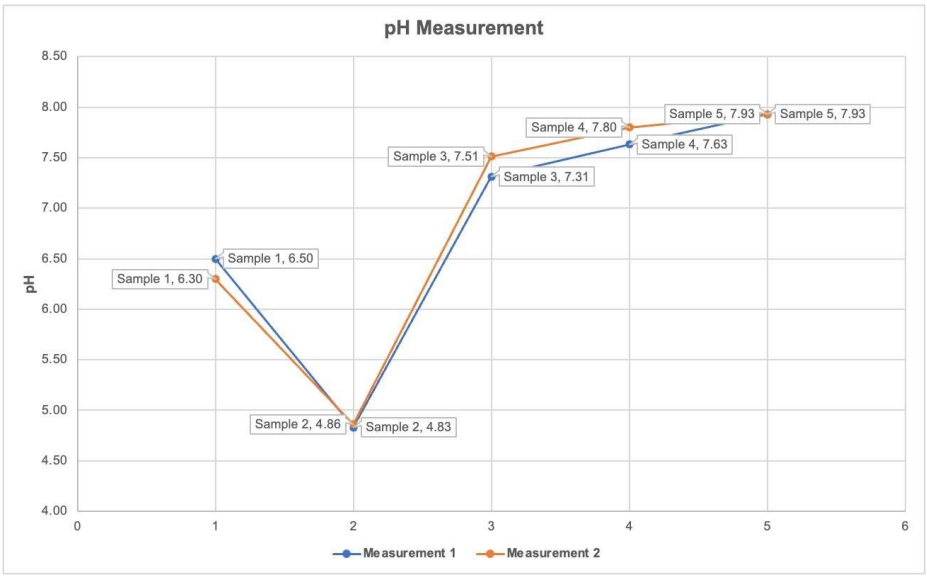
Input : ph sensor,turbidity sensor,temperature sensor
Output: lcd,iot, leds,blynk
Microcontroller : arduino uno, node mcu

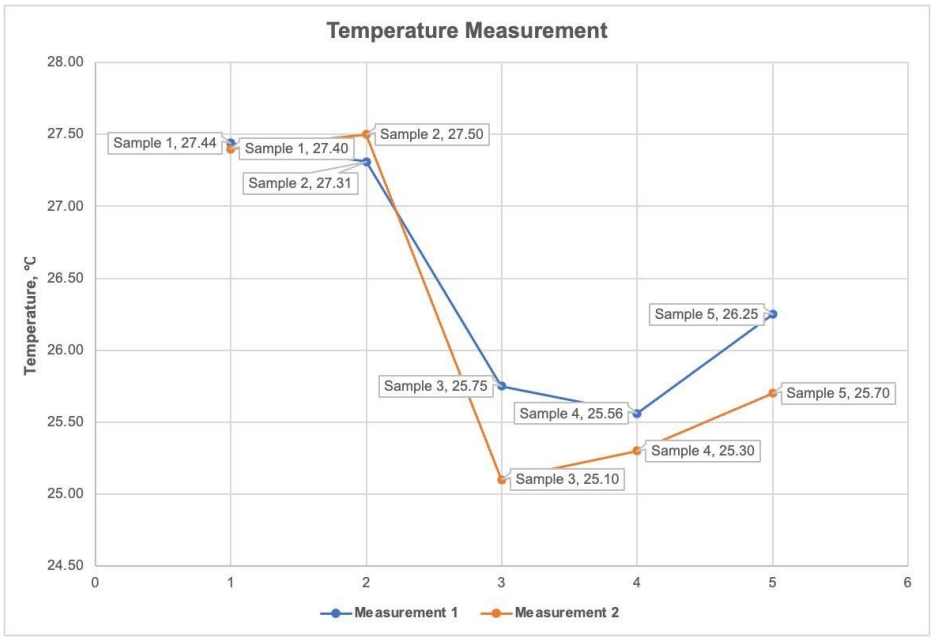
Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.








pH Measurement
8.50
8.00
7.50
7.00
6.50
6.00
5.50
5.00
4.50
4.00
pH
0
1
2
3
4
5
6
Sample 1, 6.50
Sample 1, 6.30
Sample 2, 4.86
Sample 2, 4.83
Sample 3, 7.51
Sample 3, 7.31
Sample 4, 7.80
Sample 4, 7.63
Sample 5, 7.93
Sample 5, 7.93
Measurement 1
Measurement 2


Temperature Measurement
28.00
27.50
27.00
26.50
26.00
25.50
25.00
24.50
Temperature, °C
0
1
2
3
4
5
6
Sample 1, 27.44
Sample 1, 27.40
Sample 2, 27.50
Sample 2, 27.31
Sample 3, 25.75
Sample 3, 25.10
Sample 4, 25.56
Sample 4, 25.30
Sample 5, 26.25
Sample 5, 25.70
Measurement 1
Measurement 2

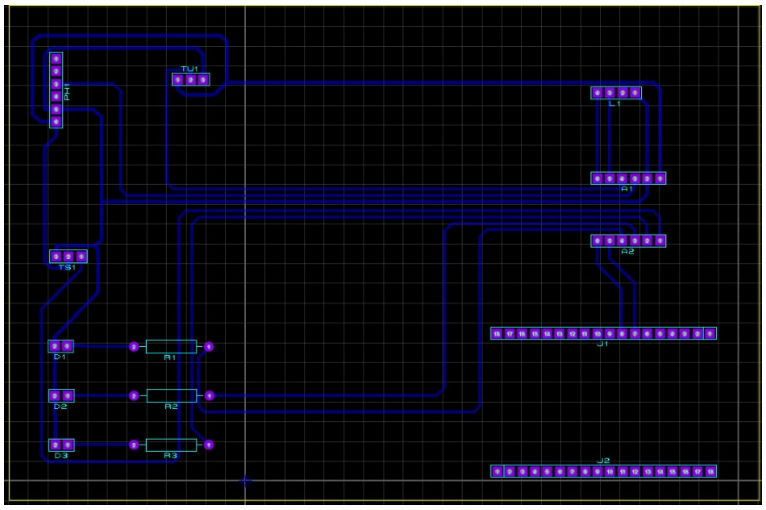


Figure 6 schematic diagra

Member Biographical Data

Muhammad Alif Ikram bin Ayub, a native of Klang, Selangor, embarked on his academic journey with a focus on science. During his formative years at SMK Seksyen 18, he delved into the complexities of the science stream, setting the stage for his future pursuits. Currently, he is dedicated to his studies in electrical engineering with a specialization in power at UiTM Pasir Gudang, where he is honing his skills and knowledge in this dynamic field. His academic endeavors are complemented by hands-on experience, as evidenced by his involvement in a captivating Final Year Project (FYP): the development of an Internet of Things (IoT) water quality monitoring system. With a fervor for innovation and a commitment to academic excellence, he aspires to contribute meaningfully to the field of electrical engineering, driven by his passion for advancing technology and ensuring the sustainability of vital resources.

Zahari Abu Bakar obtained his Diploma in Electrical Engineering (Electronics) from UiTM Pulau Pinang, Bachelor of Electrical (Hons) Engineering and MSc. in Telecommunication and Information Engineering from UiTM Shah Alam. Currently, he serves as a senior lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. His main research interests are e-learning and Machine Learning.

43. IOT-BASED AQUAPONIC SYSTEM FOR IMPROVED CROP AND FISH YIELD

Muhammad Amiruddin Bin Khairuddin, Kamaru Adzha Bin Kadiran

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Abstract

This project introduces an IoT-based aquaponic system to address inefficiencies and environmental impacts in traditional fish farming. By utilizing Arduino Uno and NodeMCU ESP8266 for control and Wi-Fi connectivity, along with sensors for monitoring water quality and water levels, the system aims to optimize conditions for plant and fish growth. Additional components include a water pump, LED lights, automated feeding system, and Blynk for remote monitoring. Preliminary results show potential improvements in crop and fish yields, efficiency, and environmental sustainability. This innovative approach leverages IoT technology to enhance precision, productivity, and resource usage in aquaponics.

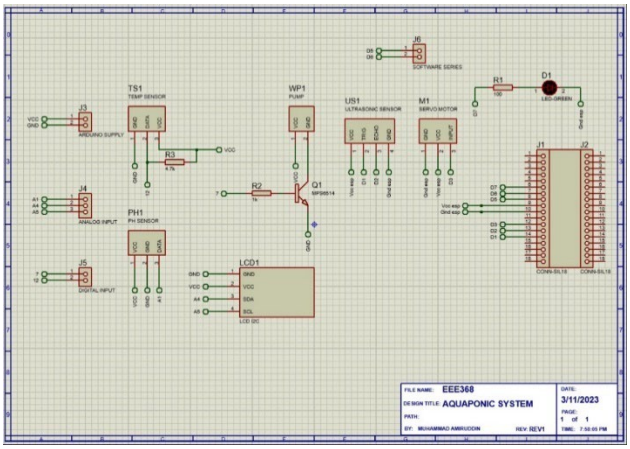
Keywords

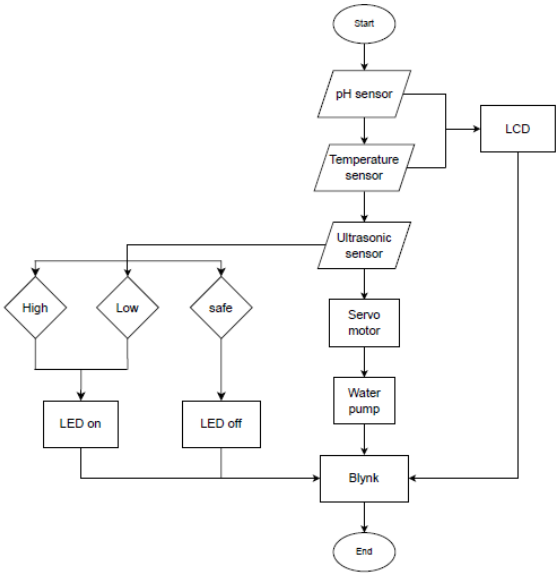
IoT Notification, Water Level Detection, Fish Feeding Control, Wate Quality Monitoring, IoT-Based Aquaponic System

Product Description

Introducing our innovative IoT-based Aquaponic System, a sustainable solution addressing inefficiencies and environmental impacts in traditional fish farming. The system utilizes Arduino Uno and NodeMCU ESP8266 for precise control and monitoring of water quality, temperature, pH, and water levels. Equipped with sensors, a water pump, LED lights, and an automated feeding system, our solution optimizes conditions for enhanced crop and fish yields. With real-time monitoring via Blynk, the system minimizes resource usage and environmental impact while maximizing productivity and sustainability in aquaponics. Upgrade to a smarter, more efficient future with our IoT-based Aquaponic System.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Muhammad Amiruddin bin Khairuddin, a student pursuing Diploma in electrical engineering at UITM Pasir Gudang. He is a pure science student in high school with a profound interest in engineering. His love for circuit connections reflects a passion for challenging projects that test his knowledge and creativity. Despite a background in pure science, Amiruddin enjoys pushing boundaries and has integrated traditional aquaponic systems with modern IoT in his final year project.

Kamaru Adzha Bin Kadiran obtained his Bachelor of Engineering (Electrical - Telecommunications) (Hons) and Master of Engineering (Electrical - Electronics & Telecommunications) from Universiti Teknologi Malaysia (UTM). Currently, he serves as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. His main research interests are e-learning and machine learning.

44. RFID ATTENDANCE SYSTEM

Muhammad Amirul Azril Bin Othman, Sir Ezril Hisham Bin Md Saat

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ezril.UiTM@analysis.ouriginal.com

Abstract

The study starts by looking at the current attendance management systems, pointing out their shortcomings and emphasizing the need for a more advanced and automated method. This research builds a solid system architecture that incorporates RFID tags/cards, readers, and IoT devices to collect attendance data in real-time through a thorough analysis of RFID technology and IoT integration.The creation of hardware and software programs needed for data storage, processing, and gathering also occurs during the implementation phase. The system is intended to provide administrators and participants with user-friendly interfaces that make it simple to view attendance data and generate reports.The thesis assesses the system's performance as well, looking at elements including security, scalability, correctness, and dependability. Simulations and real-world testing show how well the system works in different settings and how widely it may be used.In the conclusion, the RFID-based Online Attendance System with IoT offers improved efficiency, accuracy, and transparency as a workable option to simplify attendance management procedures. The research's conclusions and insights improve administrative procedures and promote a more technologically advanced society by advancing attendance tracking systems.

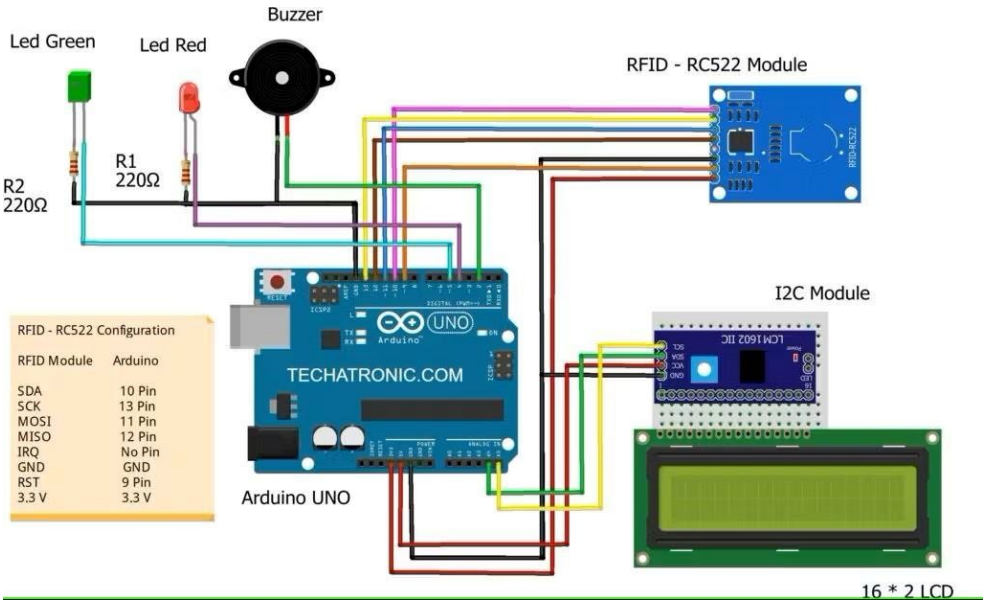
Keywords

RFIID Attendance System,MFRC522,Xampp

Product Description

Introducing to RFID Attendance System, a modernized solution revolutionizing attendance tracking. Powered by an Arduino Uno microcontroller and an MFRC522 RFID reader, this system swiftly identifies individuals via unique RFID tags or cards. Utilizing an intuitive LCD display, green and red LEDs, and a buzzer, it provides real-time feedback on attendance status. Successful scans trigger a green LED,displaying uid accepted on the lcd and a pleasant beep, while failed attempts prompt the red LED,displaying uid not accepted and a distinct buzzer sound for reattempting. Additionally, all attendance data is seamlessly stored into a secure XAMPP localhost database, ensuring comprehensive record-keeping and easy accessibility.The attendance can be reach from localhost url on google and there is another function which is it can register new rfid card and the new rfid card’s data also can be stored in localhost database.Efficient, accurate, and user-friendly, this system is perfect for educational institutions, corporate environments, and events seeking to streamline attendance management with its precise RFID technology and intuitive interface.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Amirul Azril Bin Othman is a driven student pursuing a Diploma in Electrical Engineering at UiTM Pasir Gudang, Johor. His academic journey is defined by an unwavering passion for comprehending the intricacies of electrical systems and their diverse applications in modern technology. Amirul's dedication extends beyond conventional coursework; he actively seeks opportunities to delve into the practical aspects of electrical engineering, participating in workshops, engaging in academic discourse, and collaborating on projects that bridge theory with real-world challenges. Amirul's commitment to understanding complex concepts and applying them to practical scenarios showcases his proactive approach to learning. His pursuit of knowledge is complemented by an eagerness to explore innovative solutions and contribute meaningfully to the field of electrical engineering. With a strong foundation in power systems, electronics, and control systems, Amirul envisions a future where his expertise will be instrumental in crafting solutions that address evolving technological demands and societal needs.

Ezril Hisham Mat Saat earned his Bachelor of Engineering with Honors in electrical engineering from the University Teknologi Malaysia and completed his Master of Science in electrical engineering at Universiti Putra Malaysia. He presently holds the position of a senior lecturer in the Electrical Engineering Department at Universiti Teknologi MARA, Cawangan Johor Kampus Pasir Gudang. His primary research focus lies in the fields of Computer Engineering, Robotics, Embedded System, and the Internet of Things (IoT).

45. VIRTUSWITCH USING CAPACITIVE TECHNOLOGY WITH BLYNK

Muhammad Amirullah Bin Hamdan, Muhammad Rajaei bin Dzulkifli

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Abstract

The rapid evolution of technology has ushered in a new era of convenience and efficiency in our daily lives. VirtuSwitch aims to develop the existing technologies which the conventional wall switch into online switch that can wirelessly turn on and off any electrical appliances. It allows the user to remotely control electrical appliances using a tablet, smartphone, or other network-connected devices. This project focus to help physically disabled people and elderly. They need physical effort to operate the convenience wall switch. So, developing home automation systems will reduce their burden by tapping the device to control the house. This project has ultrasonic sensor and capacitive switch compared to previous research. A capacitive switch is not a mechanical switch which lacks physical contact and makes it a longer lifespan. The sensor helps the user to find the switch if the user did not hold the online switch. This project has a huge potential to develop more in future because it can help our daily lives more efficient.

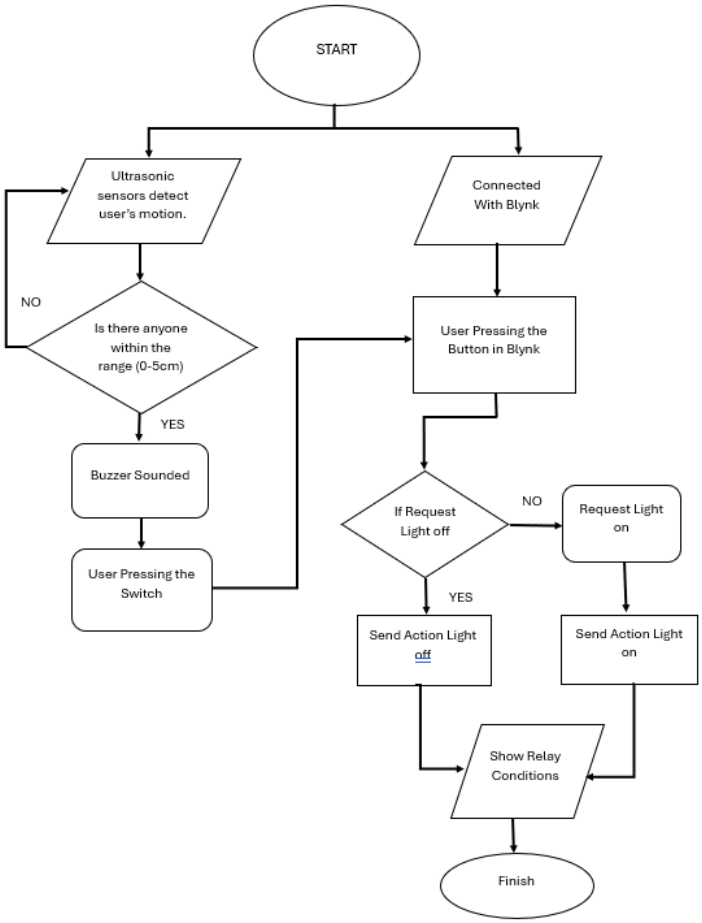
Keywords

Blynk, online switch, capacitive switch, ultrasonic distance sensor

Product Description

ESP32 is the microcontroller as the brain for this project. There are three input and three output for the project. The input for this project is capacitive switch, ultrasonic distance sensor and online switch. The capacitive switch is the same as the conventional wall switch as the manually switch while Blynk is the software that uses the online switch. The ultrasonic distance sensor is used to help the user to find the switch. If the user is in front of the switch, then it will send to the buzzer to beep. The output is relay, buzzer and led. The relay uses switch on the higher volt electrical appliances such as lamps or fans. If the switch is on, then the relay is on. The buzzer will be beeping if the sensor detects any obstacle to let the user know that the switch is nearby. Led is used as a sign for the capacitive switch. If the switch turns on, then the led will turn on to let user know that the switch is open.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Amirullah bin Hamdan born in Johor Bahru, Johor. A student Diploma in Electrical Engineering from University Teknologi MARA (UiTM). Recently, participated in two competitions which are INoDEx 2023 and IICET 2023 to enhance the skills of leadership, problem-solving and teamwork. Interested to pursue any electrical knowledge to develop engineering skills, knowledge, and other significant talents.

Muhammad Rajaei Bin Dzulkifli is a lecturer in Electrical Engineering Studies, College of Engineering, UiTM Johor Branch Pasir Gudang Campus. He teaches computer engineering courses with research interests in IoT, data analytics, wireless communication and network.

46. RFID AUTOMATIC TOLL SYSTEM

Muhammad Asyraf Aiman Bin Rosli , Ts. Rozi bin Rifin

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

2021873142@student.uitm.edu.my , r.rifin12@gmail.com

Abstract

The project focuses on replacing traditional toll systems with an RFID-based smart toll system using Arduino Nano. It targets issues like inefficient toll collection and high costs, streamlining operations by minimizing manual intervention. Through components like IR sensors and RFID readers, the system successfully automates toll gates, reducing wait times and improving traffic flow. Future plans involve integrating it with other smart city initiatives for real-time traffic optimization, promising an enhanced user experience for motorists.

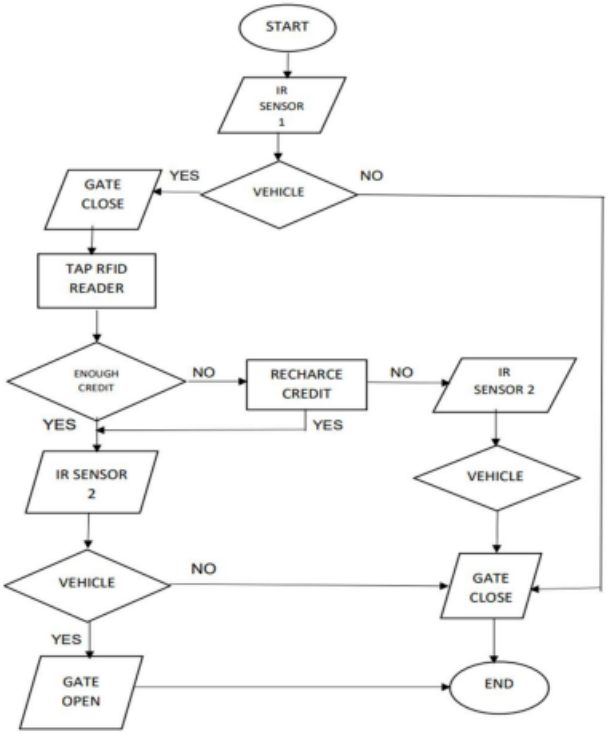
Keywords

RFID Technology, Arduino nano, Automatic Toll Collection, Traffic Reduction, User Convenience

Product Description

This project aims to modernize toll collection using Arduino Nano and RFID tech. By automatically deducting toll charges upon RFID tag detection, it minimizes congestion and improves user convenience. Integrating RFID reader with Arduino, managing user info and toll charges, and creating a user-friendly display are key. Successful implementation promises a reliable, efficient, and cost-effective solution, potentially enhancing transportation networks. Future plans include online payment integration and scalability for larger networks, aiming for smoother, faster, and more reliable transportation systems.

Photo/ Schematic Diagrams/ Flow Charts/Screenshots/ Graphs And Etc.



Member Biographical Data

Muhammad Asyraf Aiman Rosli, a diploma student in Electrical Engineering (Power) at UiTM Pasir Gudang since 2021-present. Fascinated by the extensive impact of electrical systems on our daily lives, Asyraf passionately pursues both theoretical and hands-on knowledge that he learnt. His coursework and projects demonstrate dedication to mastering power engineering intricacies. Beyond academics, he aims to innovate in electrical engineering, seeking to positively impact society. With a strong foundation and a drive for ongoing learning, he aspires to become a valuable engineer post his studies at UiTM Pasir Gudang.

Ts. Rozi Rifin earned a Bachelor of Engineering in Electronic from USM in 2005 and a Master of Science in MicroElectronics from UKM in 2013. Currently, he serves as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. Prior to joined UiTM, he served 9 years of experience as an engineer, working in different local and multinational companies that focused on various aspects such as Manufacturing, Process and Equipment Engineering, Quality Control, and Cost Reduction within the Integrated Circuit and Photovoltaic Solar Cells Fabrication industry. His main research interests are in Microelectronics, IC and VLSI design, solar cells fabrication, embedded systems and IoT.

47. ARDUINO SOLAR TRACKER WITH BLYNK

Muhammad Azim Hafizi Bin Azlan , Dr Nur Amalina Binti Muhamad

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

This abstract describes a solar tracking system using Arduino and IoT to maximize energy capture from the sun. The system adjusts solar panel positions based on sunlight levels detected by sensors and servo motors. The Arduino board acts as a control module, allowing remote monitoring and control through a web or mobile app. This technology enhances solar panel efficiency, contributing to sustainable energy solutions and improving overall energy production and system efficiency.

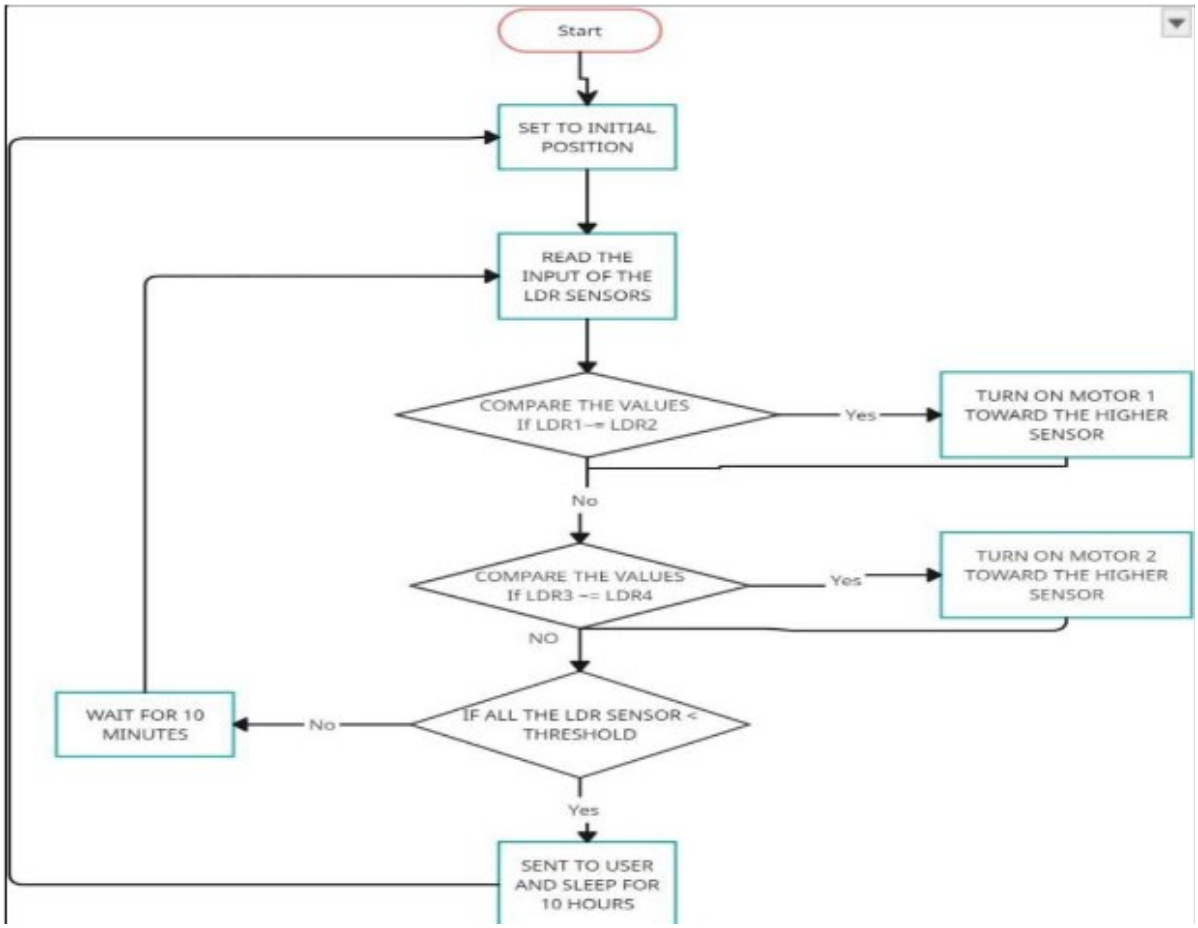
Keywords

Energy Optimisation, Remote Monitoring,System Efficiency, Solar Tracking System, Arduino, Internet ofThings (IoT), and Sustainable Energy.

Product description

This product consist of 4 light dependent resistor (ldr) at each corner of solar panel use to detect light intensity from different angle . 2 servo motors which are up-down servo motor and left-right servo motor are use to control the movement of solar panel based on the sensor’s readings. 4 light emitting diode (led) are assign to 4 ldrs and mainly use to prove that the ldr is on or off. A digital temperature and humidity sensor (dht22) use in this project to detect the surrounding temperature and humidity to increase the efficiency of energy optimization. Then ,a liquid crystal display (lcd 20x4) are use to display all data obtain from this project. Application Blynk IoT is use to display data at user’s phone that can help user obtain the data easily.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Azim Hafizi Bin Azlan is a semester 5th student in diploma of Electrical Engineering (Power) at UiTM Pasir Gudang, Johor. He was born on 13 October 2002 in Malacca. He started curious about electrical system after he saw his father works. From it, he started developed interest in anything involving electrics. He started to learn more about electrical system and pursue his interest by studying at UiTM . During his studies in UiTM, he learned more complicated electrical system such as control system, power electronic and DC machines.

Dr. Nur Amalina Binti Muhamad is currently the Head of Electrical Engineering Studies at Universiti Teknologi MARA (UiTM), Johor branch, Pasir Gudang campus. She graduated Bachelor's and PhD in Electrical Engineering from UiTM. Her expertise is on the fabrication of nanoelectronic devices, semiconductors and advanced materials.

48. SMART HOME AUTOMATION SYSTEM

Muhammad Danial Aiman Bin Nor Asri, En Rozi bin Arifin
Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

2021472732@student.uitm.edu.my , r.rifin12@gmail.com

Abstract

By using Internet Of Things (IOT) and microcontroller, electrical appliances can be controlled anywhere & very time and the main crucial problem is the energy usage of the house are high because of small mistake such as forgot to switch off the switch. The objective of the report is to design and simulate (Smart Home Automation System with Energy Monitoring and Control For Electrical Appliances) using proteus 8 professional. This project aims to design a smart home system with energy monitoring by using Arduino Microcontroller. The input will send information to the Arduino and output will outcome and can be controlled by laptop and handphone and the input for this project is IR sensor, Voltage sensor, Current sensor and temperature sensor and Bulb, Fan, Socket, and relay for the output. To make sure the project can be held by hand on and there is no problem.

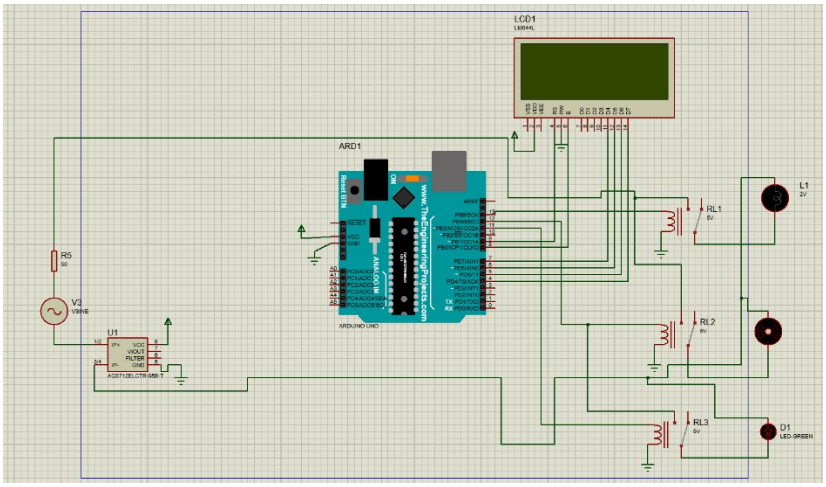
Keywords

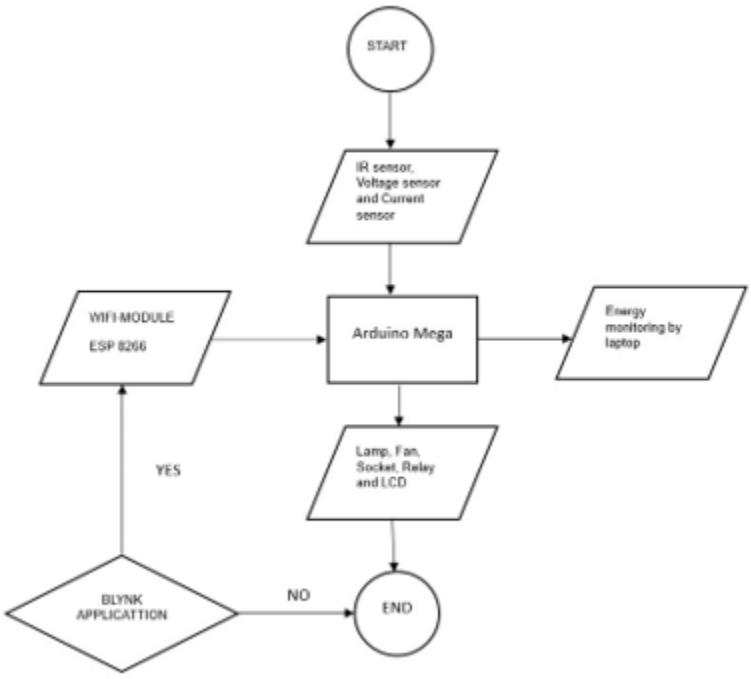
Esp 32, Relay, current sensor, bulb, socket, motor and lcds

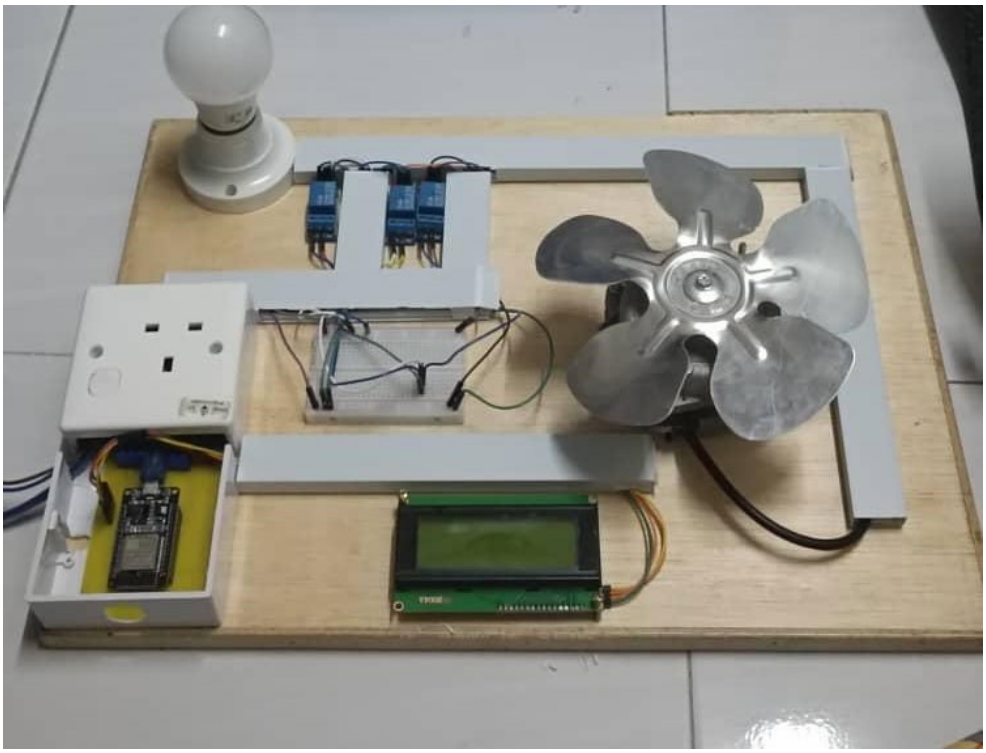
Product Description

Smart home Automation system project combine an Esp 32, current sensor, relay, bulb, motor, socket and LCD display to create a simple yet effective system for controllong and monitoring the usage of appliances. In this project, we will learn how to design Smart Home Automation system with energy monitoring. Esp 32 will be the module Wi-fi that connected to handphone. by using the esp and blynk, the appliances can be controlled by handphone. Current sensor, will detect amount of current and then LCD will display the energy usage of the appliances.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.







Member Biographical Data

Muhammad Danial Aiman Bin Nor Asri is currently pursued his diploma in electrical engineering major in power electrical at University Teknologi Mara (UITM). He is interested in high voltage appliances such as transformer, 3 phase motor and many more. He has experience part time in wiring for 6 months.

Ts. Rozi Rifin earned a Bachelor of Engineering in Electronic from USM in 2005 and a Master of Science in MicroElectronics from UKM in 2013. Currently, he serves as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. Prior to joined UiTM, he served 9 years of experience as an engineer, working in different local and multinational companies that focused on various aspects such as Manufacturing, Process and Equipment Engineering, Quality Control, and Cost Reduction within the Integrated Circuit and Photovoltaic Solar Cells Fabrication industry. His main research interests are in Microelectronics, IC and VLSI design, solar cells fabrication, embedded systems and IoT.

49. AUTOMATIC AND REMOTE-CONTROLLED PET FEEDER USING BLYNK

Muhammad Daniel Addin Jefferi, *Dr. Atiqah Hamizah Mohd Nordin

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Abstract

In response to the increasing demand for innovative pet care solutions, this project developed the Automatic and Remote-Controlled Pet Feeder Using Blynk, a cutting-edge Internet of Things (IoT) project. Powered by Arduino WiFi UNO ESP8266 Wemos D1 R2 microcontroller, this system utilizes a servo motor to precisely dispense pet food, providing users remote control and monitoring capabilities via the Blynk platform. The integration of real-time feedback features, such as an LED and buzzer, improves the pet feeding experience. Validation through simulation modeling in Proteus software and successful hardware prototype development underscore the operational efficiency of this forward-thinking IoT solution. This project not only revolutionizes pet care practices but also the prime example of how Internet of Things applications may improve the pet owner experience at the same time revolutionizing pet care practices.

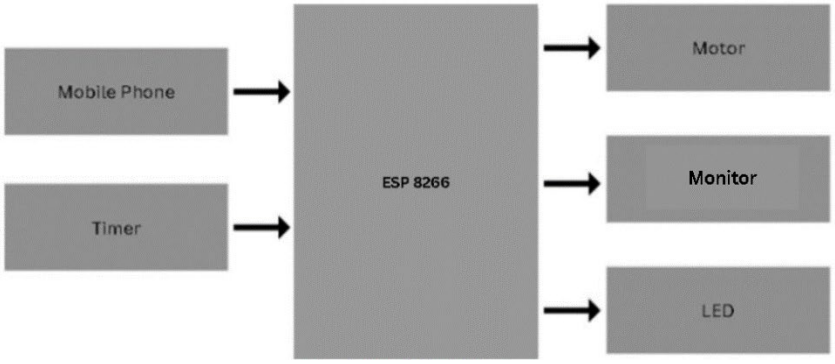
Keywords

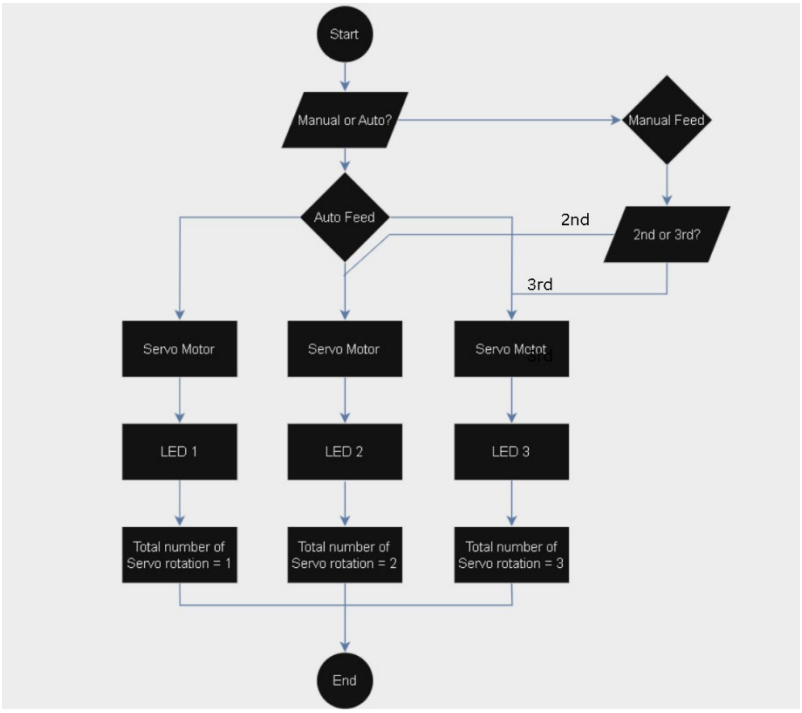
Pet Feeder, Internet of Things (IoT), Automatic, Remote-controlled, Smart Technology

Product Description

The "Automatic and Remote-Controlled Pet Feeder Using Blynk" is an innovative pet care solution utilizing the power of IoT, specifically integrating an Arduino WiFi UNO ESP8266 Wemos D1 R2 microcontroller and the Blynk platform for convenient remote control and monitoring. This smart pet feeder offers pet owners the flexibility to manually feed their beloved pets and receive real-time notifications. The precision of the feeding mechanism, powered by a servo motor, ensures accurate and controlled portions of pet food. Real-time feedback features and LED indicators, enhance user engagement, making this pet feeder a modern and efficient choice that is compatible with the latest trends in smart home applications and adaptable to the various needs of pet owners.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Muhammad Daniel Addin Bin Jefferi, a passionate electrical engineering student that is currently pursuing his diploma at UiTM Pasir Gudang, interested in furthering his knowledge in the field of electrical engineering.

Atiqah received her Ph.D in electrical engineering on life cycle assessment of photovoltaic system from UiTM Shah Alam. Her research interest is towards sustainable and responsible transition to cleaner energy system. She currently serves as a senior lecturer at Electrical Engineering Studies UiTM Johor Pasir Gudang Campus.

50. IOT BASED TEMPERATURE AND FIRE ALARM SYSTEM USING BLYNK IN OFFICE

Muhammad Danish Haziq Bin Zalizam , Dr. Fatimah Khairiah Binti Abdul Hamid
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Abstract

This project utilizes IoT and Esp32 microcontroller for a smart fire alarm system. Sensors for temperature, smoke, and flames detect potential threats. Blynk platform enables remote management. Alerts are issued through sirens, strobe lights, and voice alerts. Automation activates an exhaust fan and sprinkler system. The system enhances fire detection, real-time monitoring, and remote control. Simulation results confirm successful IoT integration. Future enhancements may include central monitoring. This project contributes to improving fire safety, protecting lives, and minimizing harm from fire events.

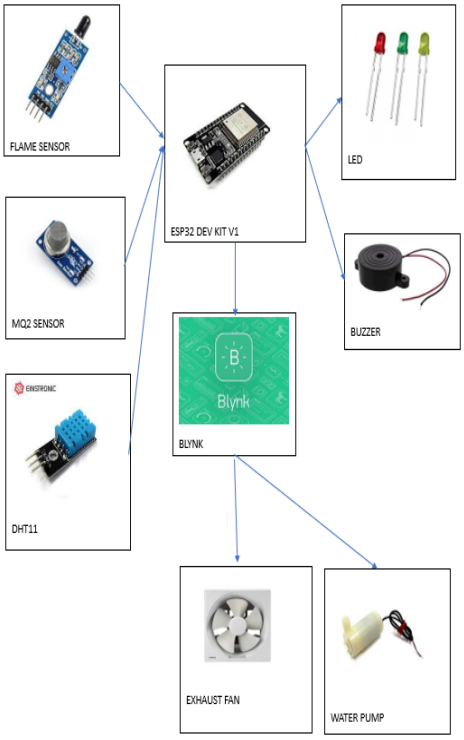
Keywords

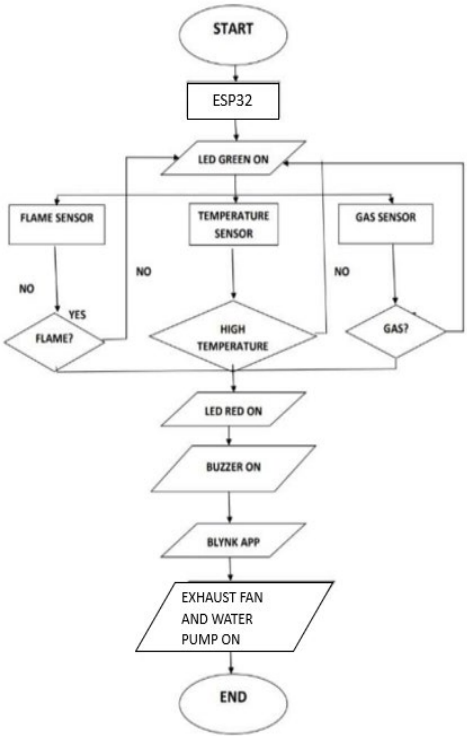
IoT, sensors, Blynk, Esp32 microcontroller, and fire alarm systems

Product Description

Introducing Iot Based Temperature and Fire Alarm System using Blynk in Office,a comprehensive safety solution designed to protect your space. This advanced system integrates flame sensors, MQ2 sensors, and DHT11 for real-time monitoring of environmental conditions. Equipped with LED indicators and a buzzer, the system ensures immediate awareness of potential threats. Seamlessly connected through Blynk, users can remotely monitor temperature, humidity, flame, and air quality, while also gaining control over the exhaust fan and water pump. This innovative system not only prioritizes safety but also offers unparalleled convenience and peace of mind, making it an essential addition to any security setup.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Muhammad Danish Haziq bin Zalizam, is currently pursuing a Diploma in Electrical Engineering at UiTM Pasir Gudang. His passion for electrical engineering stems from his father's influence, inspiring him to delve into the intricacies of the field. As he approaches the final semester of his diploma studies, Muhammad Danish Haziq envisions becoming a professional electrical engineer. His academic journey has been marked by dedication and a commitment to understanding the complexities of electrical systems. With a goal to contribute meaningfully to the field, Muhammad Danish Haziq aspires to apply his knowledge and skills as he embarks on his journey towards becoming a proficient electrical engineer.

Fatimah Khairiah Abd Hamid received the B.Eng. Degree in Electrical-Electronic from Universiti Teknologi Malaysia, in 2011. Meanwhile, she pursued her Master and PhD in Electrical Engineering in the same university in 2013 and 2016, respectively. She is currently a senior lecturer with the Faculty of Engineering, Universiti Teknologi Mara. Her research interests include modelling and simulation nanoscale transistor, radar and satellite system, sensor and IOT.

51. IOT INTEGRATED ADVANCED INVENTORY MANAGEMENT SYSTEM

Muhammad Hafizudin Bin Azmi Ts Zatul Iffah Binti Abd Latiff
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Abstract

This study proposed an IoT-based smart inventory system designed to streamline inventory management processes and enhance efficiency. The motivation behind this project stems from the limitations of manual inventory management systems, including errors, lack of real-time information, and security vulnerabilities. The problem statement revolves around the need for an automated and secure inventory management solution. The objectives of the project are to automate inventory processes, provide real-time monitoring, prevent overloading, enable remote access, and enhance inventory security. The system includes RFID technology, motion and weight sensors, WiFi, a motor, an LCD display, and alert systems. These components are integrated into a cohesive system. RFID tracks items, motion sensors detect insects or thieves, weight sensors prevent overloading, WiFi enables remote monitoring, the motor controls the inventory door, and the LCD display shows stock levels. The alert systems notify users of unwanted movement and overloading. The results demonstrate successful implementation, enabling automated inventory management, real-time monitoring, and remote data access. The system effectively detects undesired motion presence and prevents overloading, ensuring inventory stability and safety. The study's novelty lies in the integration of multiple IoT components into a comprehensive inventory management system where it revolutionizes traditional inventory management with its IoT-based smart inventory system. It boosts efficiency, minimizes errors, and empowers businesses with real-time monitoring and automated features. Ultimately, it improves productivity and profitability, offering a novel solution to inventory management challenges.

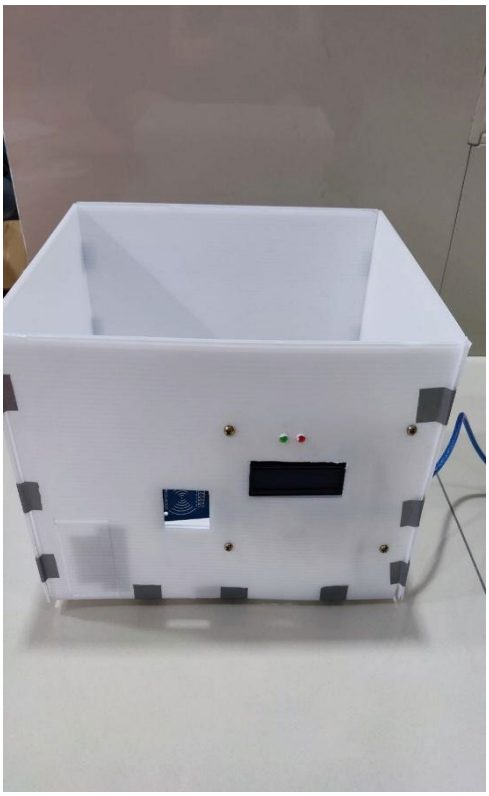
Keywords

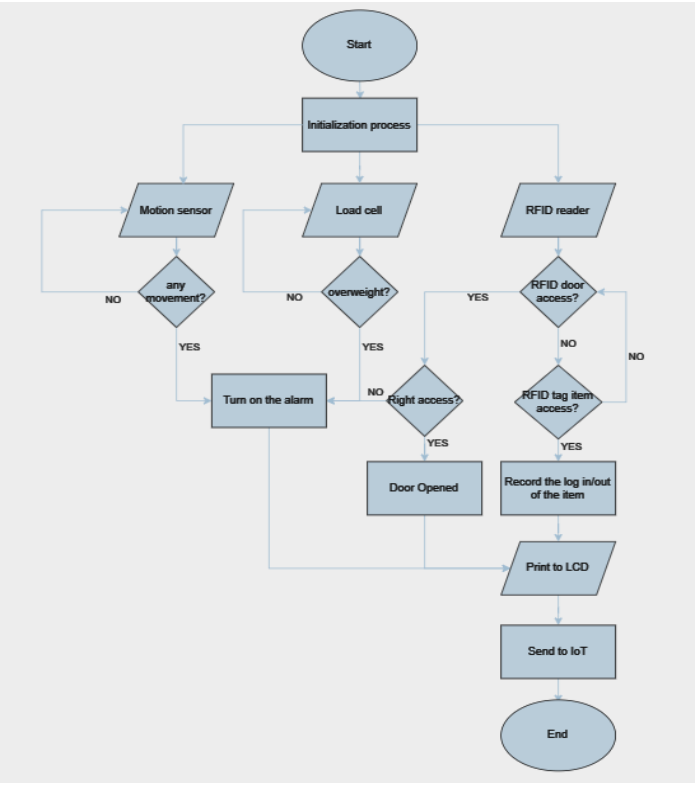
Inventory, IoT, Rfid, Management, Automatic

Product Description

Introducing our IoT Integrated Advanced Inventory Management System—a groundbreaking solution merging cutting-edge hardware with IoT connectivity. With the ESP32 microcontroller at its core, this system integrates PIR motion detection, load cell weight measurement, and RFID item management and door lock system, ensuring precise monitoring and control. Real-time alerts, including red LED and buzzer activation upon motion detection, fortify security. Preventing overloading, offering secure access control, and enabling remote monitoring via the intuitive IoT Blynk interface, this system optimizes inventory management with enhanced accuracy, security, and efficiency.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Muhammad Hafizudin Bin Azmi is a 20-year-old student born on April 29, 2003, at Hospital Muadzam Shah, Pahang. He currently in the final year pursuing a Diploma in Electrical Engineering (Power) at UiTM Pasir Gudang. With an impressive CGPA of 3.81 out of 4 across four semesters, he demonstrates a keen interest in exploring emerging technology trends. Hafizudin possesses strong skills in time and project management, along with leadership capabilities, aspiring to establish his own electrical engineering consultancy in the future. His involvement in the 2019 National Robotic Competiton (NRC) during his secondary school in Kedah Darul Aman highlights his passion for project design. Known for his hardworking nature, creativity, and adept problem-solving abilities, he embodies a well-rounded student ready to embark on a successful career in the field.

Zatul Iffah Abd Latiff is a senior lecturer at Faculty of Electrical Engineering, Universiti Teknologi MARA, Malaysia. She received her Bachelor of Engineering Degree in Electrical Engineering from Korea University, South Korea in 2010 and her Master of Science in Telecommunication and Information Engineering from Universiti Teknologi MARA (UiTM), Malaysia in 2013. She is currently persuing her study for Ph.D. in Space and Earth Electromagnetism in UiTM Shah Alam. She is one of the co-researcher of MAGDAS (Magnetic Data Acquisition System) network who is responsible for monitoring and maintaining one of the MAGDAS observatories located in Johor, Malaysia. Her research interests include geomagnetically induced currents (GICs) activity in the equatorial and low latitude region, space weather activity, ionospheric currents, Earth's electromagnetism and application of ground magnetic and satellite data.

52. AUTOMATIC HOME CONTROL SYSTEM

Muhammad Harith Adib Bin Mohd Hairi , Ts. Sufian Mohamad

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Abstract

The design and implementation of an automatic home control system using an Arduino microcontroller are presented in this report. An effective and user-friendly system that automates home functions is required given the rising demand for smart home technology. By creating a comprehensive system that incorporates various sensors and actuators for automated control, the project seeks to fill this need. LDR sensors are used in the system to control the lighting, rain sensors to automatically open windows, and motion sensors to increase security. Programming the Arduino board to receive sensor inputs and operate the corresponding actuators constitutes the methodology. The project's main outcomes were the seamless automation, accurate functionality, and successful component integration. The development of smart home technology, which offers homeowners convenience, energy efficiency, and improved security, is the study's simpact. The system's capabilities can be increased, and new features can be added to meet the needs of home automation and particular user preferences.

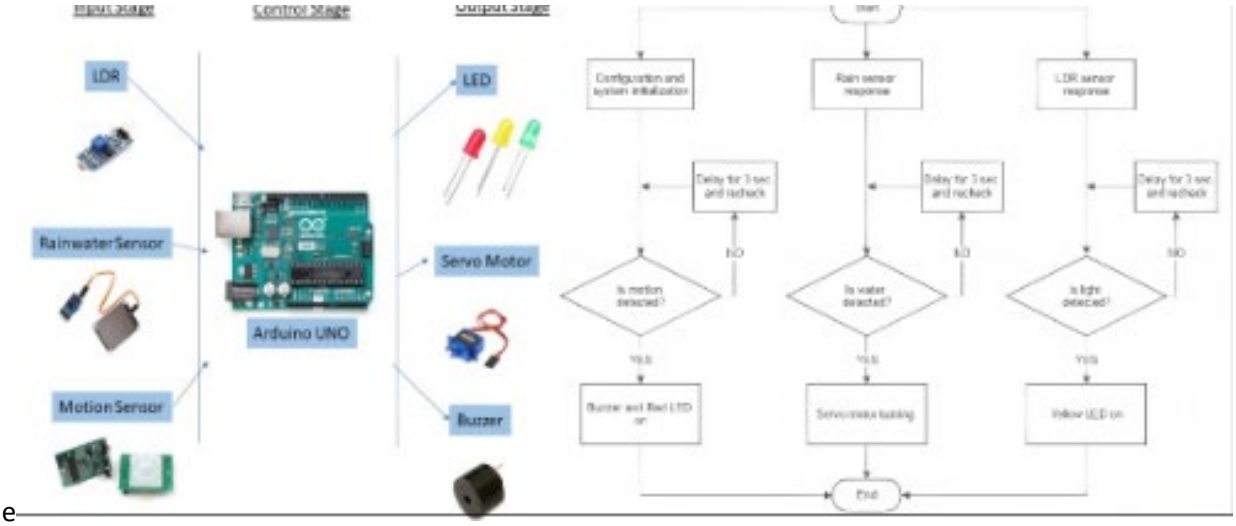
Keywords

Automatic Home Control System, Arduino Microcontroller, smart home technology, sensor integration, automation, energy efficiency

Product Description

Presenting the Automatic Home Control System, an innovative system created with the Arduino Uno. This system consists of three inputs, which is LDR module, rainwater sensor, and motion sensor, alongside three corresponding output which is LED, servo motor, and buzzer. The LDR module will detects diminishing ambient light, activating the LED output to ensure consistent illumination when needed. Meanwhile, the rainwater sensor will trigger the servo motor, opening the roof to prevent water incoming upon detecting rainfall. Security is enhanced through the motion sensor, promptly activating the buzzer upon motion detection. Experience the pinnacle of automated home management, where convenience, safety, and efficiency converge, transforming your living space effortlessly with this automated control system.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



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Member Biographical Data

Muhammad Harith Adib Bin Mohd Hairi is a committed and motivated Diploma candidate at UiTM Pasir Gudang who is studying electrical engineering. Harith love of engineering develops from his childhood, when he was drawn to working with electrical tools because of his father's experience in the industry. In addition to his academic endeavours, he is the President of the Cycling Club and has organised many well-attended events for staff and students. His aspirations to advance his education and become a successful engineer are persistent, and he eventually hopes to work abroad to expand his horizons and make a substantial contribution to the engineering community on an international scale. His tenacity combined with his sincere enthusiasm for leadership and engineering.

Ts. Sufian bin Mohamad is a lecturer from Communication Department, Faculty Electrical Engineering, UiTM Kampus Johor Cawangan Pasir Gudang. He has experienced of 13 years teaching various electrical engineering subject. Besides, he gained lots of experienced in other fields such as student development activity in campus and faculty management.

53. WIRELESS AIR PURIFICATION TECHNOLOGY WITH IOT NOTIFICATION

Muhammad Hazim Iqbal Bin Paiman, Norhalida Binti Othman

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

2021602462@student.uitm.edu.my , halida8142@uitm.edu.my

Abstract

In the face of rising air pollution, this study introduces an IoT-driven wireless air purification system to address health concerns. Divided into three parts, it focuses on hardware development involving air quality, temperature, and humidity sensors, along with components for ventilation control. The second part enables user interaction through mobile devices, offering real-time information and fan speed control. This innovative system aims to enhance air quality, reduce health risks, and provide efficient ventilation.

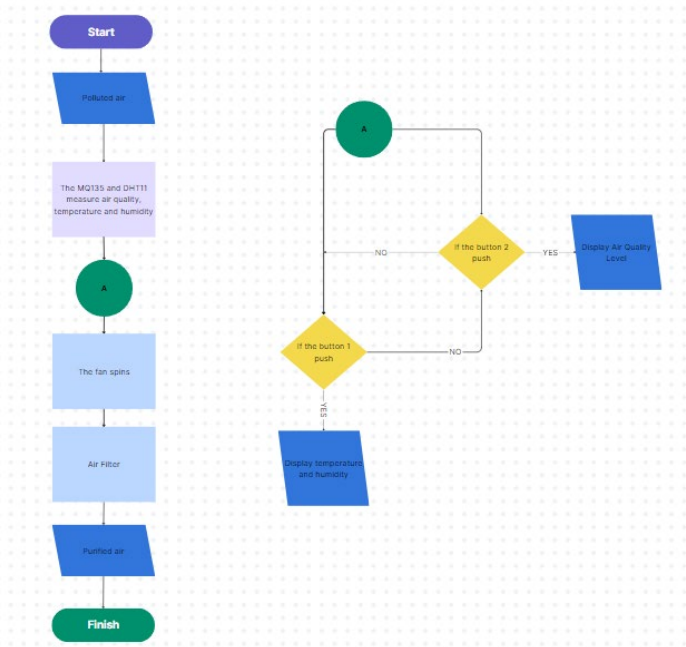
Keywords

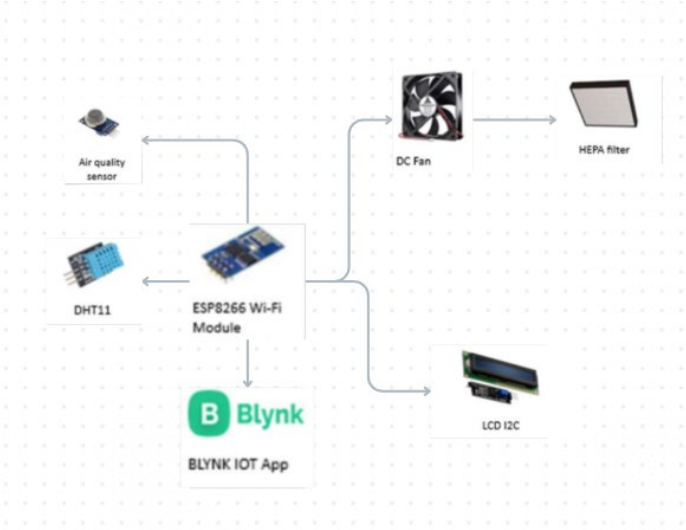
Air Pollution, IoT (Internet of Things), Wireless Air Purification, Ventilation Control, Health Monitoring

Product Description

This project incorporates the use of an MQ135 sensor for air quality measurement, a DHT11 sensor for temperature and humidity monitoring, and two buttons for toggling the display between DHT11 and MQ135 values. Additionally, a DC fan is included for ventilation purposes. The ESP8266 microcontroller serves as the main controller and a WiFi module, enabling remote control through the Blynk app. Utilizing the Blynk app, users can monitor real-time air quality, temperature, and humidity, as well as switch between sensor readings effortlessly. The DC fan is employed for filtered ventilation under specific conditions. This project aims to provide efficient monitoring and control of air quality and environmental conditions through IoT technology using the ESP8266 and seamless integration with the Blynk app, offering a smart solution for air management in home or office settings.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Muhammad Hazim Iqbal Bin Paiman, a 5th-semester student aspiring to pursue studies in the Electrical Engineering (Power) Diploma program at UiTM Pasir Gudang. With a passion for understanding electrical power, his journey has brought him to the pinnacle of his undergraduate experience. His final year project, titled "Wireless Air Purification Technology with IoT Notifications," embodies the spirit of his career aspirations and underscores his commitment to expanding knowledge in Electrical Engineering.

Norhalida binti Othman who is currently a senior lecturer in Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus. She is holding a Master of Engineering in Electrical Power from Universiti Teknologi Malaysia.

54. WATER MONITORING SYSTEM FOR WATER DAM WITH IoT

Muhammad Haziq Akmal Bin Abdullah , Dr. Nurul Nadia Binti Mohammad
Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

This project presents a water dam monitoring system with IoT. This technical report aims to design a Water Monitoring System for Water Dam using Arduino Uno that is connected to a Wi-Fi module. With the aid of block diagram, the inputs and outputs for this project has been determined which are rain sensor and water sensor as the inputs while the LCD, LED and buzzer are the outputs of this project. From the simulation that has been observed, the water level sensor will determine the percentage of water level in the tank then display the water level on the LCD. The rain sensor on the other hand will notify the system whether it is raining or not raining. It is important to understand the water dam system to avoid from being flood victims during the rainy seasons especially in Malaysia where the weather is unpredictable during the rainy seasons.

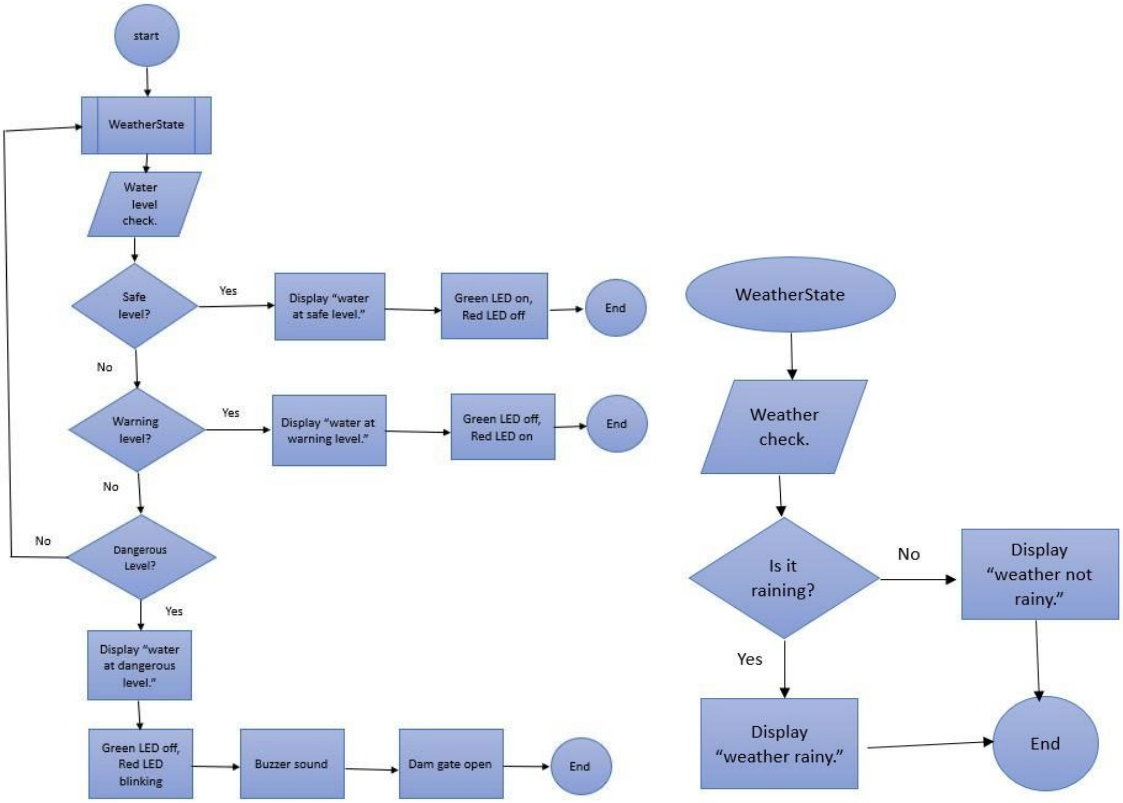
Keywords

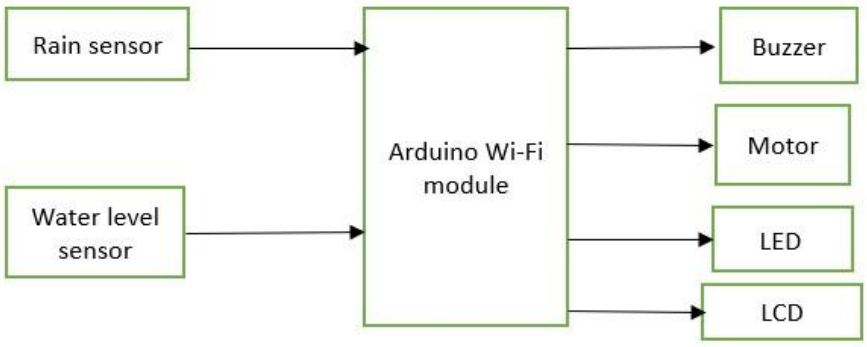
'Water monitoring system, IoT, water level sensor, Arduino Uno, Wi-Fi module, block diagram, rain detection, water level sensor, simulation'

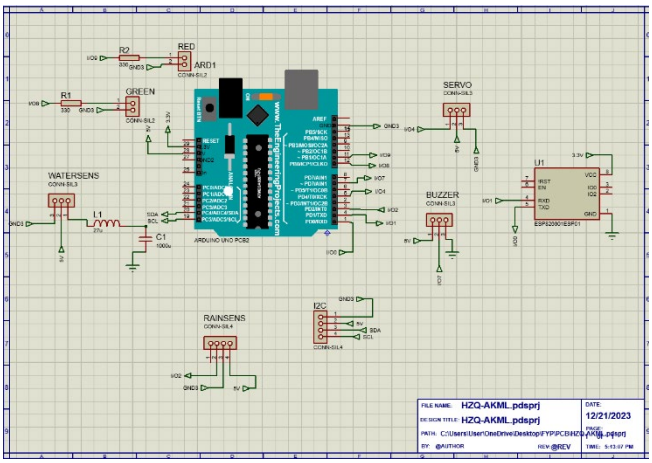
Product Description

The inputs for this project are water level sensor and rain sensor while the outputs are LED, buzzer, LCD display, and motor. When water level is at safe level, green LED turn on. When water is at warning level, red LED will turn on. When water is at danger level, red LED blinks, buzzer turn on and motor turn to open the water gate.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.







Member Biographical Data

Muhammad Haziq Akmal Bin Abdullah entered Universiti Teknologi MARA (UiTM) in October 2021 as a student in the electrical engineering faculty.As an electrical engineering student, he needs to make a project to pass his studies in electrical engineering in 5th semester. He has chosen to make a project related to the systems in a water dam. His project is called “Water Monitoring System for Water Dam with IoT”.

Nurul Nadia Binti Mohammad joined Universiti Teknologi MARA (UiTM) in January of 2020 as a senior lecturer at the Electrical Engineering Studies, College of Engineering. She obtained her Bachelor's Degree in Electrical Engineering (Hons) in October 2011, followed by Masters of Electrical Engineering from Universiti Tun Hussein Onn Malaysia (UTHM) in 2014. She then obtained her Doctor of Philosophy in Electrical Engineering from Universiti Teknologi Mara (UiTM) in 2019. Her areas of expertise are modelling, control system, and process control.

55. BICYCLE HELMET WITH PULSE SENSOR TEMPERATURE AND LED SIGNAL

Muhammad Haziq bin Ismail , Miss Norlee Husnafeza binti Ahmad

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Abstract

In the contemporary era marked by population expansion and a surge in vehicular traffic, the risk of accidents looms large, necessitating innovative solutions to mitigate the consequences. This project is an IoT-based smart helmet designed to revolutionize the cycling experience and prioritize safety. Acknowledging the significant delay in emergency medical services after accidents, the proposed helmet integrates real-time health monitoring and pulse sensor features. By embedding temperature sensors into the helmet padding, cyclists can actively manage their physiological status, preventing overheating and related health issues, while the pulse sensor capabilities offer enhanced health and safety. The objective is to make the users are more safety while ride bicycle and family can know the health level of people who are wear helmet. The way to accomplish is to spread awareness of IoT technologies not only fosters individual well-being but also promotes community interaction and contributes to global objectives of sustainable mobility and health-conscious activities. The output for the project bicycle helmet that looks out for you in more ways than one. This super-smart helmet has a heart rate tracker to keep you from pushing too hard and a temperature sensor to make sure you are comfy in any weather. What's cool is the helmet lights up with LED signals so people can see you better, especially when its dark.

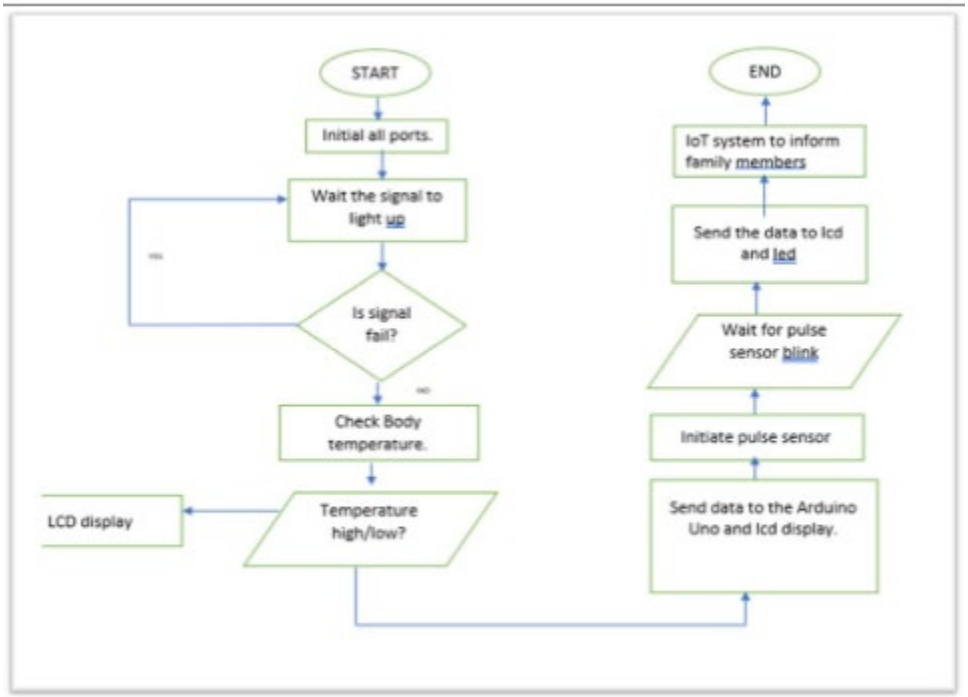
Keywords

IoT-based smart helmet, body temperature, monitoring, cyclist safety, health monitoring, IoT technology.

Product Description

Introducing our new Bicycle Helmet with Pulse Sensor, Temperature Monitor, and LED Signal – a smart and simple solution for safer and more comfortable rides. This helmet keeps an eye on your heart rate, making sure you stay healthy and energized during your cycling adventures. The built-in temperature monitor helps you stay cool, preventing overheating. Plus, the LED signals on the helmet make your intentions clear to others on the road, enhancing your safety. Its not just a helmet its your partner for a worry-free and enjoyable cycling experience. Stay connected with easy-to-use features and ride confidently with our Bicycle Helmet – where safety meets simplicity.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Flowchart of this project

Member Biographical Data

Muhammad Haziq bin Ismail an ambitious semester 5 th student pursuing diploma Engineering Electrical (Power) at UiTM Pasir Gudang. With a relentless curiosity for innovation and a passion for the intricate world of electrical systems, her journey has led to the pinnacle of her undergraduate experience. This final year project, titled “bicycle helmet with pulse sensor temperature and led signal” captures the spirit of her academic career and shows her commitment to expanding the field of Electrical Engineering knowledge.

Norlee Husnafeza Ahmad obtained her Ph.D. from UiTM Shah Alam with her research on the development of the generation market in Malaysia using System Dynamic modelling approach. She started her career at UiTM as a lecturer from February 2011 in the Power Department. Her main research interests are power system economic, AI optimisation technique, as well as System Dynamics modelling.

56. AQUA SENSE

Muhammad Haziq Bin Razak, Wan Suhaifiza binti W Ibrahim
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Abstract

Ideal water temperature and turbidity are crucial factors for fish keeping as it could make sure the safety and health of the fish living in their habitat. The concept of aquarium equipped with modern technologies has received significant attention in recent years as it is significantly sustaining the environment as well as power consumption. This project aims to design the aquarium monitoring and maintaining system by utilizing Arduino as microcontroller. The project utilizes temperature sensors, water level, and turbidity sensor as inputs and LCD, LED, and buzzer as outputs. Moreover, the timer algorithm was set in this system for automated fish feeding the aquarium. This system contributes to the automated maintaining ang managing the fish in an aquarium.

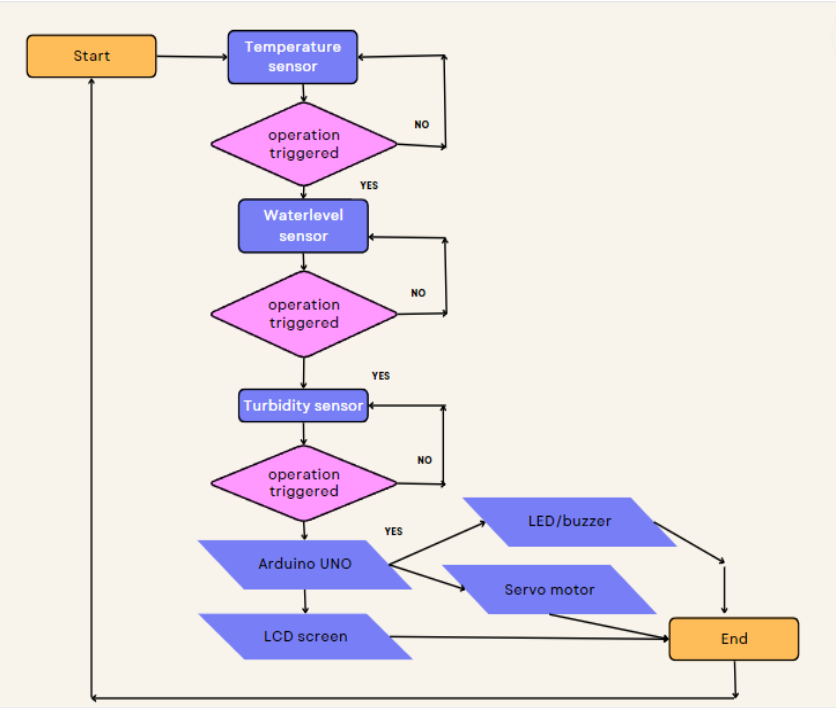
Keywords

Smart Aquarium, Automated Functions, Real-Time Monitoring, Water Quality, Fishkeeping

Product Description

Aqua sense is a smart maintenance system that designed for fish aquariums. This product has three crucial sensor which is temperature sensor, water level sensor and turbidity sensor which is to monitor the fish so that it's in good condition. The temperature sensor will make sure the temperature is ideal for fish which in this project, the ideal temperature is 25℃ to 27℃ and the reading will be displayed on LCD. The LED will turn on if the temperature is higher or lower than the ideal temperature. This product also provides the automatic feeding system that driven by a servo motor and timer from Arduino. It is important to feed the fish because most user might forget to give the fish its food. The system also prioritizes aeration by monitoring the water level in aquarium by using water level sensor. Its reading also will be displayed on LCD for the user to monitor. If the water level is low, the buzzer will turn on to alert the user. Finally, the turbidity sensor will monitor the cleanliness of the water in aquarium and it also will be displayed on LCD either it clean or not. By providing a thorough, automatic, and worry-free method of preserving the ideal aquatic habitat, Aqua Sense redefines fishkeeping.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Haziq bin Razak joined UiTM Pasir Gudang in October, 2021 as an Electrical Engineering(Power) student. Muhammad Haziq bin Razak now is a 5th semester student in UiTM Pasir Gudang and want to finish his diploma with flying colors. His final year project title is Aqua Sense which is he use all his knowledge during 5 semester studying in electrical engineering in UiTM. Muhammad Haziq goals is to master the fundamentals of electrical power engineering. He looks forward to the opportunities and challenges in order to achieve his goals.

Ts. Wan Suhaifiza binti W Ibrahim joined UiTM in January, 2011 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering. Wan Suhaifiza binti W Ibrahim obtained her Bachelor of Electrical (Hons) Engineering and Masters of Electrical Engineering (Power) from Universiti Teknologi Malaysia. Currently, she serves as a senior lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Power Department. Her main research interests are E-learning, high voltage technology and renewable energy.

57. AN AUTOMATIC GRASS CUTTING ROBOT

Muhammad Haziq Fikri Bin Zulkifly, Fadila Binti Mohd Atan

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Abstract

This study presents the development of an autonomous grass-cutter robot designed for efficient lawn maintenance. Utilizing ultrasonic sensors, an Arduino Uno microprocessor, and DC gear motors powered by a Lipo Battery, the robot effectively navigates the yard, identifies obstacles, and ensures uniform grass cutting. Following a predetermined path, the robot covers the entire lawn, providing a time and cost-effective solution for lawn care. The integration of robotic collision avoidance enhances its functionality. This prototype showcases a practical and useful robot, addressing the demand for automated and smart home solutions in lawn maintenance, with the potential for widespread adoption.

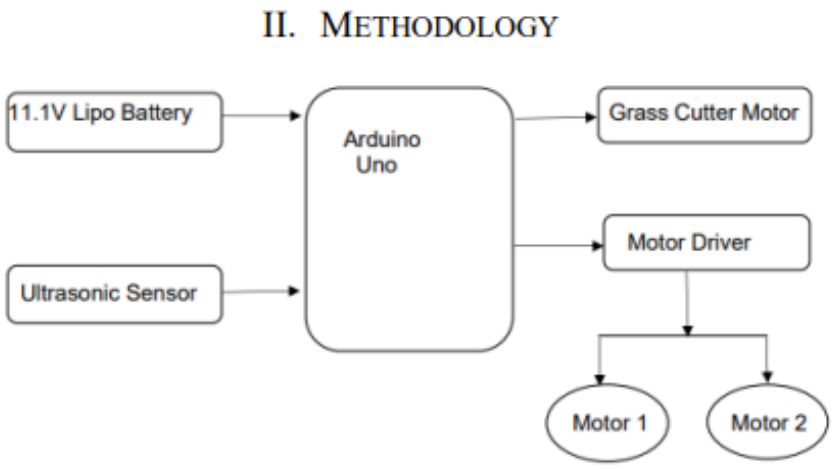
Keywords

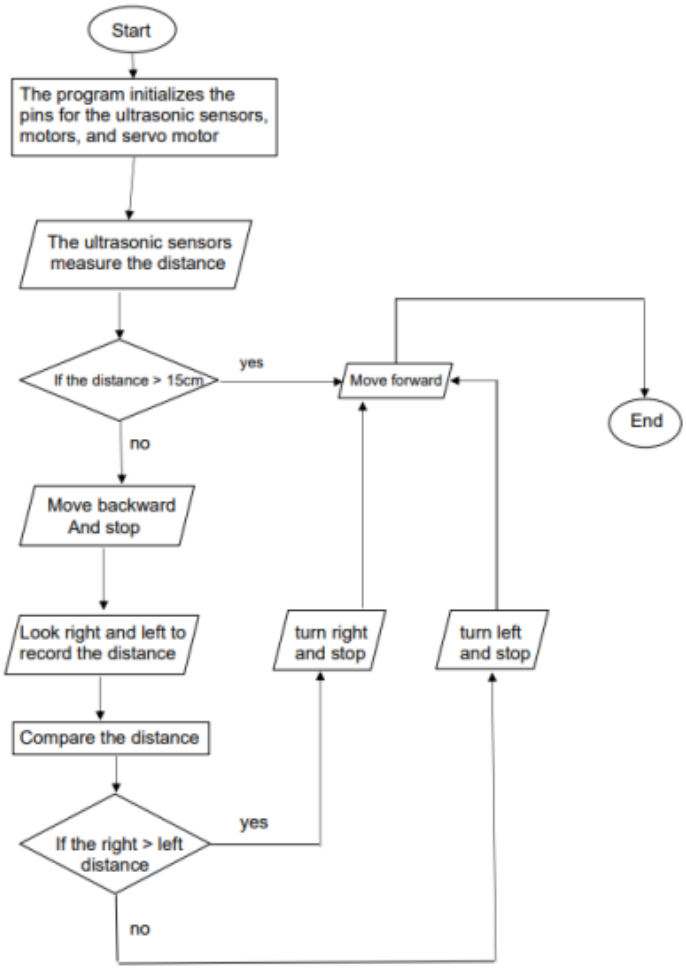
Autonomous grass-cutter robot, Ultrasonic sensors, Arduino Uno microprocessor, Obstacle detection, a time and cost-effective

Product Description

Introducing our Autonomous Grass-Cutter Robot, a cutting-edge solution for hands-free lawn maintenance. Equipped with ultrasonic sensors, an Arduino Uno microprocessor, and powerful DC gear motors powered by a reliable Lipo Battery, this innovative robot navigates yards autonomously, adeptly avoiding obstacles for a seamless grass-cutting experience. Following a predetermined path, it ensures uniform grass length across the entire lawn. With robotic collision avoidance, it combines efficiency with smart home automation, offering a time and cost-effective solution for mass use. Embrace the future of lawn care with our practical Autonomous Grass-Cutter Robot.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Muhammad Haziq Fikri Bin Zulkifly is currently studying Electrical Engineering (Power) at Universiti Teknologi MARA (UiTM) Pasir Gudang. He's interested in how electrical systems impact our daily lives and is working hard to understand both the theory and practical aspects of power engineering through coursework, projects, and internships. Besides his studies, Haziq Fikri hopes to use his knowledge to contribute to innovative solutions in electrical engineering and make a positive impact in society. He looks forward to becoming a valuable engineer after completing his studies at UiTM Pasir Gudang.

Fadila Mohd Atan is a senior lecturer specializing in electronic and communication engineering, holds a Master of Science degree in Telecommunications and Information Engineering from Universiti Teknologi MARA. With a decade of unwavering dedication, she has meticulously advanced her expertise in constructing prototypes to address real-world challenges within the engineering domain.

58. ANTI-ELECTRICAL LEAKAGE FLOODING SYSTEM WITH MOBILE NOTIFICATION ALERT

Muhammad Haziq Ikram Azlan

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

Abstract

This paper introduces a pioneering solution to mitigate the risks of electrical leakage during floods by employing advanced technology, including flood detection sensors and intelligent switches integrated into an IoT framework. Emphasizing the dangers posed by water and electricity interaction, it highlights the limitations of manual interventions and underscores the need for automated systems to prevent electric shock incidents and property damage. Acknowledging technological advancements, the paper identifies crucial areas for further research, aiming to enhance the reliability of flood detection sensors, improve system scalability, conduct cost- benefit analyses, and optimize real-time data analysis algorithms. The research question focuses on the effectiveness of these sensors and switches in detecting floods and initiating power shutdowns, seeking advancements in sensor technology and timely response optimization. Ultimately, this innovative system aims to safeguard lives and property by swiftly shutting down electrical supplies during flood events. This system device is located in the power supply house. When heavy raining that leads to flooding, the water level will rise up. This system will monitor the level of water from safe to dangerous levels. If the water level reaches the danger level, the power supply will automatically cut-off the power supply to avoid electrocution of water and the alarm is activate .

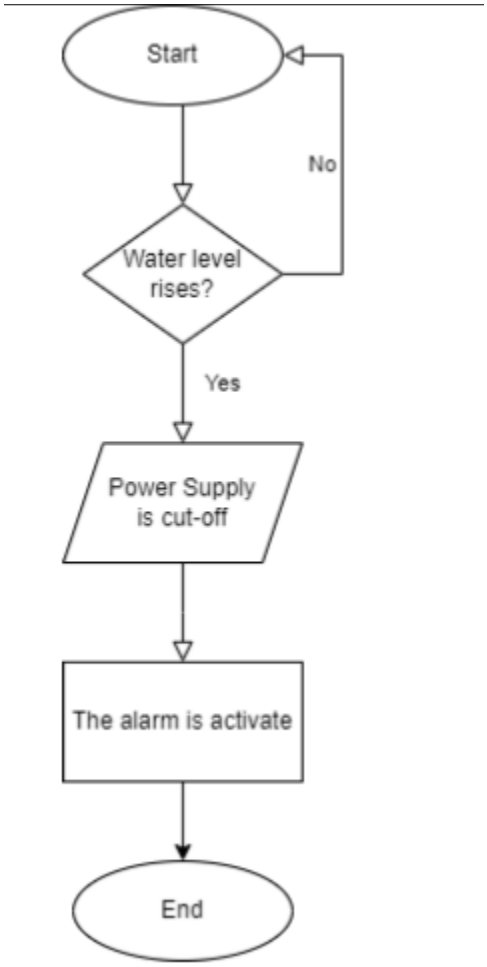
Keywords

Electrical leakage prevention, Flood detection sensors, Intelligent switch, Water level monitoring, Internet of Things (IoT), Real-time data transmission, Main operator, Prompt action, and Hazard reduction.

Product Description

This project focuses on preventing electrical leakage during floods through an automated system that shuts down the electrical supply room when flood conditions are detected. It utilizes flood detection sensors and an intelligent switch strategically placed to identify potential flood situations by monitoring water levels. Once a flood is detected, the switch immediately activates, turning off the power in the affected area. The system incorporates Internet of Things (IoT) technology to transmit real- time data to the main operator, ensuring prompt action and reducing hazards during floods. This connectivity allows the operator to stay informed about flood conditions and power supply status, enabling appropriate actions such as alerting authorities or initiating flood management protocols. By automatically cutting off electricity and providing timely information, this innovative solution enhances safety, saves lives, and protects both humans and the environment. The implementation of this project has the potential to greatly improve safety measures in flood-prone areas.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Haziq Ikram Azlan is a student of electrical engineering (power) of the faculty of Electrical Engineering at the UiTM Pasir Gudang, Johor. His educational background is from SK KG Johan Setia, Klang for primary school. For secondary school, he studied at MRSM Kota Putra, Besut before continued his education in UiTM Pasir Gudang for diploma. His research interests are in business management, enviromental and automotive. He loves to exploring sustainable living practices, running and outdoor activities.

59. SMART PARCEL BOX

Muhammad Ikhmal Hakim bin Abdul Latif, Madam Siti Aliyah

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Abstract

This project is installed in front of the house, a parcel box is a parcel receiving box. A traditional-style parcel box has the drawback that if it is left unlocked, the parcel might be damaged or stolen. In order to guard against theft or damage, a recipient must also often inspect the package box. This report aims to design a smart parcel box using ESP32 Microcontroller. If the package is legitimate and belongs to the receiver, the smart parcel box may be unlocked by the phone through Blynk IoT app. This project have three inputs which is IR sensor and push button. It also has 3 outputs which is buzzer, servo motor and LCD. Smart Parcel Boxes are postal containers that facilitate package retrieval and container security for receivers.

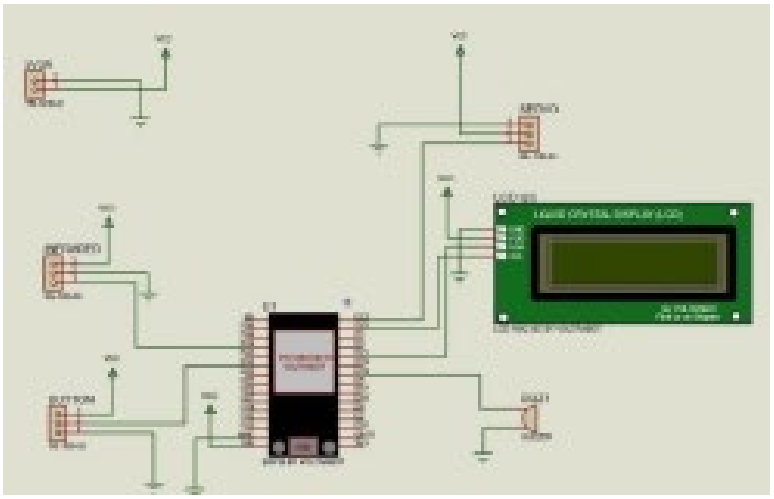
Keywords

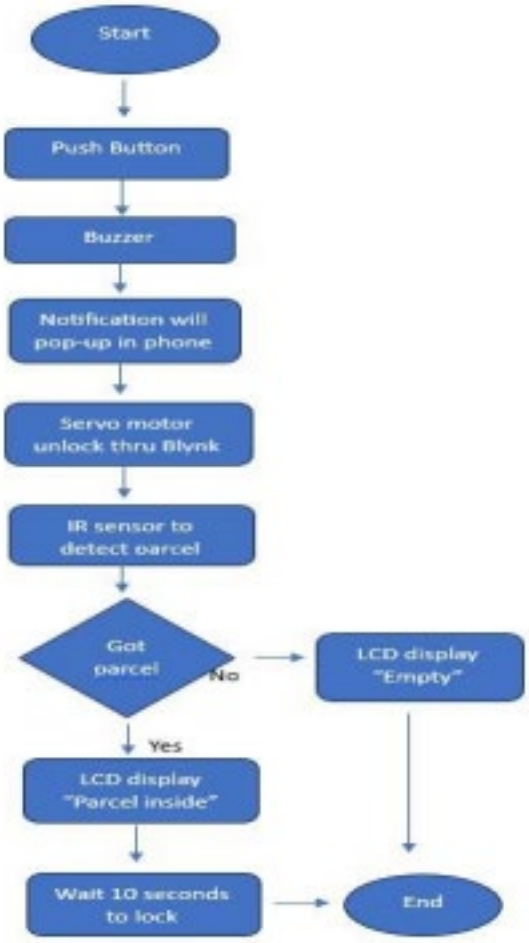
ESP32, Smart parcel box, IR sensor, Blynk IoT, stolen

Product Description

When the circuit is starting, the LCD will display “Push the Button and Welcome”. Other than that, the condition of the servo still locks. If the delivery man push the button, notification will pop up in the receivers phone and the buzzer will buzzing.
The receivers need to unlock the parcel box through Blynk IoT application. Infrared sensor is to detect the parcel, if IR sensor detect the parcel, the LCD will display “Parcel Inside”

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Ikhmal Hakim bin Abdul Latif is a motivated student at UiTM Pasir Gudang in his fifth semester, working on a diploma in electrical power engineering. His journey has led him to the pinnacle of his undergraduate education, where he is passionate about the intricate world of electrical systems and has an unyielding thirst for creation. His senior-year "Smart Parcel Box" project epitomizes his academic mindset and highlights his commitment to expanding electrical engineering knowledge. He was born on May 15, 2003, and during the past several years, he has solidified his knowledge in core subjects including circuit theory, electronics, and control systems. As his time as an undergraduate draw to a conclusion, he reflects on the difficulties overcome, the knowledge gained, and the priceless support from friends and his supervisor. His senior project represents more than just his ability to learn new things; it also shows how ready he is to enter the workforce with the knowledge and abilities he has acquired.

Siti Aliyah Mohd Saleh has a Master's degree in Engineering (Applied Science) from Tokai University, Japan (2012). She is currently serving as a lecturer at Universiti Teknologi MARA (UiTM), working in the Power department of Electrical Engineering Studies. Her research interests include high voltage technology and power system.

60. EV CHARGING ROUTE THROUGH THINGSPEAK APPLICATION

Muhammad Ikhwan Bin Kamal, Sir Zairil Bin Muhammad

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Abstract

This project identifies available electric car (EV) charging stations using sensors, relaying real-time data via LEDs, LCD displays, and Wi-Fi. Red and green LEDs indicate occupied and available stations; the LCD displays "YES" for occupied and "NO" for available. The Wi-Fi module enables remote checking via mobile phones. Results confirm effective EV recognition and accurate availability information. Future enhancements may include GPS integration for guiding users to the nearest station, enhancing user convenience and promoting eco-friendly transportation choices.

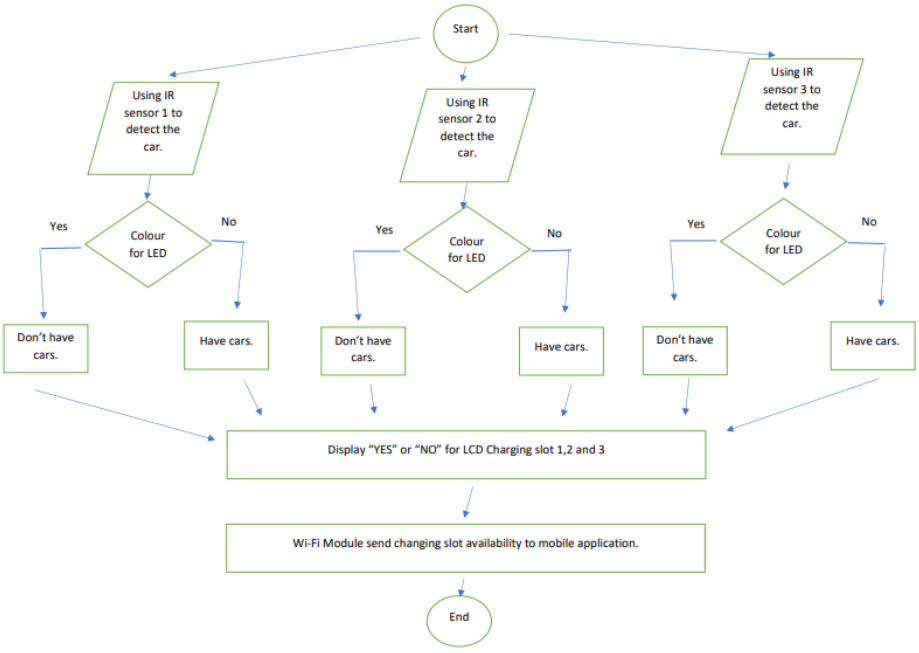
Keywords

Electric vehicles, Charging stations, LED indicators, LCD display, Wi-Fi module.

Product Description

The rise of smart cars globally has led to increased production to meet rising consumer demand, initially resulting in a scarcity of charging stations. With the rapid growth of the electric car market, smart vehicles have become integral to the Internet of Things (IoT) infrastructure, necessitating efficient computing and communication systems. The lack of additional charging stations may lead to congestion, emphasizing the need for expanded infrastructure. To address this, the study proposes an IoT-based smart car charge parking system, providing real-time information about parking availability. The simulation utilizes Proteus software, with plans to develop a practical solution using ESP32 as the microcontroller, streamlining EV charging and minimizing wait times for users.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Ikhwan bin Kamal in a semester,5th in Diploma Electrical Engineering (Power) in Pasir Gudang, Johor. He was born on 2rd December 2003 and eldest child among siblings. My father works as a TNB and that is why I am interested in following in my father's footsteps. I continued my studies at UITM Pasir Gudang to learn more about electricity (power). At UITM, I have discovered more complex circuits and studied various electrical subjects such as power systems, communication and power electronics.

M. Zairil M. Nor received the bachelor's degree in electrical engineering (telecommunication) from Universiti Teknologi Malaysia (UTM), Skudai, in 2009, and the M.Sc. degree in electrical engineering also from Universiti Teknologi Malaysia (UTM), Skudai, in 2013. He is a lecturer in UiTM Johor, Pasir Gudang Campus and currently pursuing their Doctoral Degree (PhD) in Wireless Communication Centre. He has published more than 15 journal papers and technical proceedings on smart antenna systems, microwave devices, and reconfigurable antenna in national and international journals and conferences. His research interest includes smart antenna on communication systems

61. GAS LEAK DETECTION SYSTEM

Muhammad Irfan Al-Azhad bin Zainal , Mastura binti Omar
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Abstract

Gas leaks pose serious threats to property and public safety, necessitating proactive measures. Current gas detection systems often lack alarms, remote access, and real time monitoring, limiting their effectiveness. Gas leakage is a significant concern in industrial, residential, and vehicular settings. The objective is to develop a cost effective system that accurately detects gas leaks, triggers a buzzer for immediate notification to the responsible party for safety assessment. The focus is on creating a robust and efficient gas leakage detection system.

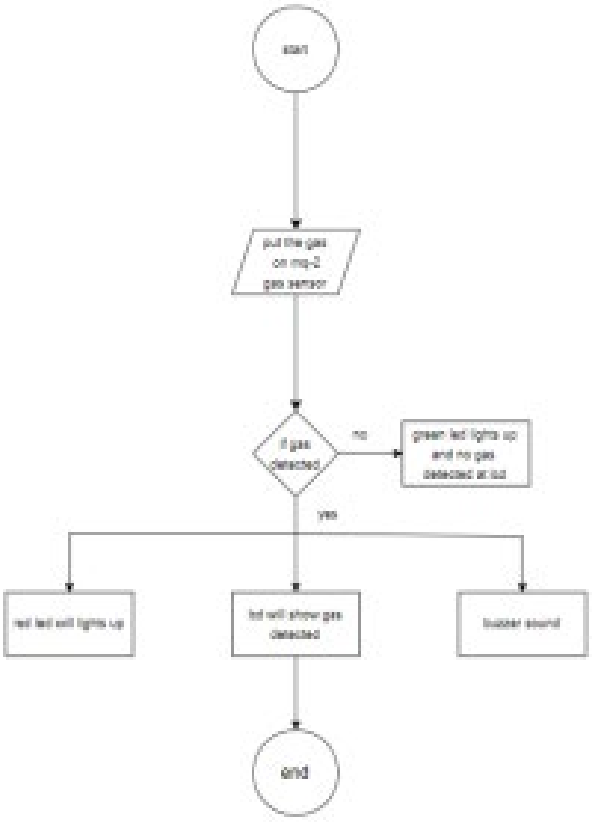
Keywords

Gas leak detection, Security enhancement, Proactive measures, Cost effective system, and Real-time monitoring.

Product description

Gas leak detection system—a cost-effective solution designed for industrial, residential, and vehicular safety. Overcoming current limitations, it features alarms, remote access, and real-time monitoring. Swift detection triggers instant buzzer alerts and communicates directly for prompt safety actions. Our system sets the standard for proactive and efficient gas leak prevention

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Irfan Al-Azhad bin Zainal is currently pursuing a diploma in Power at UiTM Pasir Gudang. I'm currently studying for a Power diploma at UiTM Pasir Gudang. He is really into learning about power systems and working hard on the diploma program to gain solid knowledge and skills in this field. Looking ahead, ł he hopes to use what he learns to help make improvements in the Power sector. His commitment to academic excellence reflects his strong desire to play a significant role in the evolving field of power systems during his study at UiTM Pasir Gudang.

Mastura Omar is a dedicated Senior Lecturer in the Electronics Department at the Electrical Engineering Studies, College of Engineering, UiTM Pasir Gudang. She holds a Bachelor of Engineering in Electrical and Electronics from Universiti Teknologi Petronas and a Master of Science in Microelectronics from Universiti Kebangsaan Malaysia. With over 10 years of experience in academia, Mastura specializes in Electronics System Design, blending her extensive knowledge with a passion for teaching and research.

62. THREE IN ONE MEASUREMENT TOOL FOR VOLTAGE, CURRENT AND SPEED

Muhammad Ismail Bin Husaini, Dr. Rijalul Fahmi Bin Mustapa
Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

This project aims to overcome the limitations of existing measurement tools by developing a multi-measurement device using Arduino as the microcontroller. Combining voltmeter and ammeter functions, the tool offers a more efficient and user-friendly solution. Additionally, it integrates a speed sensor for measuring speeds in electrical appliances like induction motors. With Arduino UNO as the primary controller, the project aims to create a versatile three-in-one tool for comprehensive electrical measurements, addressing the current tool limitations.

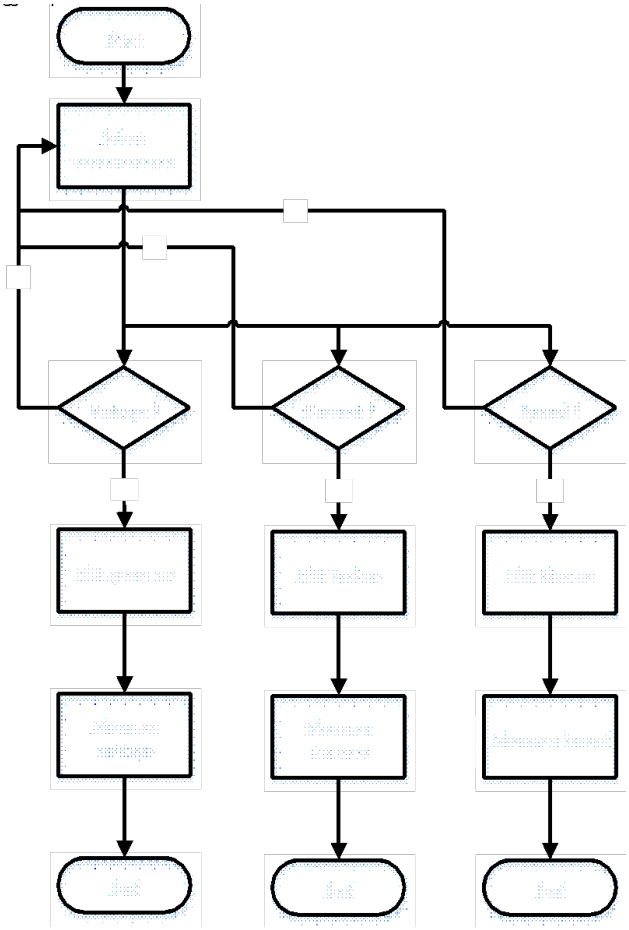
Keywords

Arduino, Multi-measurement, Voltmeter, Ammeter, Speed sensor

Product Description

Introducing our Three-in-One Measurement Device – a revolutionary tool combining a voltmeter, ammeter, and speed sensor for complete electrical circuit analysis. Accurately measure potential, monitor electric charge, and effortlessly determine motor speed. Perfect for technicians, engineers, and enthusiasts, this device redefines electrical analysis, providing a dynamic and efficient measurement experience.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Ismail Bin Husaini, born on January 6th, 2003, is an Electrical Engineering (Power) student at UiTM Pasir Gudang. Fascinated by the extensive impact of electrical systems on our daily lives, Ismail actively pursues both theoretical and practical knowledge. His coursework, projects, and hands-on experiences showcase his dedication to mastering the intricacies of power engineering. Beyond academics, Ismail envisions contributing to innovative solutions in the electrical engineering field, aiming to make a positive impact on society. With a solid foundation and a passion for continuous learning, he aspires to become a valuable engineer after completing his studies at UiTM Pasir Gudang.

Rijalul Fahmi Mustapa is a senior lecturer in UiTM Pasir Gudang. He graduated from UiTM Shah Alam in Electrical Engineering. He possesses a professional certificate as a measurement and verification and a certified energy manager. His current interest in research is energy consumption prediction and baseline energy modelling.

63. CATTLE HEALTH MONITORING SYSTEM

Muhammad Izz Rifqi bin Fa'iz, Madam Fazlinashatul Suhaidah binti Zahid
Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

This project aims to overcome the limitations of existing measurement tools by developing a multi-measurement device using Arduino as the microcontroller. Combining voltmeter and ammeter functions, the tool offers a more efficient and user-friendly solution. Additionally, it integrates a speed sensor for measuring speeds in electrical appliances like induction motors. With Arduino UNO as the primary controller, the project aims to create a versatile three-in-one tool for comprehensive electrical measurements, addressing the current tool limitations.

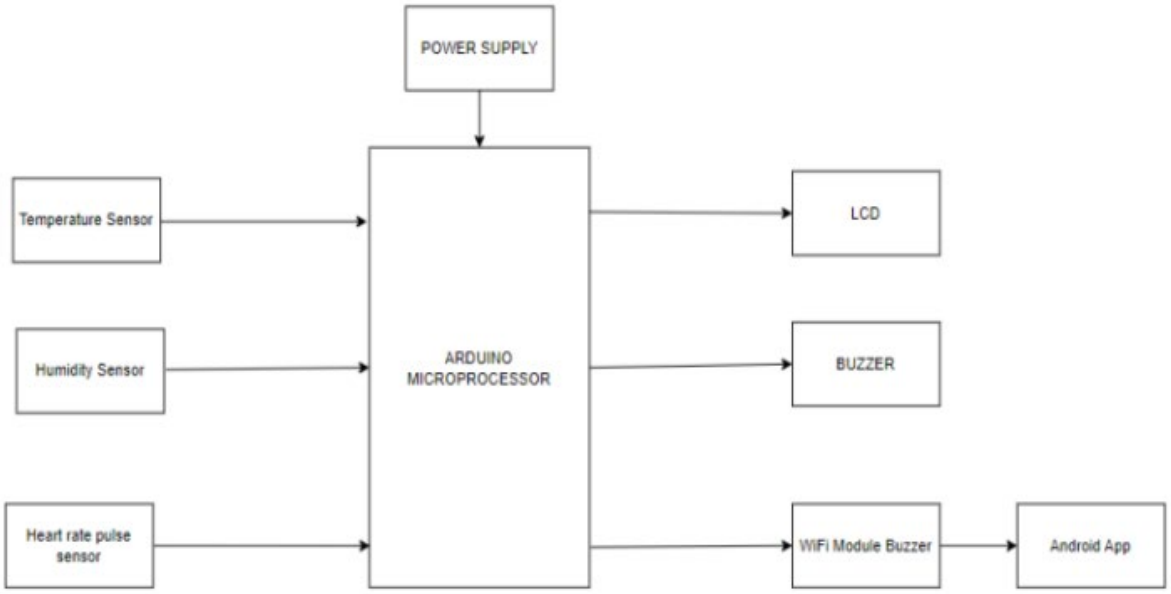
Keywords

cattle health monitoring, Arduino, vital signs, temperature, humidity, heart rate.

Product Description

Cattle health monitoring systems have transformed livestock management, utilizing advanced sensors and algorithms to collect vital health indicators like body temperature and heart rate. Early detection of anomalies enables prompt intervention, reducing the risk of disease outbreaks, enhancing herd productivity, and saving resources for farmers. This project focuses on developing a Cattle Health Monitoring System using Arduino, aiming to improve livestock monitoring technologies, facilitate quick veterinary intervention, and elevate overall animal welfare in the agriculture industry.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Izz Rifqi bin Fa'iz, born on April 19th, 2003, is currently navigating the world of Electrical Engineering (Power) at UiTM Pasir Gudang. With a curiosity sparked by the widespread influence of electrical systems in our daily lives, Izz Rifqi is on a journey of exploration, embracing both theoretical concepts and hands-on experiences. His coursework, along with various projects, reflects a genuine eagerness to understand the intricacies of power engineering. Beyond the academic endeavors, Izz Rifqi aspires quietly to contribute, in his own small way, to innovative solutions within the electrical engineering realm, hoping to make a modest positive impact on society. Rooted in a modest foundation and driven by a genuine love for learning, he looks ahead to the day when he can contribute meaningfully as an engineer after completing his studies at UiTM Pasir Gudang.

Madam Fazlinashatul Suhaidah binti Zahid is a practice lecturer and researcher with 7+ years of experience teaching courses on undergraduates' level. Her research group focuses on the fabrication and integration of dimensional materials particularly graphene, carbon-nanotube (CNT) and other 2D materials into humidity sensor and organic solar cell applications as well as polymer nanocomposites.

64. ADVANCED GARBAGE MONITORING SYSTEM

Muhammad Khairi Daniel Bin Muhamad Halmee, Pn. Siti Musliha Ajmal Bin Mokhtar
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Abstract

This project aims to solve waste management problems that has become a crucial issue in society for maintaining cleanliness and protecting the environment. In some public areas, the overflow of garbage bin is due to negligence of the cleaners, which also define another lacking in current waste management practices. Owing to humid weather of our country, the uncollected garbage leads to much greater problems like bad odor's, pest infestations in the area and dirty surroundings.

Keywords

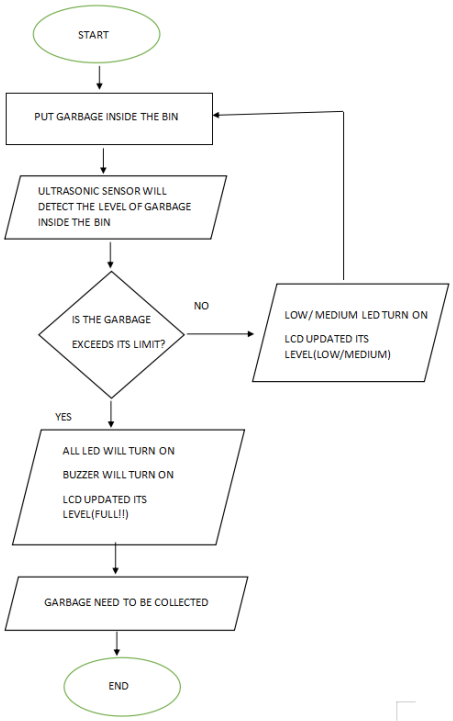
Energy Optimisation, Remote Monitoring,System Efficiency, Solar Tracking System, Arduino, Internet of Things (IoT), and Sustainable Energy.

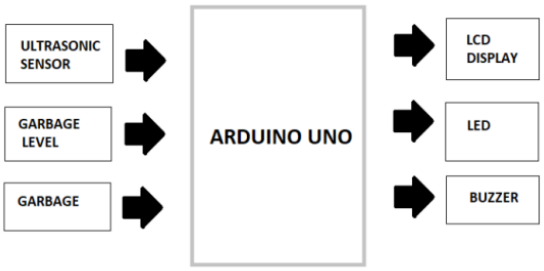
Product Description

This Garbage Monitoring System is an innovative solution aimed at maintaining cleanliness in cities by preventing the overflow of garbage. The system's objectives include monitoring the status of garbage bins and providing information about the level of garbage collected through its sensors. Utilizing Arduino as the microcontroller, the project aims to create a smart monitoring system to address the aforementioned issue. Ultrasonic sensors are strategically placed over the bins to detect the garbage level, which is then compared with the depth of the bins.

The system employs Arduino UNO as the microcontroller, along with an LCD screen, LEDs, IoT capabilities, and a buzzer. Using these components, when the garbage reaches top of the bin, all LEDs illuminate and the buzzer activates, followed by the LCD display shows the garbage level as a reminder to dispose of the waste. By incorporating these features, the system contributes to maintaining city cleanliness by providing real-time data on the status levels of the bins."

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Khairi Daniel bin Muhamad Halmee interested in electrical since his highschool and currently pursuing study for Diploma in Electrical Engineering with major in Power at University Teknologi MARA, Branch campus Pasir Gudang. He interested in electrical since his high school because he find it is kind give him some kind of excitement when it comes to study and learning anything that involved electric. He desires to make significant improvements to the field with a solid academic background.

Siti Musliha Ajmal binti Mokhtar obtained her Diploma in Engineering (Electronics and Electrical) from University Industri Selangor (UniSEL) Selangor and Bachelor of Electrical & Engineering (Hons Engineering from Keio University, Japan. After working for a year as process engineer in Konica Minolta Glass Tech (M) Sdn Bhd, she continued to complete her master degree in electronic Engineering from Uitm Shah Alam. She worked for a while as system solution engineer at Panasonic System Network (M) Sdn. Bhd before switching to academic as a lecturer at UiTM cawangan Johor Kampus Pasir Gudang in Electronics Department. She complete her PhD in Advance Energy and Manufacturing from University of South Australia (UniSA), Australia. Her main research interests are analog & digital circuit design, thin film coating, electrochemistry and microneedle for on-skin application.

65. AUTOMATIC STREETLIGHT SYSTEM

Muhammad Naim Bin Mansor Pn. Siti Musliha Ajmal Bin Mokhtar

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Abstract

The goal of this project is to create an improved streetlighting system that could result in significant energy savings and lower energy usage. The sensors and Arduino microcontroller used in this proposed work allow it to regulate how much electricity is used during the night. It is also used based on the movement of the object while it is close to the sensor and at night. Currently, our nation's streetlight system is manually turned on at nightfall and turned off the next morning. This project will automatically control the streetlight system, which will only operate when an object is picked up by the sensors and detected the fault automatically by using iot. The goal of this initiative is to make the country's current streetlights as futuristic as possible.

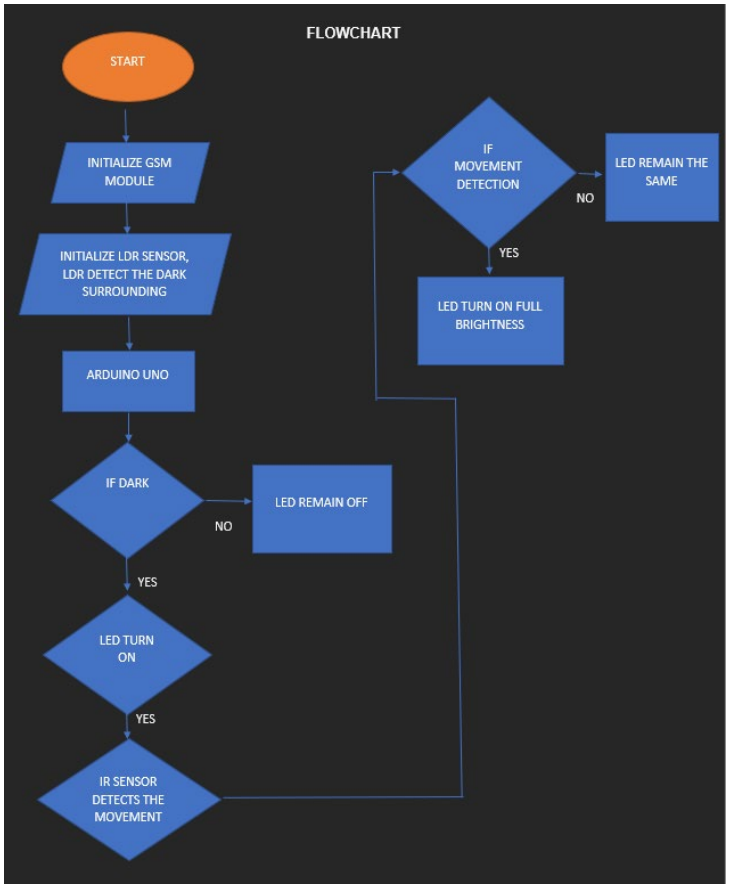
Keywords

Streetlighting, Energy saving, Object detection, Arduino

Product Description

The project's goal is to completely transform the existing streetlighting system by putting into practice an advanced approach that combines Arduino microcontrollers and precise sensors. The main goals are to optimize electricity usage, achieve notable energy savings, and improve the lamps' environmental responsiveness.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

I am a student of electrical engineering (POWER) in UITM Pasir Gudang. I am excited about the prospect of learning from experienced faculty members and engaging in hands-on projects that align with my passion for electronics and electrical systems. I aspire to contribute significantly to the field of electrical engineering.

Siti Musliha Ajmal binti Mokhtar obtained her Diploma in Engineering (Electronics and Electrical) from University Industri Selangor (UniSEL) Selangor and Bachelor of Electrical & Engineering (Hons Engineering from Keio University, Japan. After working for a year as process engineer in Konica Minolta Glass Tech (M) Sdn Bhd, she continued to complete her master degree in electronic Engineering from Uitm Shah Alam. She worked for a while as system solution engineer at Panasonic System Network (M) Sdn. Bhd before switching to academic as a lecturer at UiTM cawangan Johor Kampus Pasir Gudang in Electronics Department. She complete her PhD in Advance Energy and Manufacturing from University of South Australia (UniSA), Australia. Her main research interests are analog & digital circuit design, thin film coating, electrochemistry and microneedle for on-skin application.

66. AUTOMATIC DOOR LOCK AND ALCOHOL SENSING WITH ENGINE BLOCKING SYSTEM USING IOT

Muhammad Nazhan Azri Bin Razali ,Pn Nor Diyana Bt Md Sin
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Abstract

Most cars these days have less safety features installed. This causes many accidents that occur such as car theft cases. Furthermore, many accidents also occur as a result of the negligence of drunk drivers. This is very worrying in terms of the safety of drivers in this country. So, Smart System Door Lock based on IoT and Alcohol Sensoring Alert with Engine Blocking System was created to add safety features for a car so that cases of car theft and road accidents can be reduced. This safety feature uses an Arduino UNO as a microcontroller that controls the alcohol sensing alert with engine blocking system by detecting gas through the gas sensor and producing outputs such as LEDs, buzzers and motors. While Shelly 1 becomes a microcontroller to control the smart door lock system by receiving instructions through an application on a smartphone and issuing an output to a solenoid. Through the gas sensor, users can detect the level of intoxication of a driver and can prevent the driver from driving in dangerous conditions. While through a smartphone, a vehicle owner can refuse to allow his car to be stolen. With this, cases of vehicle theft and cases of road accidents due to drunk drivers can be reduced

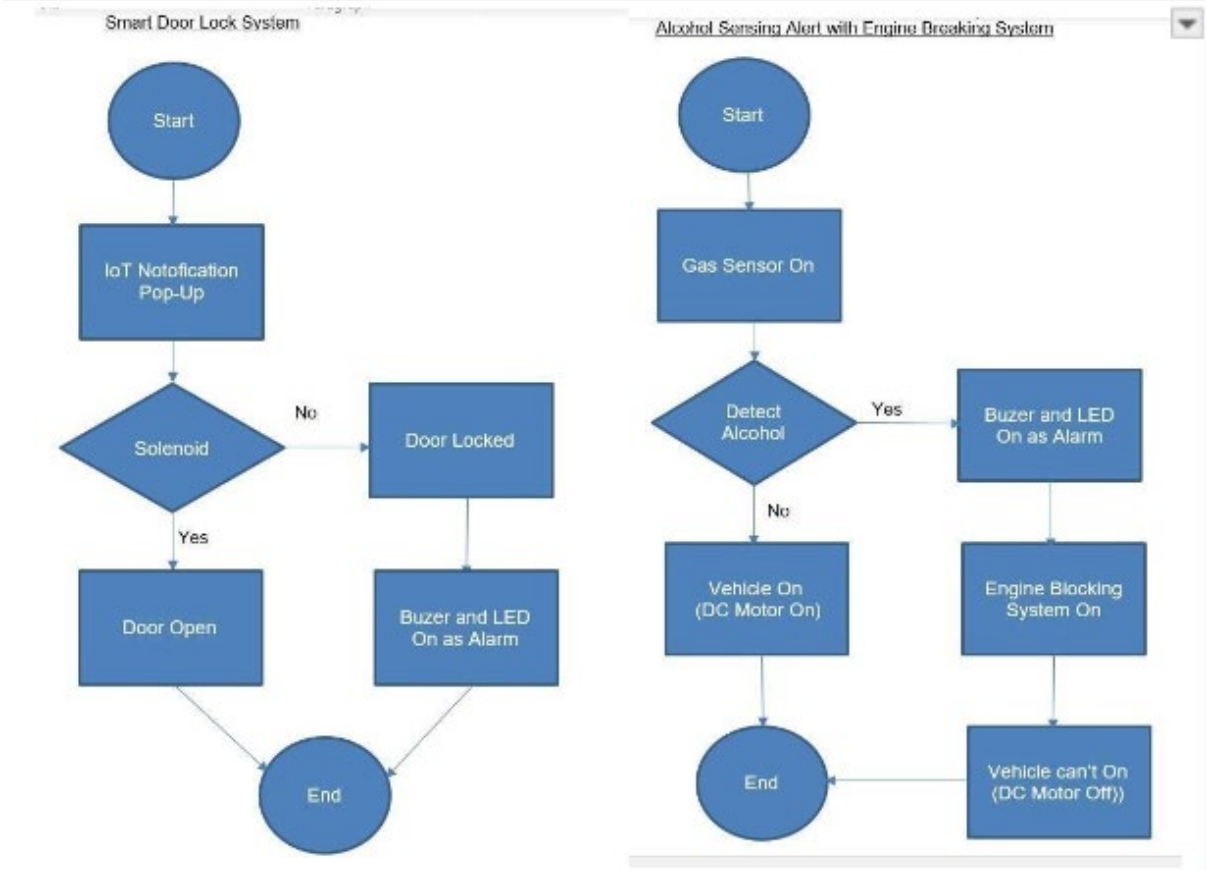
Keywords

Smart System Door Lock, IoT, Alcohol Sensing Alert, Engine Blocking System, Arduino UNO, Gas Sensor, LEDs, Buzzers, Motors, Shelly 1, Smartphone Application, Solenoid, Driver Intoxication, Vehicle Theft Prevention, Road Accident Reduction

Product Description

This product works as addition to the security devices that are owned by normal vehicles where the keys for these vehicles can be accessed via a smartphone and in addition to vehicle security features where a gas sensor is added to detect the driver's breathing to ensure that the driver cannot drive while drunk to reduce risk of accidents on the road

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Nazhan Azri Bin Razali is a 5th semester student at Universiti Teknologi Mara (UITM) in the field of Diploma in Electrical Engineering (Power). He has been a UITM student since 2021 until now. Received his early education at Al-Hannah Kindergarten, he continued his studies at SK Sungai Serai and then SM Sains Hulu Selangor and finally joined the UITM Pasir Gudang family. Throughout his life, he has contributed a lot and been involved in various activities at school and university and is now in his final year as a Diploma in Electrical Engineering (Power) student.

Nor Diyana Md Sin is a senior lecturer in the Electrical Engineering Studies of the Universiti Teknologi MARA (UiTM), Malaysia. She received her PhD in Electrical Engineering (Nanoelectronics) from the Universiti Teknologi MARA (UiTM), Malaysia in 2014. She earned her degree in Electrical Engineering with honors from Universiti Teknologi MARA (UiTM). Her research interest are in the area of sensor, metal oxide semiconductors, nanotechnology and nanodevices.

67. THE SMART WATER GATE SYSTEM TECHNOLOGY

Muhammad Nor Faisal Bin Nor Sulaiman , Dr Zakariah Yusuf
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Abstract

The smart water gate system is a modern solution designed to efficiently manage river water resources and prevent disastrous flooding. This project focuses on creating a smart system that monitor the water levels, and flow to avert flooding incidents. The system aims to analyze collected data and issue warnings if the water level reaches a dangerous point, while also automatically opening the gate to release excess water. This system is built around a simulation setup, detecting water levels using two sensors. The first sensor detects minimum water levels and triggers a warning on an LCD display, led and buzzer. The second sensor identifies maximum water levels, indicating a full dam on the LCD and activating the gate to release water. Additionally, the system measures turbidity to assess suspended solids in the water. For outputs, the system employs an LCD display to signal warnings based on sensor readings. When the second water level sensor detects maximum water levels, a motor assists in opening the gate to facilitate water outflow. Moreover, a buzzer notifies users when the water reaches critical levels. The project aims to simulate a Smart River Water Gate System using Proteus, incorporating an Arduino Uno controller, LCD display, motors, led, buzzer, and gate mechanism. Data logging modules will gather information from sensors, allowing for gate opening with alerts displayed on the LCD and activated buzzer. Ultimately, the goal is to create a system that aids in flood prevention and assists people in managing river water effectively.

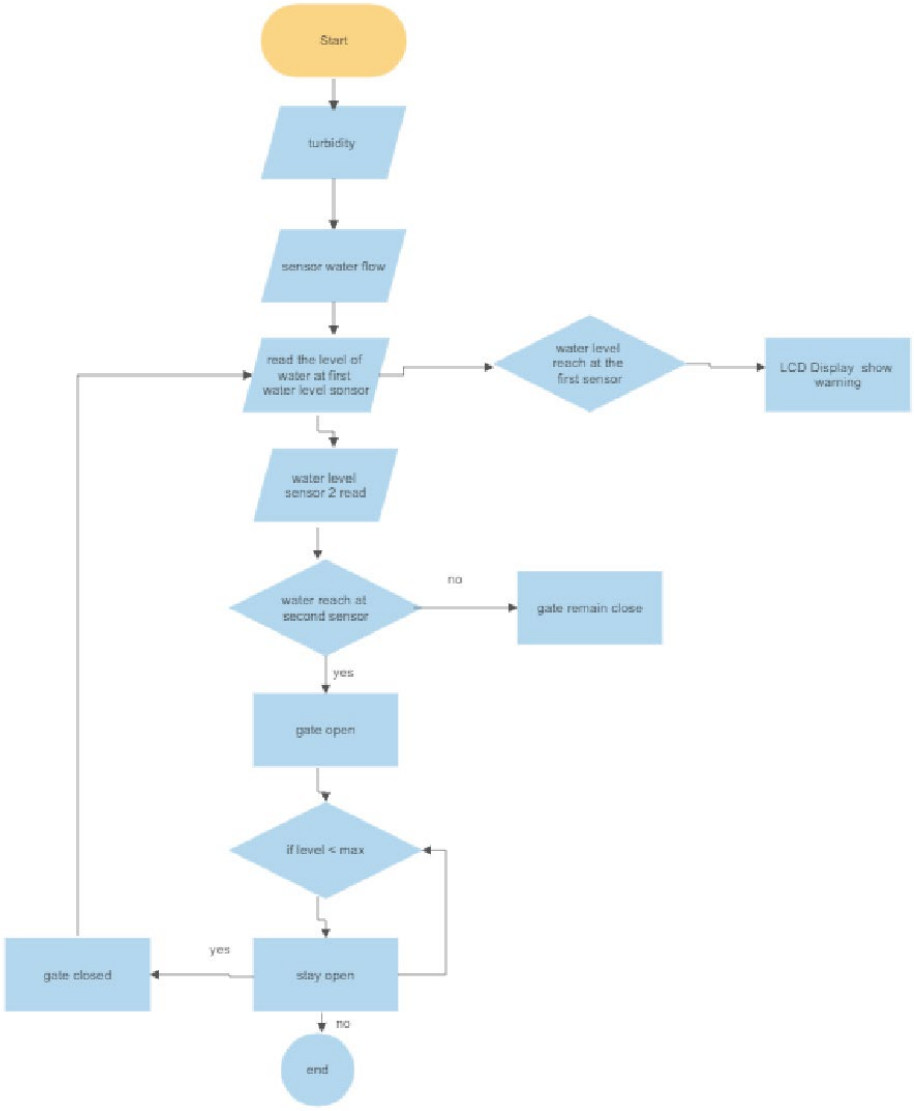
Keywords

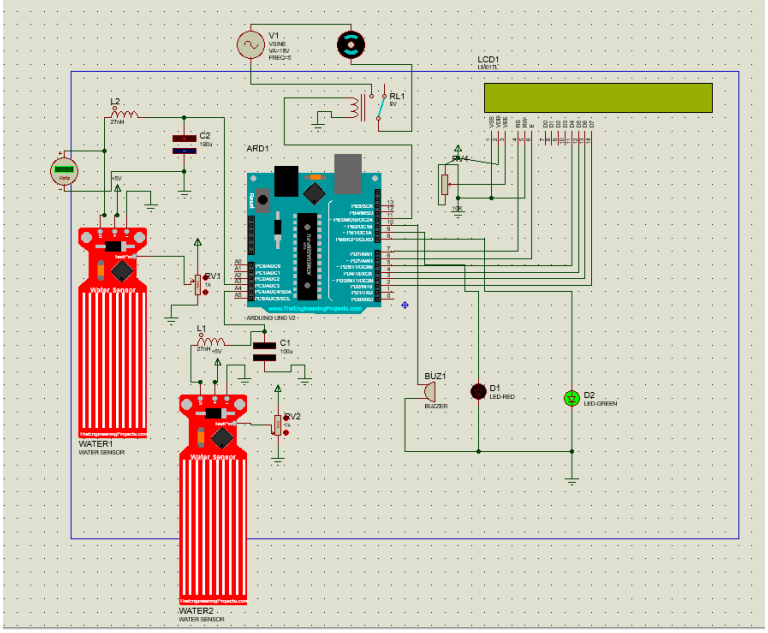
Dam, buzzer, water level sensor, lcd, buzzer, motor.

Product Description

A contemporary method for effectively managing river water supplies and averting catastrophic flooding is the smart water gate system. The goal of this project is to develop a smart system that monitors flow and water levels to prevent floods. The system's objectives are to evaluate gathered data, open the gate automatically to discharge extra water, and sound an alert if the water level approaches a dangerous level.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Muhammad Nor Faisal Bin Nor Sulaiman is currently in his final year as a student at the School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA (UiTM) Cawangan Johor, Kampus Pasir Gudang. He is pursuing a diploma in Electrical Engineering with a specialization in Power.

Zakariah Yusuf presently serves as a lecturer at the School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA (UiTM) Cawangan Johor, Kampus Pasir Gudang. He earned his Diploma, Degree, and Masters in Electrical Engineering from UiTM Shah Alam in 2004, 2008, and 2012, respectively. In 2018, he successfully completed his Ph.D. in Electrical Engineering with a focus on Control Systems at Universiti Teknologi Malaysia (UTM). With a decade of professional experience, he has gained expertise in diverse industries, including process control engineering, automotive, and power system project management.

68. AUTONOMOUS FLOOR CLEANER

Muhammad Saiful Irfan Bin Jumelan , Dr. Fatimah Khairiah Abd Hamid
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Abstract

Cleaning is an important and necessary task. The main goal of this project is to automate the task so that the person's effort is reduced. There are now floor cleaners that require humans to operate in order to clean. These floor cleaners are costly, and the typical individual cannot afford them. Thus, the goal of this project is to create a prototype of an autonomous floor cleaner that operates without human intervention at a low cost and to evaluate its performance in our environment. This project has already devised an efficient way for cleaning the complex area. The goal of this study is to create an autonomous floor cleaner utilizing an Arduino Mega as a microcontroller. This study's goal is separated into two parts. The first section is the input systems, which include four inputs: ultrasonic sensor, IR infrared sensor, LDR light sensor, and LIDAR. The second section contains the output systems, which include the Motor driver shield, DC motor, and CPU fan. The ultrasonic sensor, infrared sensor, and LIDAR as sensors for this prototype to measure distance and obstacle detection to easily reach the corners of the cleaning space in an effective manner, while the motor driver shield is to control the entire movement of the autonomous floor cleaner. Batteries power the prototype. The autonomous floor cleaner can be used to aid labor in floor cleaning tasks in homes, restaurants, and other locations.

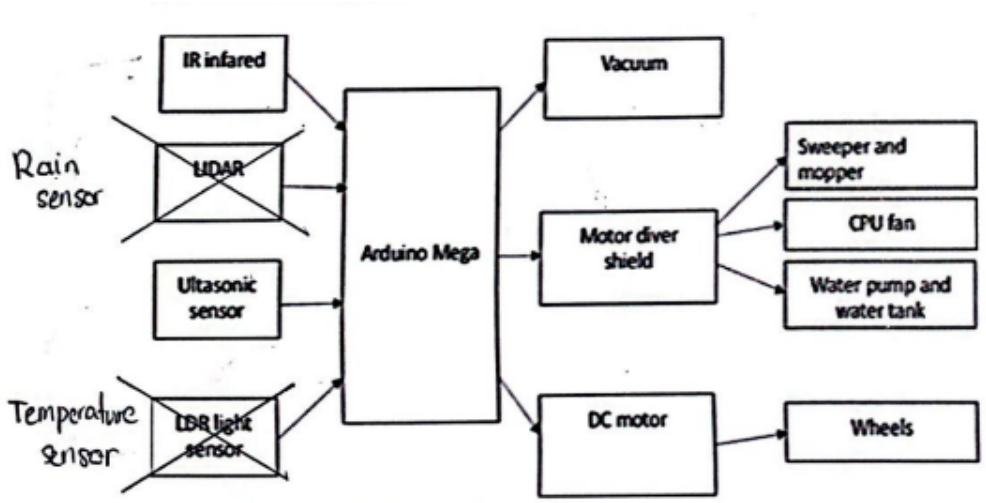
Keywords

Robotics, Sensors, Obstacle Avoidance, Cleaning Mechanisms ‘

Product Description

An innovative autonomous floor cleaner that combines cutting-edge robotics and Arduino-based intelligence to deliver exceptional cleaning performance for homes and commercial spaces. Designed to effortlessly navigate and clean various floor surfaces, this state-of-the-art device revolutionizes the way you maintain cleanliness in your environment.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Fatimah Khairiah Abd Hamid received the B.Eng. Degree in Electrical-Electronic from Universiti Teknologi Malaysia, in 2011. Meanwhile, she pursued her Master and PhD in Electrical Engineering in the same university in 2013 and 2016, respectively. She is currently a senior lecturer with the Faculty of Engineering, Universiti Teknologi Mara. Her research interests include modelling and simulation nanoscale transistor, radar and satellite system, sensor and IOT

69. IOT – BASED SMART MONITORING AND IRRIGATION SYSTEM

Muhammad Syakirul Irfan bin Mohd Sahiran, Dr Khairul Kamarudin bin Hasan

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Abstract

IoT-based smart irrigation systems is a project to monitor the weather condition and control irrigation automatically so that crop yields can be improved and reduce water usage due to the traditional irrigation systems. The project's goal is to improve irrigation efficiency, minimize water usage, and raise crop yields. Additionally, the project is anticipated to offer farmers insightful information about their crops by using IOT technology and a few sensors for real time monitoring system that will enable them to make wiser choices regarding the farm operation. This project can be divided into 2 parts. The first part is to assemble the sensor to make the project work which are soil moisture sensor, rain sensor, temperature and humidity sensor and wind speed sensor. The second part is to display the information gained from the sensor into the LCD display and using IOT application. This also can be used to generate alert warning to the user by using mobile interaction. This developed system has shown that automate irrigation system will help farmers to reduce overwater usage and monitoring system to be more efficient so that the farmer can make accurate solution for the crop fields depending on the surrounding.

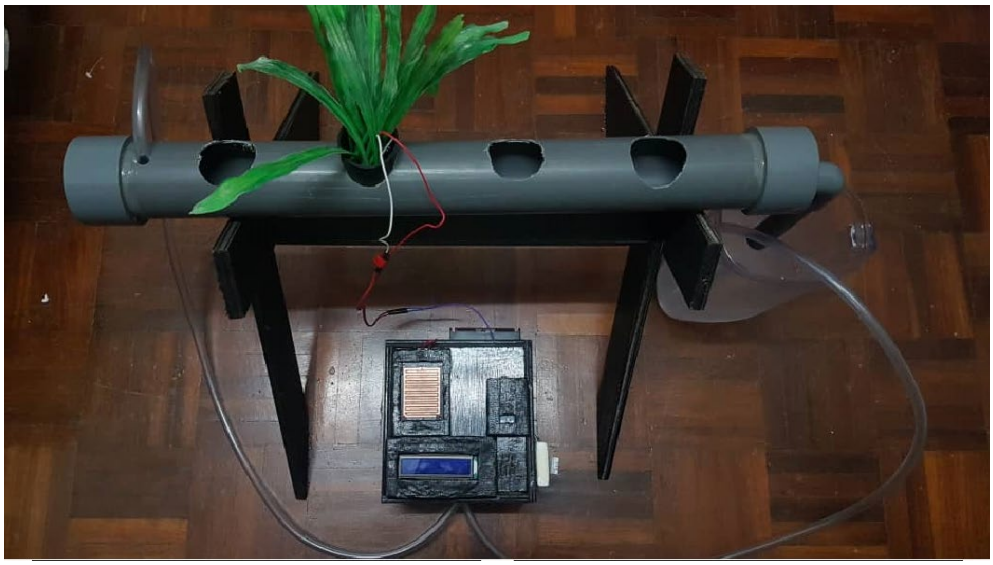
Keywords

IOT-based smart irrigation system, Soil Moisture sensor, Water usage reduction, Real-time monitoring system, LCD display

Product Description

The project intends to address two major agricultural problem statements. Firstly, the wasteful and unpredictable use of water in traditional irrigation techniques results in crop damage and increased expenditures for farmers. The goal is to create a smart system that uses weather reports, soil moisture monitoring, and predictive analytics to automatically change irrigation schedules using a soil moisture sensor as input and successfully conserve water. The system should have an easy-to-use interface and be simple to set up and maintain. Secondly, in smart agriculture, the lack of real-time monitoring systems negatively impacts crop health and growth tracking. A cheap and energy-efficient system will be built by integrating IoT sensors and Arduino microcontrollers to capture and analyze data on numerous environmental variables, providing farmers with accurate, real-time information for informed decisions on irrigation and more.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Muhammad Syakirul Irfan bin Mohd Sahiran, currently enrolled in a Diploma in Electrical Engineering (Power) program at Universiti Teknologi MARA (UITM). His academic pursuits at UITM reflect his passion for delving deep into electrical systems. This course equips him with both theoretical insights and hands-on skills in power engineering. He is committed to leveraging this education to make impactful contributions to the field in the future.

Khairul Kamarudin Hasan is currently working with School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA Cawangan Johor, Kampus Pasir Gudang, Malaysia. He received the B. Eng in Electronic Engineering (Electronic Industrial) in 2012, the Msc. Eng degree in Electronic Engineering (System), in 2014 and Ph. D degree in Electronic Engineering from Technical University Malaysia Malacca in 2021. His research interest Wireless Power Transfer, Power Electronic, Control system and Drive.

70. WIRELESS SMOKE DETECTOR USING ARDUINO

Muhammad Zahin Bin Dzamry, Dr Siti Aminah Binti Nordin

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Abstract

This project shows the development of a smoke alerting system. Many infrastructures or buildings have been lost because of the fire in the building. As a result, millions of losses have been reported caused by this phenomenon. In this globalization era, smoke detectors can be improved by using the Internet of Things (IoT) because the IoT is well-known in this era. The objectives of this project are to design a prototype of a wireless smoke detector using proteus design and to develop a smoke alarm system using IoT technology. This project aims to design a wireless smoke detector using IoT and Arduino Microcontroller. The block diagram for a wireless smoke detector shows a smoke sensor, an Arduino board, an LCD screen, a buzzer, an LED, and an IoT module. The data is processed by Arduino and displayed on the LCD after the gas sensor detects smoke. While the IoT module provides remote monitoring and control, the buzzer and LED inform the user. The simulation model has been constructed using Tinkercad software and where the coding was designed. May this project will be used widely among humans to avoid property damage, injuries, and human death and reduce losses.

Keywords

Smoke, Wi-Fi module, Arduino Uno, LCD

Product Description

The project's goal is to create a wireless smoke detector that employs IoT technologies to improve fire safety. It intends to create a prototype using components such as a gas sensor, an Arduino Uno, an LCD screen, and an IoT module. The device detects smoke early and sends out alerts via LEDs and a buzzer. IoT allows for remote monitoring and control. The simulation results show that the feature is effective, ensuring timely notification and preventing potential damage. The project adds to proactive fire protection and safety measures in buildings, highlighting the importance of harnessing sophisticated technologies for better results.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.

Member Biographical Data

Muhammad Zahin Bin Dzamry, born on December 26, 2003, is a dedicated and ambitious fifth-semester student at Universiti Teknologi MARA (UiTM) studying Electrical Engineering. His academic journey is a deliberate endeavour to equip himself with the knowledge and abilities required for a prosperous future as an engineer. His enthusiasm for electrical engineering is evident in his eager pursuit of understanding the discipline's sophisticated theory and practical applications. Driven by a desire for excellence, He hopes to use his educational experiences to make a significant contribution to the dynamic area of engineering. His stay at UiTM served as a basis for his ambitions, cultivating a thorough understanding of the fundamental principles underlying electrical engineering. As he progresses through his academic endeavours, He hopes to not only achieve personal growth but also to actively participate in the engineering sector's innovative and disruptive innovations. His journey exemplifies the perseverance and effort required to achieve in the ever-changing field of electrical engineering.

Siti Aminah Nordin is a distinguished senior lecturer currently affiliated with UiTM Pasir Gudang. She earned both her master's and Ph.D. degrees in Electrical Engineering from UiTM Shah Alam in 2014 and 2022, respectively, showcasing her commitment to academic excellence. With a specialized focus in the realm of Electrical Engineering, her research interests are notably centered around microwave filters, antennas, and electromagnetic wave area. Her academic journey and expertise reflect a deep dedication to advancing knowledge and contributing to the field, particularly in areas crucial to modern communication and technology. She can be contacted at email: sitia181@uitm.edu.my

71. BABYSAFE REMINDER: PREVENTING FORGOTTEN BABIES USING IOT

Naufal Ismat Bin Mohammad Hussin, Siti Musliha Ajmal Binti Mokhtar

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Abstract

To address the risks of Forgotten Baby Syndrome (FBS) in Malaysia, the 'BabySafe Reminder' utilizes IoT technology, incorporating components such as the DS18B20 temperature sensor, HX711 load cell, LEDs, buzzer, and GSM module. The system continuously monitors hot temperature in cars and child presence. Upon surpassing predefined thresholds, it activates visual and audible warnings, notifying caregivers both on-site and remotely. This initiative prioritizes child safety through increased awareness to parents and aims to reduce the unfortunate FBS cases nationwide.

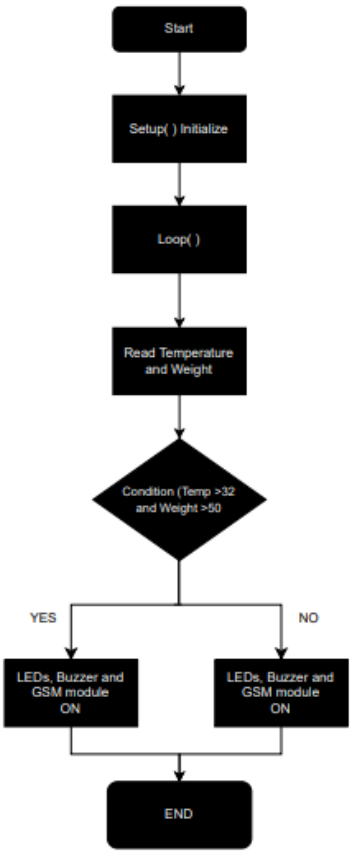
Keywords

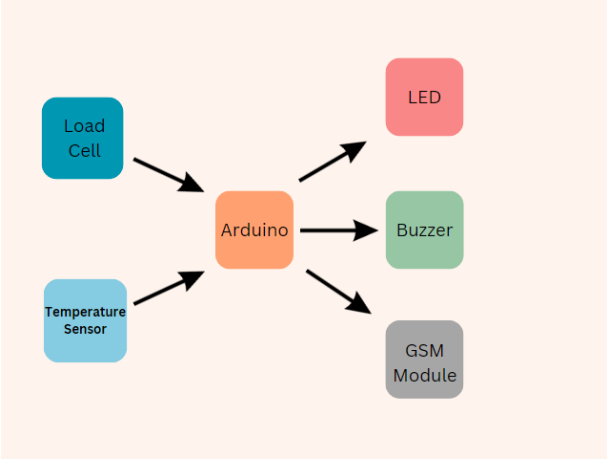
Forgotten Baby Syndrome (FBS), Child Safety, Malaysia, Internet of things (IOT), On-site and remote notifications

Product Description

The 'BabySafe Reminder' employs IoT technologies, including the DS18B20 temperature sensor and HX711 load cell, to monitor car temperature and child presence. Utilizing a GSM module, it triggers remote and on-site visual and audio alarms when a child is left in the car with high temperature inside the car (assuming the engine and air-conditioner is switched off). This innovative system prioritizes child safety, offering immediate alerts to caregivers and aiming to raise awareness to mitigate risks associated with Forgotten Baby Syndrome in Malaysia.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Naufal Ismat Bin Mohammad Hussin is currently pursuing his diploma in electrical engineering with a major in power at UiTM Pasir Gudang. He is interested in learning a lot more about electrical engineering.

Siti Musliha Ajmal Binti Mokhtar obtained her Diploma in Engineering (Electronics & Electrical) from Universiti Industri Selangor (UniSEL) Selangor and Bachelor of Electrical & Engineering (Hons) Engineering from Keio University, Japan. After working for a year as process engineer in Konica Minolta Glass Tech (M) Snd. Bhd, she continued to complete her master degree in Electronic Engineering from UiTM Shah Alam. She worked for a while as system solution engineer at Panasonic System Network (M) Snd Bhd before switching to academia as a lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. She completed her PhD in Advanced Energy and Manufacturing from University of South Australia (UniSA), Australia. Her main research interests are analog & digital circuit design, thin film coating, electrochemistry and microneedle for on-skin application.

72. EARTHQUAKE ALARM DETECTOR USING BLYNK IOT

Nik Aqil Farihin bin Nik Mohd Azizee, *Zahari bin Abu Bakar

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Abstract

An earthquake is an uncontrollable, naturally transpiring phenomenon that transpires without warning. The ADXL335 accelerometer sensor detects vibrations preceding an earthquake. When vibrations occur, the accelerometer detects and converts them to equivalent ADC values. These digital values are subsequently retrieved by the Arduino microcontroller. Arduino subsequently compared each of these value to a predetermined threshold. Arduino illuminates an LED and triggers an alarm and message indicating the status of the alert on the 16x2 LCD if it determines that the sample value exceeds the threshold value. Through the GSM module, the SMS alert message is transmitted to the registered mobile number. A notification is transmitted via SMS to the designated registered mobile numbers in the event that a violation is detected.

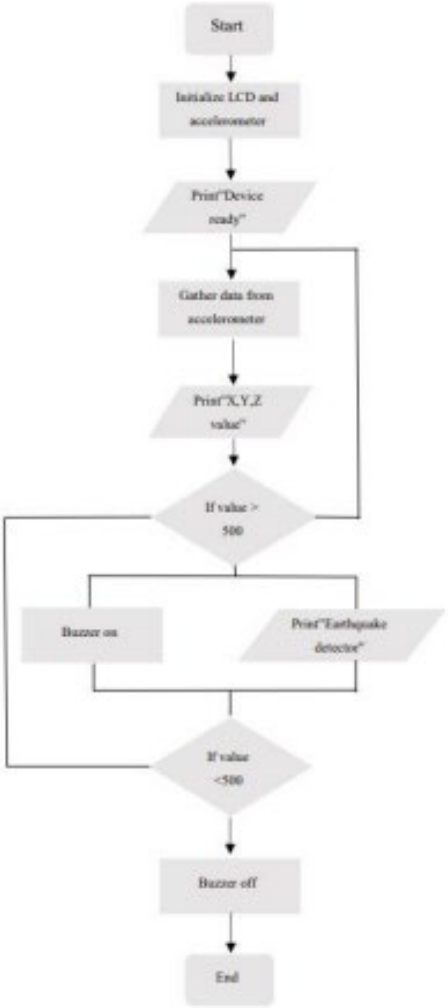
Keywords

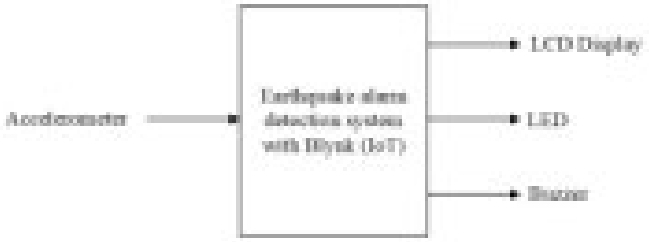
earthquake, accelerometer, Arduino, SMS Alerts, sustainable power supply.

Product Description

Earthquakes are an uncontrollable natural event caused by the movement of the Earth's tectonic plates caused by heat from the planet's core. The resulting loss of human lives and property needs novel approaches to early detection and alert systems. The highly sensitive accelerometer ADXL335, combined with Arduino technology, provides a viable option for detecting tremors before an earthquake. at the calibration process, environmental vibrations are recorded at Arduino startup, allowing the system to distinguish between natural and seismic vibrations. The Arduino generates alerts by comparing real-time accelerometer measurements to specified maximum and minimum values via a buzzer, an LED, and a 16x2 LCD. The ability to vary sensitivity levels by modifying specified values improves the earthquake detection system's versatility. Furthermore, the GSM module connection allows the system to send SMS alerts to registered mobile numbers, delivering timely notifications even when people are not in close vicinity to the monitoring equipment. Wi-Fi technology improves system accessibility, security, and coverage by allowing users to operate and monitor the device from anywhere in the world. Furthermore, the use of solar panels offers a continuous and sustainable power source, reducing the environmental effect of the system. This novel combination of technology not only solves the issues posed by earthquakes, but also responds to a broader commitment to environmentally friendly and resilient catastrophe preparedness and monitoring solutions.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Nik Aqil Farihin Bin Nik Mohd Azizee, hailing from Kota Bharu, Kelantan, embarked on an academic journey that began at Sekolah Menengah Sains Tengku Abdullah, where he successfully obtained his SPM qualification. Demonstrating a commitment to furthering his education, Nik Aqil Farihin continued his studies by pursuing a diploma at Universiti Teknologi MARA (UiTM). His dedication to academic pursuits reflects not only a personal commitment to learning but also an aspiration for growth and knowledge. The journey from Kota Bharu to UiTM signifies a significant chapter in his educational and personal development.

Zahari Abu Bakar obtained his Diploma in Electrical Engineering (Electronics) from UiTM Pulau Pinang, Bachelor of Electrical (Hons) Engineering and MSc. in Telecommunication and Information Engineering from UiTM Shah Alam. Currently, he serves as a senior lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Electronics Department. His main research interests are e-learning and Machine Learning.

73. FORWARD COLLISION WARNING AND NOTIFICATION SYSTEM

Nur Azizi Bin Nor Azmi, Dr. Nur Amalina Binti Muhamad

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Abstract

To aim to build a prototype of Forward Collision Warning and Notification system using Arduino Microcontroller, create an IoT-based notification if impact happens and to analyze the effectiveness of Forward Collision Warning and Notification in different distance and stage. The system functioning by the ultrasonic sensor measured the distance an object at some fixed range and the LED will light up with different colour at different distance. The second sensor was knock impact sensor function as sense impact and will notify the user telephone or other member with the access to be notified.

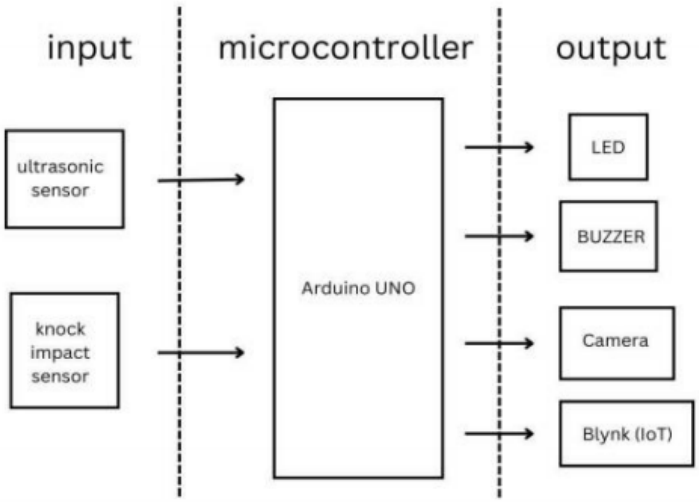
Keywords

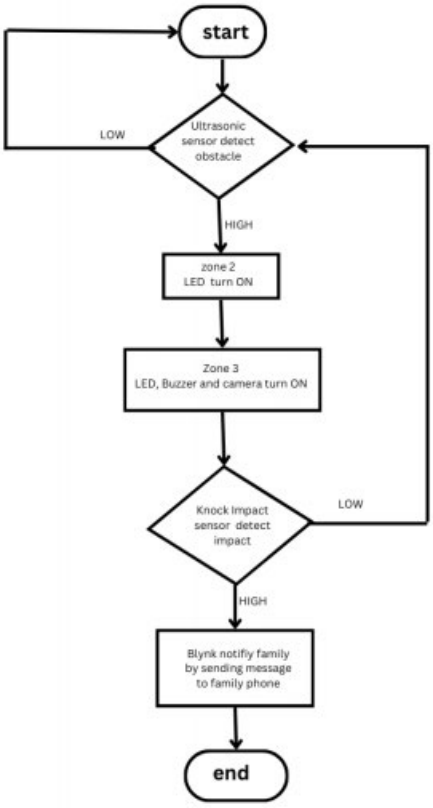
Forward Collision Warning, Arduino Microcontroller, Ultrasonic Sensor, Impact Sensor for Notification, IoT-based Notification System

Product Description

The Forward Collision Warning System And Notification System employ IoT-based technologies, including the impact sensor and ultrasonic sensor to sense impact happen and calculate the distance between the car and object in front of it. The LED and buzzer will be the warning sign for the car while notification will be send to telegram if the car hit something.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc





Member Biographical Data

Nur Azizi Bin Nor Azmi is currently pursuing his diploma in electrical engineering with a major in power at UiTM Pasir Gudang. He is interest in learning a lot more about electrical engineering.

Dr. Nur Amalina Binti Muhamad is currently the Head of Electrical Engineering Studies at Universiti Teknologi MARA (UiTM), Johor branch, Pasir Gudang campus. She graduated Bachelor's and PhD in Electrical Engineering from UiTM. Her expertise is on the fabrication of nanoelectronic devices, semiconductors and advanced materials

74. ANTI-THEFT BICYCLE LOCK SYSTEM

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Abstract

This project introduces an Arduino-based anti-theft bicycle lock system, utilizing an Arduino Uno microcontroller in conjunction with a keypad, LED indicators, a buzzer, and an LCD display. The system enhances bicycle security by requiring user authentication through a keypad, with the LCD display providing real-time feedback on system status. To deter theft, the system features a bright LED indicator and a loud buzzer, serving as visual and audible deterrents. The Arduino Uno controls the locking mechanism, engaging a physical lock only upon successful authentication. Anti-tamper features trigger the alarm and notify the owner in case of unauthorized manipulation. The user-friendly design, combining visual and audible deterrents, offers an effective and customizable solution to enhance bicycle security, while the Arduino platform allows for scalability and future enhancements.

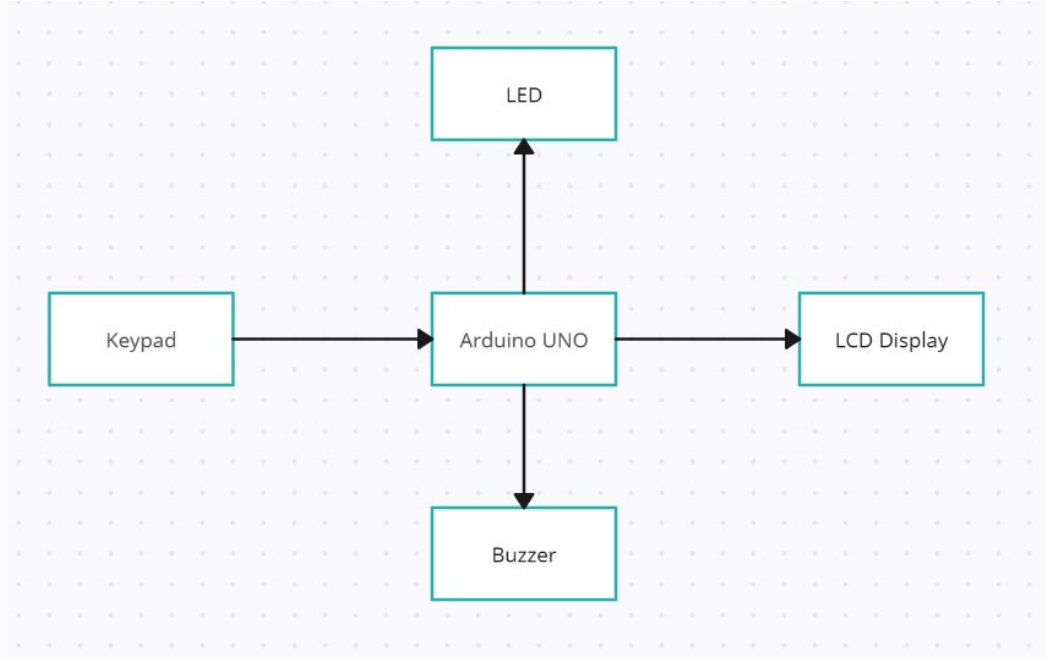
Keywords

Locking mechanism, bicycle security, user authentification, cost-effective, customizable solution, anti-tamper features**.**

Product Description

The anti-theft bicycle lock system is a high-tech solution to keep your bike safe. It uses a keypad where you can enter a secret code to unlock your bike. A display shows you what's happening, and if someone tries to steal your bike, a bright light and loud sound scare them away. The system is controlled by a small computer called Arduino Uno, making sure your bike stays locked until you enter the right code. It even has a feature to alert you if someone tries to mess with it. Easy to use, affordable, and adaptable to different needs, this system makes sure your bike is always secure.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Nur Fitri Arif Bin Nur Faridh is currently a final year student pursuing his diploma in Electrical Engineering at Universiti Teknologi MARA (Uitm) Pasir Gudang Kampus Cawangan Johor. He actively plays basketball for UiTM Johor. Upon completing his diploma, he planned to work first to get experience from some company then continue his study in degree in engineering field.

75. IOT-BASED TEMPERATURE AND HUMIDITY MONITORING OVER DATA LOGGER THINGSPEAK

Nur Hafieez Bin Nasri,Dr Atiqah Hamizah Binti Mohd Nordin

Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus

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Abstract

Temperature and humidity are useful variables and often measured for various applications in a variety of locations, including football field, farms, greenhouses, hospitals, industrial buildings, homes, and workplaces for monitoring purpose as for well-being as well as safety precautions. For instance, excessive temperature and humidity could influence our thermal comfort, and cause impact on human health. With this motivation, a data logger for monitoring temperature and humidity is developed in this study using Arduino UNO which offer remote access and control through IoT. In addition, ThingSpeak platform is utilized for visualization of the measured data while the controlling is done by the Blynk module. The project involves both simulation and hardware prototype development. The results showed that the simulation model of the data logger is successfully developed and outputs the expected outcomes. On the other hand, the data logger model operates successfully and is capable of logging temperature and humidity data over time

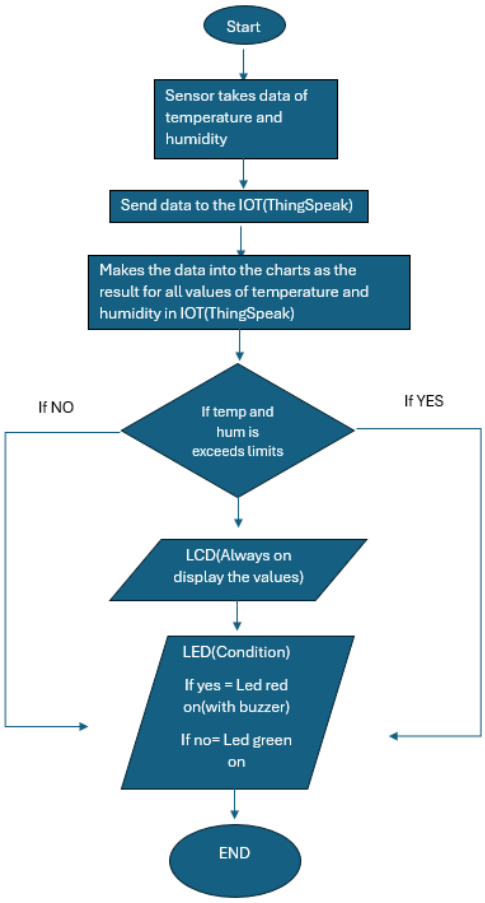
Keywords

Arduino Uno, DHT11 sensor, LCD Display, ESP8266, IoT (ThingSpeak)

Product Description

The project's goal is to use the Arduino Uno and ESP8266 to create an IoT-based temperature and humidity control system. A temperature and humidity sensor is used by the system to gather data, which is then logged to the cloud-based platform ThingSpeak. Users can use a web interface or mobile application to remotely monitor the environment. The ESP8266 provides Wi-Fi connectivity, and the Arduino Uno serves as the main controller. Benefits of the system include the capability of remote monitoring, real-time data visualisation, and connected device control based on gathered data. Then, using Arduino Uno and ESP8266, an IoT-based temperature and humidity management system provides a solution for tracking and managing environmental conditions. The main controller, the Arduino Uno, is in charge of communicating with the ESP8266 module, controlling the actuator, and collecting data from the temperature and humidity sensor. The system can connect to the internet and communicate with the cloud-based platform ThingSpeak thanks to the ESP8266 module's Wi-Fi connectivity.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Nur Hafieez Bin Nasri, a prospective student at Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus, was born on February 18, 2003. He has a strong interest in mathematics and is committed to perfecting the skills required for an engineering profession. He has completed calculus 1 and 2. He will be completing an extensive programme covering a wide range of electrical systems topics. He regularly looks for chances to gain practical experience outside of the classroom through internships and real-world projects. He has a distinct idea of how he wants to contribute to the subject and plans to use his skills to develop creative solutions. His passion for mathematics and his tenacity drive him to succeed as an engineer at the nexus of theory and real-world application.

Atiqah received her Ph.D in electrical engineering on life cycle assessment of photovoltaic system from UiTM Shah Alam. Her research interest is towards sustainable and responsible transition to cleaner energy system. She currently serves as a senior lecturer at Electrical Engineering Studies UiTM Johor Pasir Gudang Campus.

76. AUTOMATED CLOTHESLINE FOR HOME APPLICATION

Nur Hasmidah Hassim, Dr Fatimah Khairiah Abd Hamid

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Abstract

A smart automated clothesline allows for the retrieval and removal of individual clotheslines in response to real-time weather changes. This innovation aims to provide a solution for individuals who are managing busy daily routines. With this system, the user can stay organized with daily routine especially related to washing clothes. The objectives of this project are to provide a smart rain clothes hanger system that responsive to its surrounding weather include rainfall, cloudy and sunny day. The systems are equipped with several sensor to monitor its surrounding weather includes light dependent sensor, ultrasonic sensor, rain sensor, and motor to move the wet or dry clothes. Besides, the system equipped with automated retrieval and removal of the clothes. The automated system saves users time and effort that would otherwise be spent manually adjusting or retrieving clotheslines based on weather conditions. The system is designed to be user-friendly, requiring minimal manual intervention. Users can rely on this smart rain clothes hanger to adapt to changing weather conditions seamlessly. This innovative concept will help individuals feel less stressed and burdened about taking care of their clothes when they are away from home, which will ultimately free them up to concentrate on other everyday duties. This research project provided a good start for this household appliance with an innovative automatic system.

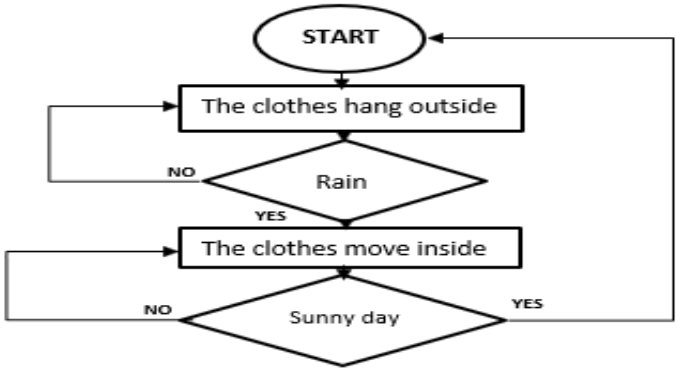
Keywords

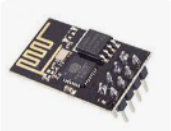
Clothesline System, Automated Clothesline, Automatic Clothes Retriever

Product Description

The automated clothesline system can pull the laundry line or clothesline without the need for human intervention. It can also sense when it is raining and move the clothing to a protected area. In this project, a motor, microcontroller, and sensors were used. In order to implement the motor control system, every circuit was built, tested, and the microcontroller was programmed. The circuits were integrated and tested in a miniature model that represented the whole system. It was determined that this idea is feasible since it can recognize sunlight and rain and move the clothes to the protected area.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



INPUT		OUTPUT
 Rain Sensor	 Arduino Uno	 LED
 Light Dependent Resistor (LDR) Sensor	 Power Bank	 Stepper Motor
	 ESP01	 ULN2003
		 Buzzer

Member Biographical Data

Nur Hasmidah Hassim Electrical Engineering Studies, College of Engineering, Universiti Teknologi Mara Johor Branch. She is currently a student with the Faculty of Engineering, Universiti Teknologi Mara. Her research interests include Microcontrollers and Embedded Systems.

Fatimah Khairiah Abd Hamid received the B.Eng. Degree in Electrical-Electronic from Universiti Teknologi Malaysia, in 2011. Meanwhile, she pursued her Master and PhD in Electrical Engineering in the same university in 2013 and 2016, respectively. She is currently a senior lecturer with the Faculty of Engineering, Universiti Teknologi Mara. Her research interests include modelling and simulation nanoscale transistor, radar and satellite system, sensor and IOT application.

77. IOT-BASED LASER CONTROL SYSTEM FOR CATS

Nur Sabrina Binti Md Jasni, Siti Nur Hazurah Binti Indera Putera

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Abstract

This project proposes a wireless laser cat toy that pairs a laser pointer and servo motors. It hs two modes, manual mode or automatic mode. An IoT- based laser movement system may provide cats with a new level of interaction and enjoyment considering standard pointer laser toys are ineffective and demand constant observation. This project also aims to create an Arduino-based laser movement system as well as wireless control system ultilising an IoT and a smartphone. The system consists of a laser module, ultrasonic sensor, and an IoT linked to the Bluetooth. In order to have exact control over the laser's direction, it is attached to servo motors. The laser will generate a powerful yet safe beam to attract the cat. The owner of the cat may therefore remotely activate the laser and the servo's movements without being present thanks to the IoT Bluetooth module. In this case, the system will assist in motivating the cat to exercise, which could improve the cat's general health and well-being as well as the owner of the cat.

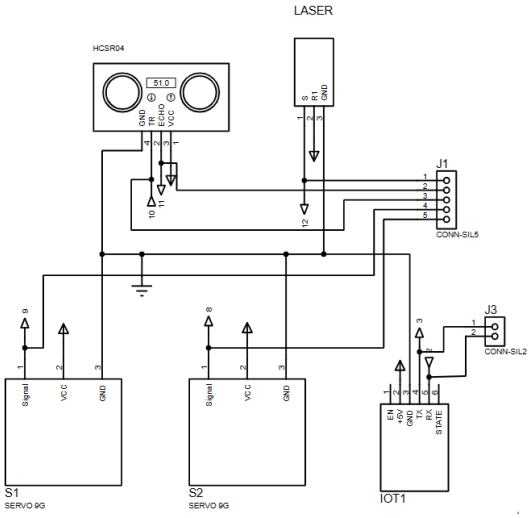
Keywords

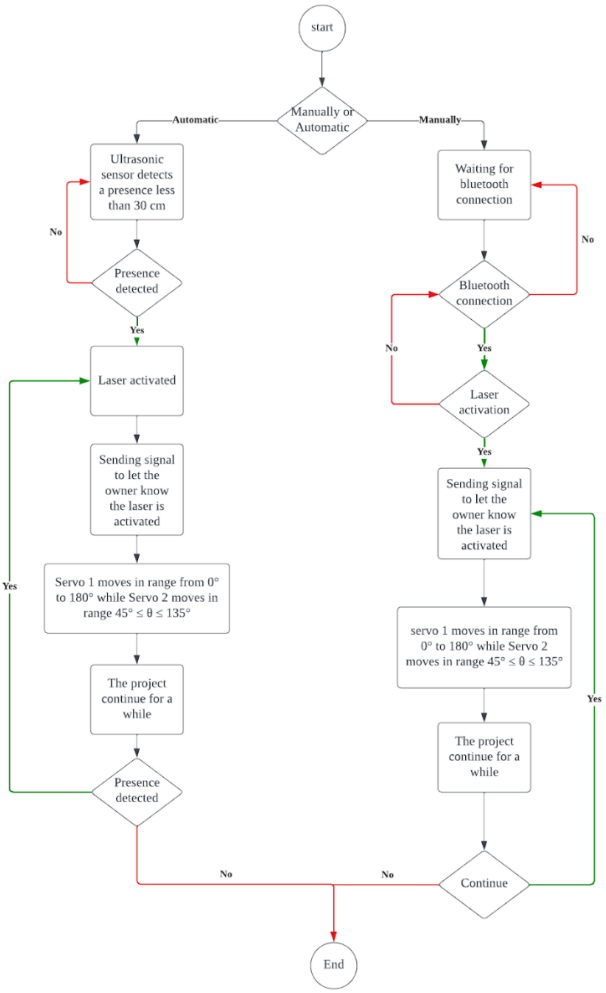
Cats, Toys, Laser, wireless Activation, Cat entertainment, Pet toy

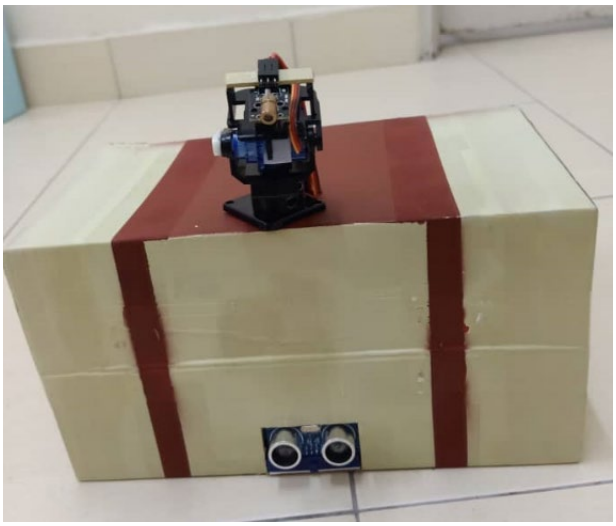
Product Description

This project presents a wireless laser cat toy that combines a laser pointer and servo motors which offers both manual and automatic modes. Unlike traditional laser toys, this system uses IoT technology for enhanced interaction, allowing cat owners to remotely activate the laser and notified of the project's activeness through the smartphone. The setup includes an Arduino-based laser movement system, ultrasonic sensors, and Bluetooth-connected IoT. Precise laser control is achieved with servo motors, providing a safe yet enticing play experience for the cat. This innovation aims to encourage feline exercise and improve overall health, offering a convenient way for owners to engage with their pets, even from a distance.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.







Member Biographical Data

Nur Sabrina is a dedicated and ambitious student currently pursuing Diploma in Electrical Engineering (POWER) major at University Teknologi of MARA. Born on 7th January in Wilayah Persekutuan Kuala Lumpur, She exhibit a passion for Power Electronics with an expected graduation year of 2024. Maintaining a commendable GPA, Sabrina is enthusiastically involved in a diverse range of extracurricular pursuits, notably as an active member of Estech's club. This dynamic club plays a pivotal role in overseeing and organizing various activities for the Electrical Engineering major, showcasing Sabrina's commitment to both academic excellence and the vibrant campus community. Beyond the classroom, Sabrina enjoys reading and listening to music, showcasing a well-rounded personality. With a vision for the future that includes Engineer and completion of Degree, Sabrina is poised to make significant contributions in her chosen field.

Dr Siti Hazurah received her Bachelor of Engineering in Electrical (Electronics) Engineering from Universiti Teknologi Malaysia (UTM) in 2003, followed by her Masters of Engineering in Mechatronic and Automatic Control also from UTM in 2008. She then obtained her PhD in Automatic Control and Systems Engineering from The University of Sheffield, United Kingdom in 2019. She has 20 years of experience in the engineering field both as an engineer and as an academician. She is currently serving as a Senior Lecturer at the College of Engineering, Universiti Teknologi MARA (UiTM), Pasir Gudang campus.

78. IOT-BASED ALARM CLOCK WITH ANXIETY CHECKING SYSTEM

Nur Syaheeda Binti Shahrullyza, Sir Ezril Hisham Bin Mat Saat

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Abstract

The growing number of anxiety disorder has driven the development of novel approaches that minimize the effect they have on the everyday lives of individuals like an IOT-based alarm clock with anxiety checking system as insufficient sleep is known to have sweeping negative implications for overall health, including mental health. The smart alarm clock utilizes innovative features, such as humidity and temperature sensors, to keep track of one's complete and personalized sleeping atmosphere by determining the humidity and coolness of the room to the ideal level. By incorporating a heartbeat sensor, a device is able to identify and analyze their heartbeat pace linked with anxiety whenever a user feels unsettled and anxious to fall asleep, allowing the individual to understand their anxiety triggers and take appropriate measures to overcome them. LEDs are used as an indicator whether an individual's anxiety level are in high range or not. When heartbeat sensor detect heartbeat to anxiety-level heartbeat, calming color from RGB light will light up to ease user's anxiety. Other than that, buzzer is used to sound the alarm to help individual to wake up on time. On the simulation, the findings include display of time, date, temperature and humidity on LCD display with two LEDs in red and blue as indicators for the range of heartbeats pace by the pulse sensor, where red indicates high and blue is safe. In hope of this project to contribute to the society for good, the device can wake one's up on time so they can manage their time better as well as to check their anxiety level whenever user is unable to sleep and help to ease their anxiety by producing calming colors.

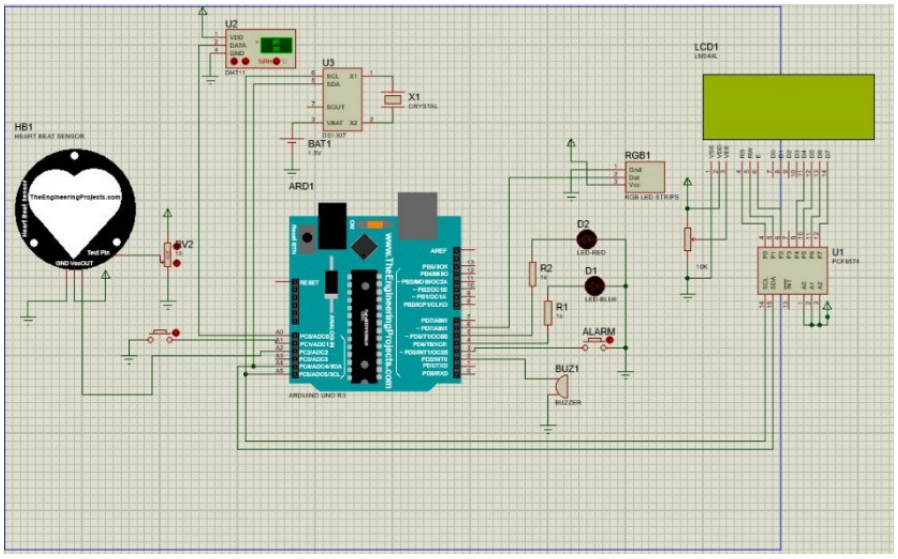
Keywords

Anxiety, Alarm, Arduino Uno, LED, heartbeat sensor.

Product Description

Users may set the alarm using the Blynk app, which features an easy to use interface. The LCD displays the current time, date, temperature and and humidity in real time. User start the anxiety checking process by engaging a pushbutton. The heartbeat sensor then determines the level of anxiety, which is shown on the LCD and indicated by the LED lights. When anxiety is detected, the RGB light produces relaxing color to assist relieve stress. When the alarm goes off, users may use the pushbuttons to switch it off or snooze it. Holding the pushbutton for more than 5 seconds disables the alarm, while less than 5 seconds results in a 5-minute snooze.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Nur Syaheeda Binti Shahrullyza was born on October 1st, 2003 in Bintulu, Sarawak. Syaheeda is an ambitious and committed student who has been praised for her dedication to academic achievement and extracurricular activities. She currently pursuing a Diploma in Electrical Engineering Power at UITM Pasir Gudang and has a keen interest in Electrical Machines and Power Systems. She has been on the Dean List for three semesters in past years, which shows her determination to academic performance.

Ezril Hisham Mat Saat earned his Bachelor of Engineering with Honors in electrical engineering from the University Teknologi Malaysia and completed his Master of Science in electrical engineering at Universiti Putra Malaysia. He presently holds the position of a senior lecturer in the Electrical Engineering Department at Universiti Teknologi MARA, Cawangan Johor Kampus Pasir Gudang. His primary research focus lies in the fields of Computer Engineering, Robotics, Embedded System, and the Internet of Things (IoT).

79. EVOLVED TRADITIONAL PIGGY BANK: A HARDWARE ENHANCED APPROACH TO SAVINGS

Olivia Unca Anak Lian, Zatul Iffah Abd Latiff

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Abstract

Nowadays, instead of implying the habits of saving money, children tend to just depend on their parents or guardian whenever they are in need of using money. Besides, most of them may think that a simple coin box is boring and does not have a great safety feature which leads the children to have no interest in developing the habits of saving money since everyone could access the coin box. Therefore, an Evolved Traditional Piggy Bank project was proposed to create a smart coin box which integrated with the IoT Technology and engaged with the biometric sensor as the safety feature in order to help the parents to increase their children's interest in saving money. This project also offers an innovative way for the parents to track their children's saving activities by monitoring from their mobile phones as this project engaged with the mobile apps to track and monitor every saving made by the children. In this project, both software and hardware were used to develop the Evolved Traditional Piggy Bank model. For the software, this project integrates with IoT itself by using mobile applications from smartphone called Blynk for the parents to monitor their children's saving activities. As for the hardware, this project uses fingerprint sensor to detect the fingerprint and open the coin box but on the other hand, the parents also could open the coin box using the Blynk apps. Other than that, an ultrasonic sensor was also used to determine the level of the coin box whether it still has the space for the coin to be inserted or not. The gauge features in the Blynk apps would show the distance of coin from the ultrasonic sensor and parents could monitor it through their mobile phones. The main component for this project is the coin acceptor, it is used to detect the coin value and for this project, this Evolved Traditional Piggy Bank would automatically total up the money inside the coin box after a coin was inserted. The total coin would be displayed on both LCD of the coin box and also could be monitored on the Blynk apps. Therefore, parents could easily develop saving habits among their children.

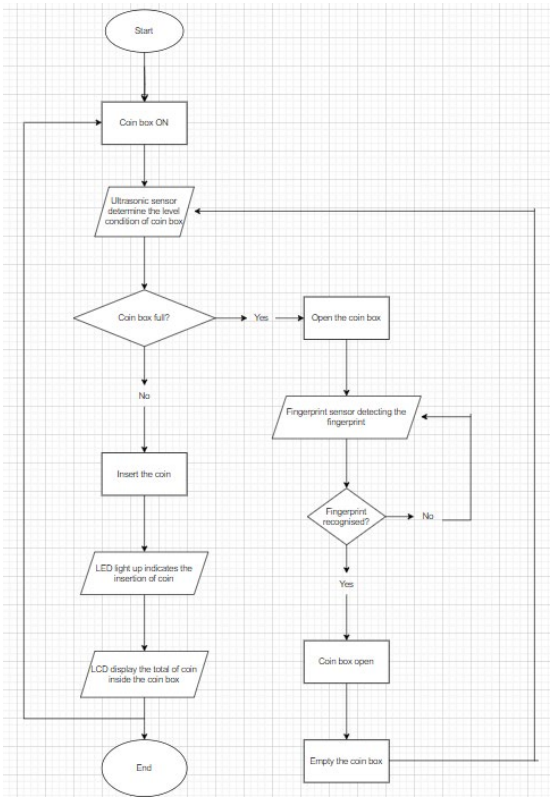
Keywords

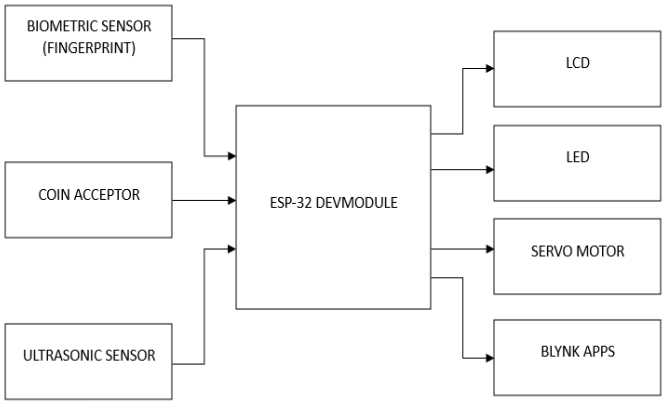
IoT technology, Evolved Traditional Piggy Bank, Coin Box, Mobile Phone, Mobile Apps, Fingerprint Safety features.

Product Description

This project entitled Evolved Traditional Piggy Bank: A Hardware Enhanced Approach to Savings consists of three inputs and four outputs with the ESP32 Dev Module as the microprocessor. The project combines the coin insertion process, coin box level detection and fingerprint recognition to be able to access the coin box. Once a coin was inserted through the coin acceptor of this project, the LCD would display the total coin inside the coin box and also display on the Blynk app as a monitoring device.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Olivia Unca Anak Lian is currently pursuing her diploma at Universiti Teknologi MARA(UiTM), Johor branch, Pasir Gudang campus as a student of Diploma in Electrical Engineering (Power). She graduated from high school in 2021 and is currently on Semester 5 of diploma, working on a Final Year Project.

Zatul Iffah Abd Latiff is a senior lecturer at Faculty of Electrical Engineering, Universiti Teknologi MARA, Malaysia. She received her Bachelor of Engineering Degree in Electrical Engineering from Korea University, South Korea in 2010 and her Master of Science in Telecommunication and Information Engineering from Universiti Teknologi MARA (UiTM), Malaysia in 2013. She is currently pursuing her study for Ph.D. in Space and Earth Electromagnetism in UiTM Shah Alam. She is one of the co-researcher of MAGDAS (Magnetic Data Acquisition System) network who is responsible for monitoring and maintaining one of the MAGDAS observatories located in Johor, Malaysia. Her research interests include geomagnetically induced currents (GICs) activity in the equatorial and low latitude region, space weather activity, ionospheric currents, Earth's electromagnetism and application of ground magnetic and satellite data.

80. IOT FITNESS JACKET: ENHANCING HEALTH MONITORING USING ARDUINO

Puteri Nur Athirah Binti Mohd Hizal, Norhalida Binti Othman

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Abstract

This abstract describes an innovative application of IoT technology in the construction of a Fitness Jacket coupled with Arduino, with the goal of improving health monitoring and performance during physical activities. Many people struggle to manage their health performance while exercise, which can lead to their exercising while unwell or over-exerting oneself. This requirement is met by incorporating IoT technology into a fitness jacket, which provides a wearable solution that combines various sensors and wireless connection.

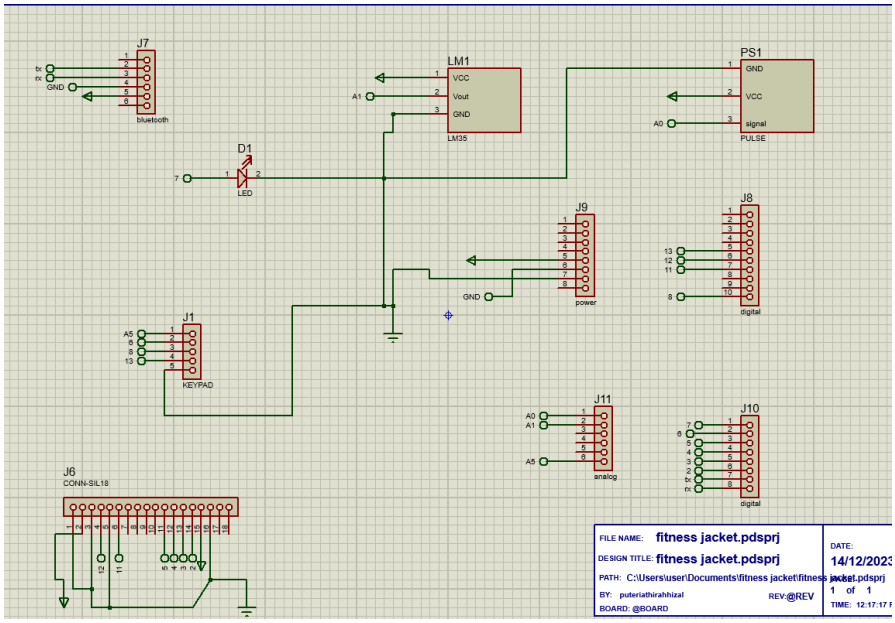
Keywords

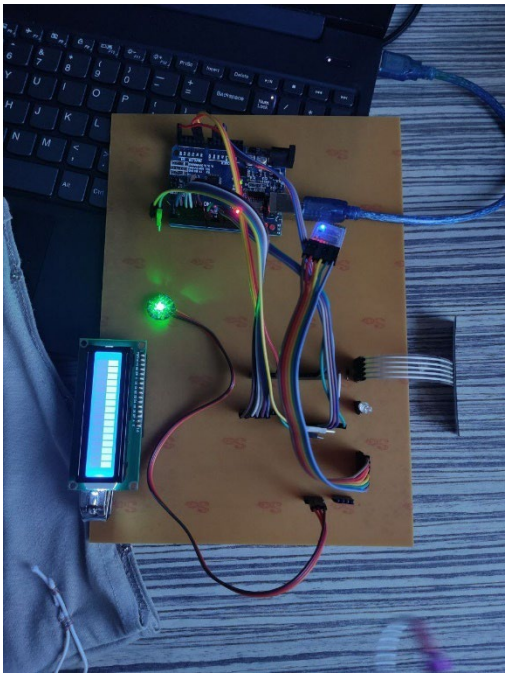
IoT, Fitness Jacket, Arduino, health monitoring, IoT applications.

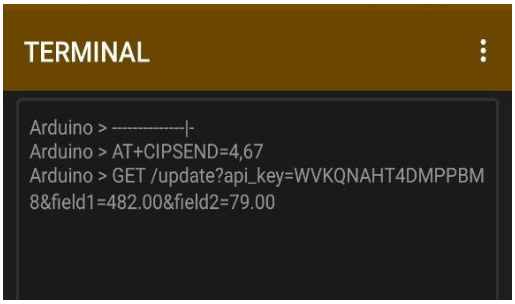
Product Description

This smart jacket, equipped with various sensors including automatic temperature and heart rate detection, ensures users can track their well-being in real-time. The Arduino platform allows seamless embedding of sensors like heart rate monitors and LM35 temperature modules directly into the fabric. With wireless connectivity through a Bluetooth module, the processed health data is easily accessible via a web server

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.







Member Biographical Data

Puteri Nur Athirah binti Mohd Hizal, born on August 19, 2003, in Kajang, Selangor, is a driven and aspiring young individual with a focus on electrical engineering. Currently pursuing a diploma in Electrical Engineering (Power), she has displayed a keen interest in the field from an early age. Puteri is dedicated to expanding her knowledge and skills in power systems, electrical design, and related technologies.

Norhalida binti Othman who is currently a senior lecturer in Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus. She is holding a Master of Engineering in Electrical Power from Universiti Teknologi Malaysia.

81. DRUNK PREVENTATION SYSTEM WITH IGNITION LOCK AND IOT

Sarah Binti Shipun Anuar, Nurul Nadia Binti Muhammad

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Abstract

This project is developed to offer a workable and efficient method to stop drunk driving, a drunk driving prevention system with an ignition lock and IoT can assist solve this problem. To ensure that only sober people may operate the automobile, the system requires drivers to pass a breathalyzer test before starting the vehicle. This project consists of MQ-03, LCD, LED, Buzzer, Arduino and IoT which linked to Blynk. This project uses sensor MQ-03 as the input which is used to sense the BAC in user breath. The output of this project is LCD which to display the BAC of the alcohol, LED will light on when the alcohol level is high or low, buzzer is to alert the user when the alcohol level is high, telegram will send message to user or user's friend or family's phone to alert them about user level alcohol.

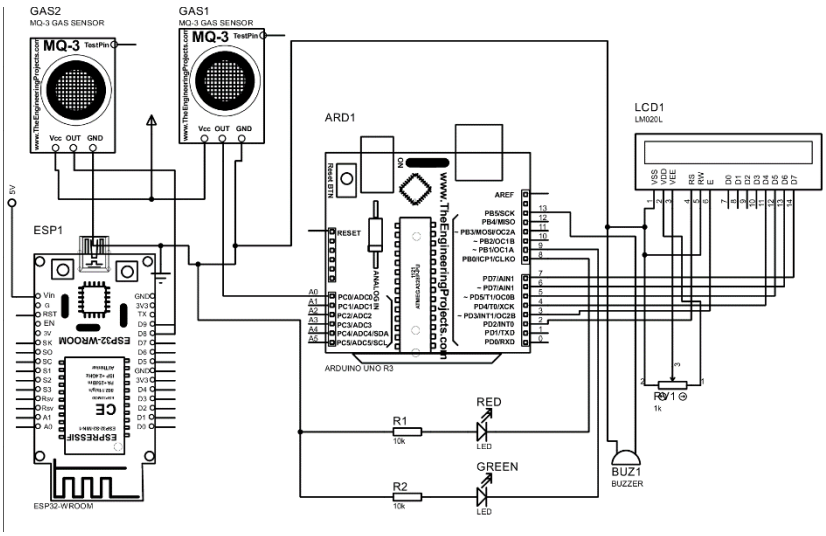
Keywords

Alcohol, Drunk Prevention, Arduino, Esp32, Telegram

Product Description

This project is designed to detect user Blood Alcohol Content (BAC) to prevent user to drive. This project not only shows the value of BAC, but this project also interfaces with Telegram which is used to send message to user's friend or family which help to alert and help user. This project also uses IoT medium which is Blynk it can detect user alcohol value and collect data of how frequent user soberness.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

Sarah is a student currently attending Universiti Teknologi MARA (UiTM) Kampus Pasir Gudang pursuing a Diploma in Electrical Engineering (Power). Born on 17th September in Port Dickson, Negeri Sembilan currently lives in Batu Pahat, Johor. She is expected to graduate in the year 2024. She is dedicated in academic and curriculum because she loves to explore and gain new experience and knowledge. Beyond the classroom, Sarah enjoys listening to music and outside activity such as basketball and hiking which help her to have a balanced life. Her goals are to become qualified engineer where she can apply her knowledge which can help and give benefit to the society.

Nurul Nadia Binti Mohammad joined Universiti Teknologi MARA (UiTM) in January of 2020 as a senior lecturer at the Electrical Engineering Studies, College of Engineering. She obtained her Bachelor's Degree in Electrical Engineering (Hons) in October 2011, followed by Masters of Electrical Engineering from Universiti Tun Hussein Onn Malaysia (UTHM) in 2014. She then obtained her Doctor of Philosophy in Electrical Engineering from Universiti Teknologi Mara (UiTM) in 2019. Her area of expertise are modelling, control system, and process control.

82. HOME INTELLIGENCE SURVEILLANCE SECURITY SYSTEM

Shafiq Hazri Samsulmasri, Dr Norlee Husnafeza Ahmad

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Abstract

Video surveillance (CCTV) is used worldwide for security and monitoring, but debates exist regarding the balance between surveillance and privacy rights, while home security systems lack advanced technologies, making homeowners susceptible to security breaches and property damage. The goal is to create a smart home security system using an Arduino microcontroller, encompassing circuit design and system construction. This report aims to design a wireless CCTV system using an Arduino Microcontroller. This project utilizes three inputs which are a human movement detector, a collision impact sensor, and a high sensitivity sound detector and has three corresponding outputs which are capturing and recording motion, a buzzer, and an LED. The system initiates sensor detection, stops if nothing is detected, otherwise starts recording and saves it to storage, with optional activation of the buzzer and green LED for 1 minute. The significance of this study lies in its contribution to the future development and improvement of surveillance technology, paving the way for advanced security measures and optimized resource utilization, such as the production of CCTV materials from recyclable or environmentally friendly materials.

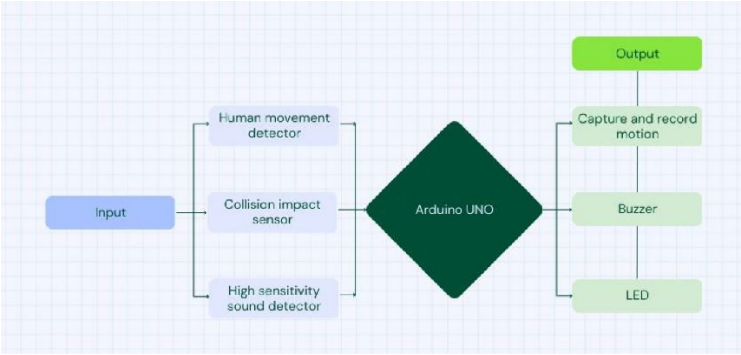
Keywords

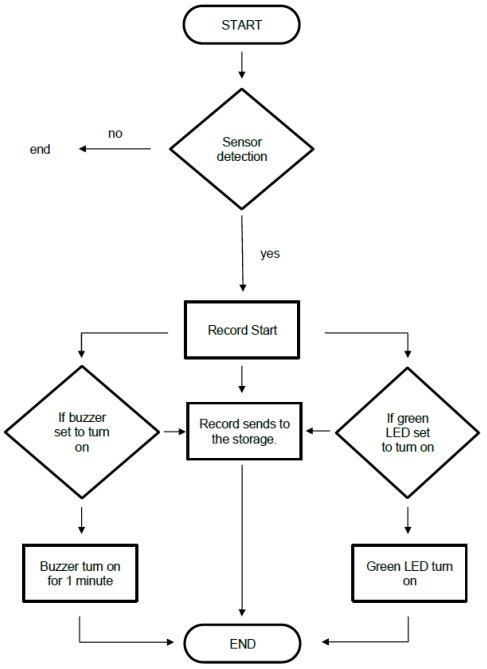
Smart Monitoring, Responsive Defense, Security Analytics, Home Automation and Smart Surveillance

Product Description

Introducing our Smart Surveillance Camera, designed to address key issues associated with traditional surveillance systems. This innovative solution focuses on three criteria: energy efficiency, data storage optimization, and proactive prevention. Featuring motion detectors, collision impact sensors, and high sensitivity sound detectors, our camera only activates when a potential threat is detected, conserving energy and storage space. Additionally, to prevent incidents, the camera is equipped with a buzzer for immediate alerts and an LED light for enhanced visibility. Experience heightened security with our Smart Surveillance Camera – your efficient and proactive safeguarding solution.

Photo/ Schematic Diagrams/ Flow Charts/Screenshots/ Graphs And Etc.





Member Biographical Data

Shafiq Hazri bin Samsulmasri, a current Electrical Engineering student at UiTM Pasir Gudang, specializes in Microprocessor, Power Electronic, Control System, and PLC since 2023. Proficient in C Programming, MATLAB, Multisim, and PLC Programming (from 2021), he contributed to the "Home Intelligent Security System" project and used the Dragon-12 Plus Trainer Board. Certified by MPKK, ESTECH, and Kompeni Alpha (2021-2022), Shafiq is an active member of Persatuan Kompeni Alpha since 2023, currently serving as President. Described as passionate and adaptable, Shafiq excels in diverse tasks, displaying strong interpersonal skills and leadership potential. Fluent in English (7) and Malay (9), he is committed to excellence and collaborative work environments.

Norlee Husnafeza Ahmad obtained her Ph.D. from UiTM Shah Alam with her research on the development of the generation market in Malaysia using System Dynamic modelling approach. She started her career at UiTM as a lecturer from February 2011 in the Power Department. Her main research interests are power system economic, AI optimisation technique, as well as System Dynamics modelling.

83. ARDUINO EARTHQUAKE DETECTOR ALARM

Shaikh Muhammad Danish Hazim Bin Husfarid, Wan Suhaifiza Binti W Ibrahim

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Abstract

In this project, we will learn how to design Arduino Earthquake.Detector Alarm with Seismic Graph. By using ADXL335 3-axis. Accelerometer as a sensor for detecting tilting, trembling, or any shakingmovement of an earthquake. We have a interfacedADXL335.Accelerometer with Arduino and LCD display for designing Arduino.Earthquake DetectorAlarm with Seismic Graph.Accelerometer module is based on the popular ADXL335 three-axis analogaccelerometer IC, which reads off the X, Y, and Z acceleration as analog voltages.

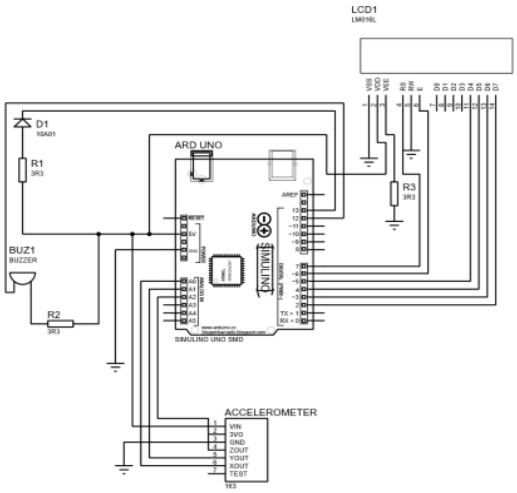
Keywords

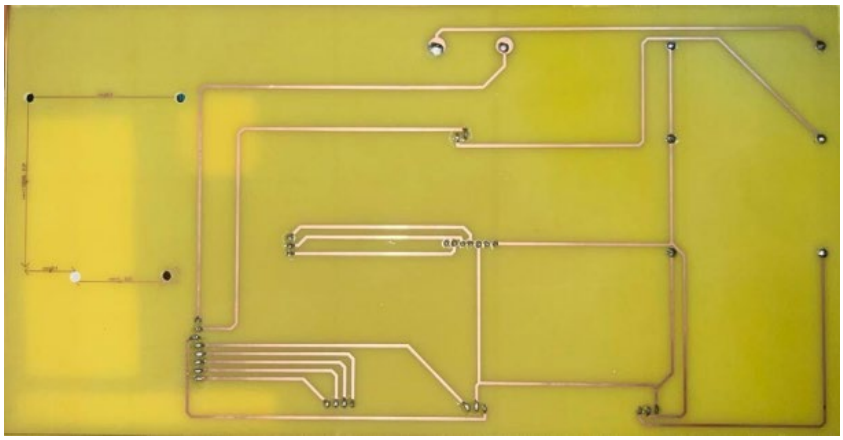
Arduino Uno,Accelerometer,Seismic Graph,Alarm,Buzzer,LCD display,LED

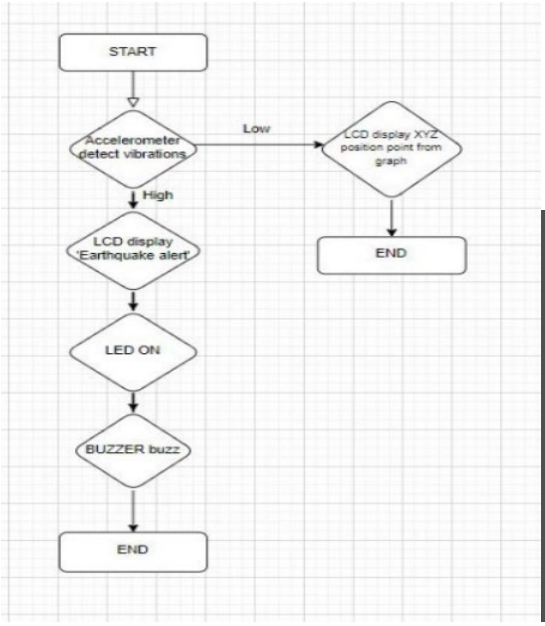
Product Description

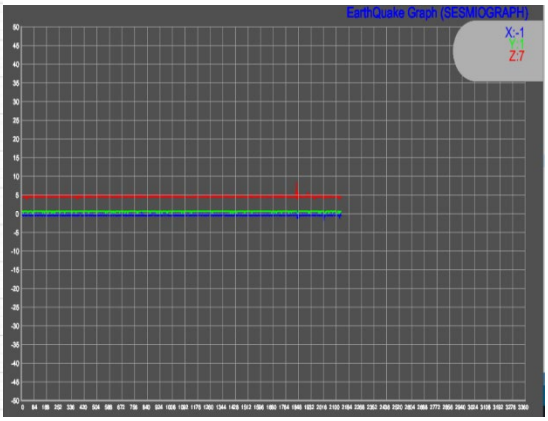
The earthquake detector project combines an Arduino Uno, seismic sensor, accelerometer, buzzer, LED, and LCD display to create a simple yet effective system for detecting seismic activity. The addition of the accelerometer enhances sensitivity to both sudden and prolonged movements. The system continuously monitors vibrations, triggers alerts through the buzzer and LED when seismic activity is detected, and displays relevant information on the LCD. This project showcases the potential of Arduino-based solutions for monitoring natural phenomena and has applications in seismology, early warning systems, and education.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.









Member Biographical Data

Shaikh Muhammad Danish Hazim furthering his study at UiTM since August 2021 as an Electrical Engineering(Power) student in the Faculty of Electrical Engineering.Shaikh Muhammad Danish Hazim bin Husfarid has active in sports call 'Bola Sepak' and had won the first place in Sukol tournament in 2022.Also have been actively join any Esport tournament.As an electrical student,his main interest is about conducting a project and learn more about the power electrical.

Ts. Wan Suhaifiza binti W Ibrahim joined UiTM in January, 2011 as an Electrical Engineering Lecturer in the Faculty of Electrical Engineering.Wan Suhaifiza binti W Ibrahim obtained her Bachelor of Electrical (Hons) Engineering and Masters of Electrical Engineering (Power) from Universiti Teknologi Malaysia. Currently, she serves as a senior lecturer at UiTM Cawangan Johor Kampus Pasir Gudang in Power Department. Her main research interests are E-learning, high voltage technology and renewable energy.

84. AUTOMATED HUMIDIFIER SYSTEM

Syazwan Izzulwafi Bin Mohd Shahir, Fadila Binti Mohd Atan

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Abstract

This technical paper details the Arduino microcontroller-based design of an automated humidifier for medicinal use. The goal of the project is to solve the issue of preserving ideal humidity levels in medical environments to improve patient comfort and promote the healing process. The technique comprises integrating very accurate sensors to detect temperature and humidity, analyzing data on the Arduino Microcontroller, and operating the humidifier as necessary. The device includes alerts for high humidity levels and a fail-safe mechanism to guarantee patient safety. The system's ability to maintain a precise and constant humidity range in medical situations is shown by the simulation results. The Arduino Microcontroller's integration offers effective and precise control, making the system trustworthy for healthcare practitioners. The importance of this work lies in its contribution to raising the standard of care by offering an accurate and automated method of humidity control. The automated humidifier improves patient comfort while lowering operating expenses. It also offers the potential for future growth through interaction with other medical equipment and remote monitoring.

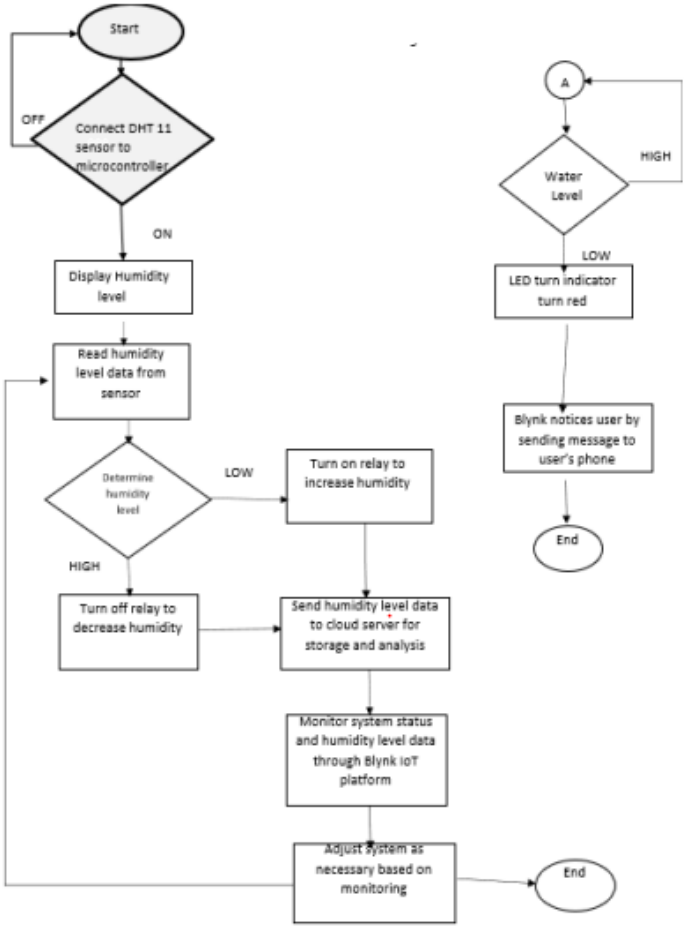
Keywords

Automated Humidifier System, Arduino Microcontroller, Medical Environment, Patient Comfort and Healing, Smart Healthcare solution

Product Description

Using Arduino microcontroller technology, the automated humidifier for medical purposes guarantees accurate humidity regulation in hospital environments. Accurate sensors are included into the system, which evaluates temperature and humidity data to adjust the humidifier as necessary. It has a fail-safe mechanism to ensure patient safety as well as alerts for high humidity. Simulation findings show that the system is effective in maintaining a stable humidity range. Its energy efficiency and remote monitoring features lower operating costs, improve patient comfort, and offer the possibility of a smooth connection with other medical devices. By providing an automated and precise means of controlling humidity, this product makes a substantial contribution to healthcare standards and ultimately improves patient care and well-being.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

My name is Syazwan Izzulwafi, and I am now pursuing a career in engineering, continuing the esteemed footsteps of my father. I'm in my third year, with a focus on the Electrical Engineering Power diploma. This academic path advances both my professional and personal development in the field of electrical engineering and demonstrates my dedication to carrying on my family's tradition of excellence.

Fadila Mohd Atan is a senior lecturer specializing in electronic and communication engineering, holds a Master of Science degree in Telecommunications and Information Engineering from Universiti Teknologi MARA. With a decade of unwavering dedication, she has meticulously advanced her expertise in constructing prototypes to address real-world challenges within the engineering domain

85. AUTOMATED HEIGHT MEASUREMENT SYSTEM

Umar Ilhan Zachwan Bin Md Abdul Halim, Shakira Azeehan Binti Azli

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Abstract

Automated Height Measurement System is an innovative solution designed to simplify and enhance height measurements. Using ultrasonic sensors, Arduino, Bluetooth module and lcd display, the system provides accurate and non-contact readings, making it ideal for various applications. The project aims to study about the functionality of component uses such as Arduino, Ultrasonic sensor, and Bluetooth module.

Keywords

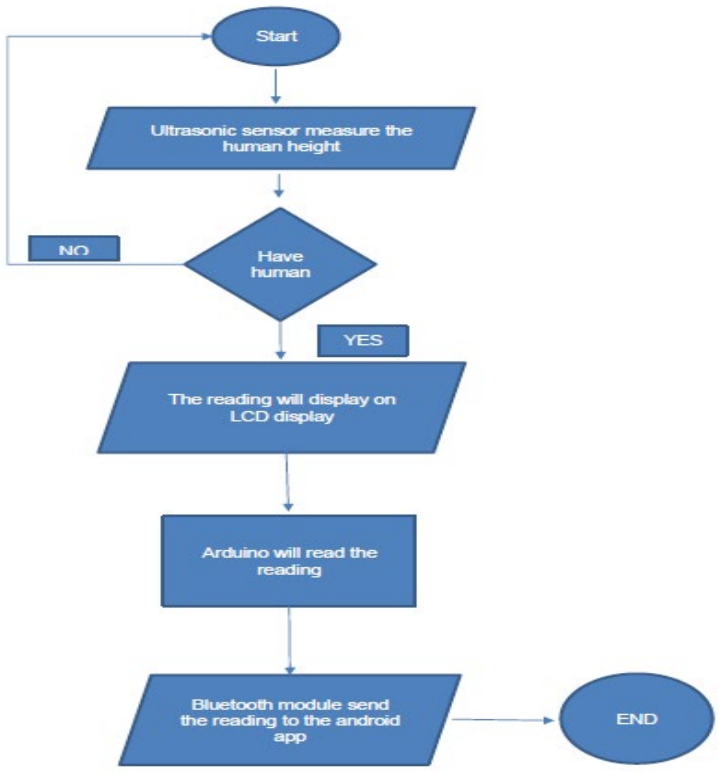
Arduino, Ultrasonic sensor, LCD display, Height measurement, Bluetooth Module

Product Description

This project presents a automated height measurement system implemented using Arduino, an ultrasonic sensor, a switch, an LED, a Bluetooth module, and an LCD display (16x2). The Arduino microcontroller interfaces with the ultrasonic sensor to measure distances, and the data is displayed on an LCD. A switch controls the LED, and height measurements are transmitted to a smartphone or other devices via Bluetooth. The simulation, conducted in Proteus, demonstrates the integration of these components for a comprehensive height measurement solution. This system finds potential applications in environments where non-intrusive and automated height measurements are essential.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.

- Flow chart



Member Biographical Data

Umar Ilhan Zachwan currently studying at UiTM since August 2021 as an Electrical Engineering (Power) student in the Faculty of Electrical Engineering.Umar Ilhan Zachwan active in sport such as calisthenics and futsal.Also have been actively join any Esport tournament.As an electrical student,his main interest is about conducting a project and learn more about the power electrical.

Ts. Shakira Azeehan Binti Azli obtained her Msc (Electrical Engineering-Power), B.Eng (Hons) Electrical Engineering and Diploma in Power Electrical Engineering from Universiti Teknologi Malaysia, Johor. Ts. Shakira is one of the academic staff at Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus.

86. FARM ANIMAL INVENTORY SYSTEM

Uwais Hasif Bin Ahmad Nizam, Siti Aliyah Binti Mohd Saleh

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Abstract

The number of people required for these duties can be substantial, especially on bigger farms with different animal populations. A team of professionals devoted to inventory management and data input may oversee managing the process. The time and effort necessary for routine inventory inspections adds to the farm's total labor requirement.

Moving to more effective digital inventory systems may minimize part of the human labor necessary for data collection and entry, allowing farm workers to focus on other important animal care and farm management responsibilities. Digital systems may still require some initial setup, maintenance, and training before they can be used efficiently by workers, but they usually speed the inventory process and decrease the need for substantial human labor

Keywords

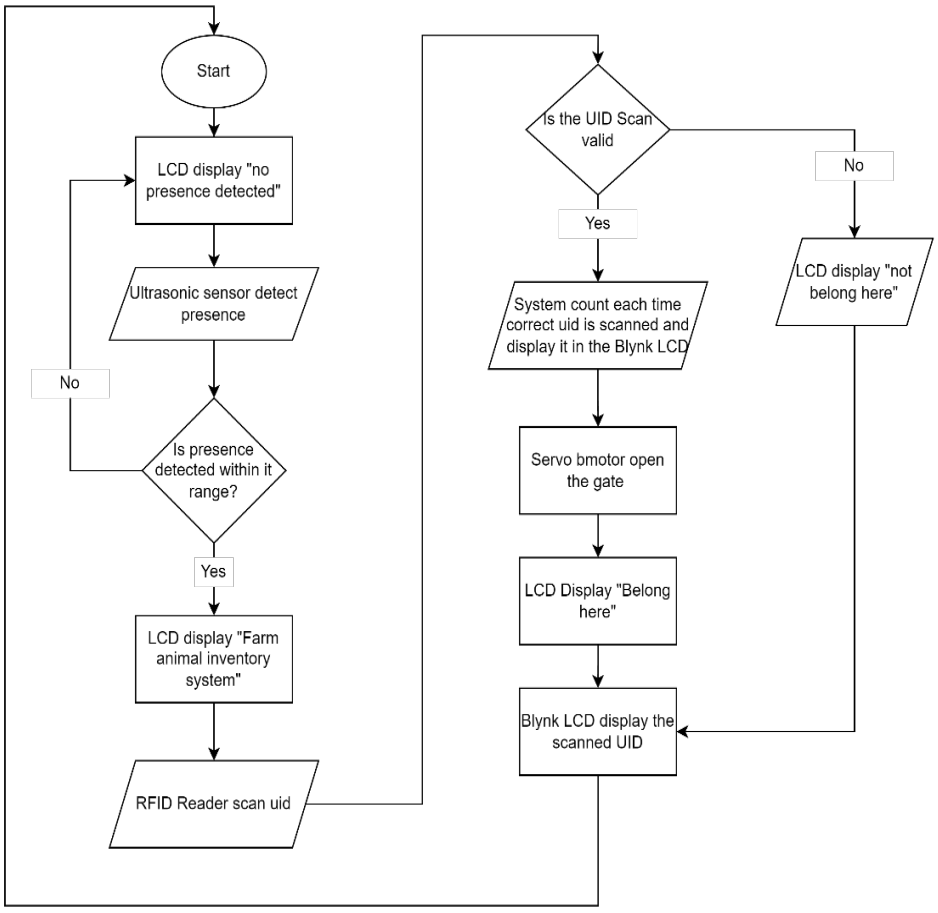
Inventory management, Human Labor, Data Input, Efficiency, Digitalization, Setup and maintenance

Product Description

The ESP8266 microcontroller serves as the principal processing unit of the system, coordinating flawless communication across diverse components. The system's usefulness is enhanced by two essential input devices: an RFID reader for scanning animal codes and an ultrasonic sensor for detecting the presence of animals within its range.

The RFID reader and ultrasonic sensor are both processed by the ESP8266 microcontroller. When an animal code is scanned, the Wi-Fi module activates the LCD panel, showing the recognized code in real time. At the same time, the ultrasonic sensor detects the presence of animals, helping to more efficient inventory management activities.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.



Member Biographical Data

My name is Uwais Hasif bin Ahmad Nizam, and I am from the thriving Malaysian city of Shah Alam. My fascination in the intricate workings of electrical systems led me to seek a Diploma in Electrical Engineering at UiTM Pasir Gudang. I gained a tremendous tolerance for studying while growing up in Shah Alam. This patience inspires my desire to comprehend the complexity of electrical engineering. I've always enjoyed figuring out how technological equipment works and the marvels they produce. This piqued my interest in the sector, inspiring me to seek a job in which I can develop and contribute to technical improvements.

Siti Aliyah Mohd Saleh has a Master's degree in Engineering (Applied Science) from Tokai University, Japan (2012). She is currently serving as a lecturer at Universiti Teknologi MARA (UiTM), working in the Power department of Electrical Engineering Studies. Her research interests include high voltage technology and power systems.

87. ENERGY-SAVING INTEGRATED MEETING ROOM SYSTEM WITH ENHANCED SECURITY FEATURES

Vanisa Mayang Anak Jude, Ts. Sufian Bin Mohamad

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Abstract

Current office technologies struggle to balance energy efficiency and robust security, especially in meeting rooms. This project bridges the gap by introducing an integrated system that tackles both concerns. Using ultrasonic sensor, the system will automatically adjust the lighting based on room occupancy, conserving the energy. Security is layered with a keypad, RFID tags and the Blynk app at the entry, controlling an electromagnetic lock with immediate audio-visual feedback using the buzzer and Light Emitting Diode (LED) as indicators. The successful or unsuccessful access attempts to enter the meeting room are based on the code entry and RFID tags recognition. The project's prototype strives to successfully reduced energy consumption, repelled unauthorized access attempts, and demonstrated reliability in diverse scenarios. This integrated system not only provides a smart, energy-efficient, and secure environment for meetings but also demonstrates a commitment to technology-driven and sustainable facility management.

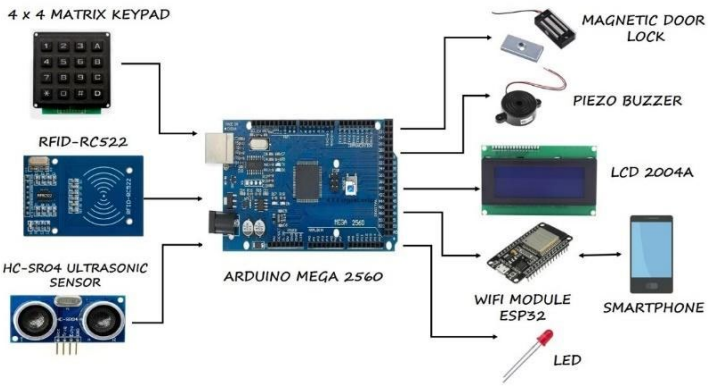
Keywords

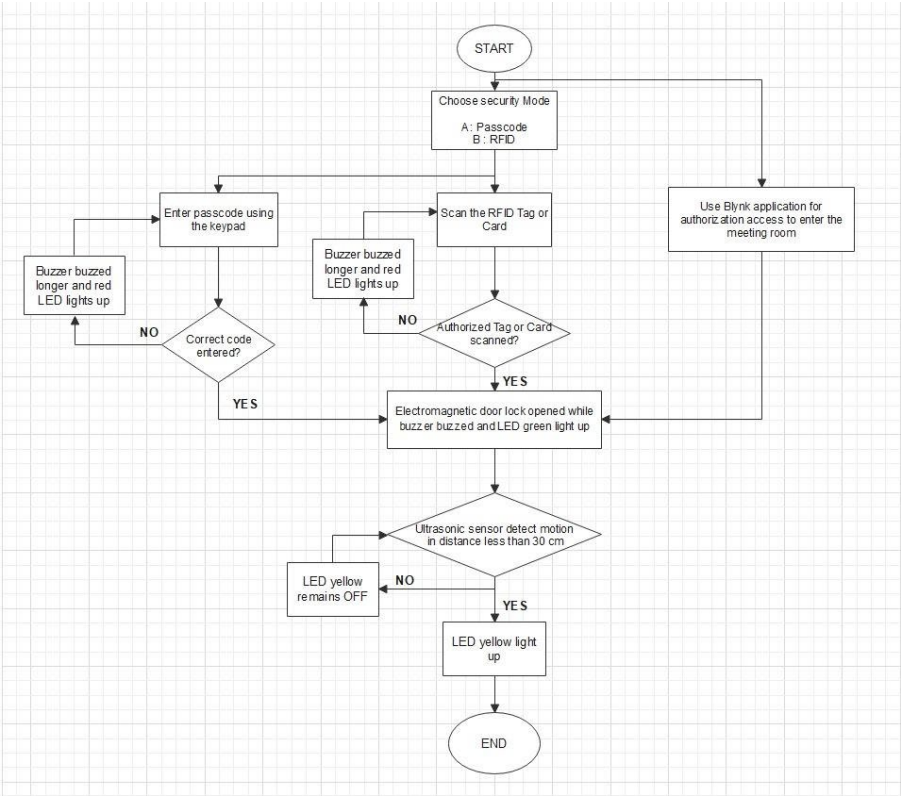
Integrated system, energy conservation, layered security, presence detection, access indicators

Product Description

Energy Saving Integrated Meeting Room System with Enhanced Security Features is a modernize meeting room management system which seamlessly blends energy efficiency and robust security. Utilizing an ultrasonic sensor, it detects presence and controls lighting, significantly reducing energy waste. Security is enhanced with a sophisticated combination of keypad, RFID, and Blynk application, controlling access through an electromagnetic door lock. Immediate feedback is provided through indicators like buzzers and LEDs, ensuring users are aware of access status. With this integrated system, enjoy a sustainable, secure, and intelligent environment for your meetings and office activities.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Vanisa Mayang, a second-year Electrical Engineering student at UiTM Pasir Gudang, thrives on innovation and technology. Driven by a deep interest in renewable energy, she balances out her academic excellence with extracurricular activities. Her unwavering pursuit of knowledge has paved the way for her to earned consistent dean's award. Eager to bridge sustainability and innovation, Vanisa Mayang aspires to use her Electrical Engineering diploma to design energy solutions for a greener and more efficient future.

Ts. Sufian bin Mohamad is a lecturer from Communication Department, Faculty Electrical Engineering, UiTM Kampus Johor Cawangan Pasir Gudang. He has experienced of 13 years teaching various electrical engineering subject. Besides, he gained lots of experienced in other fields such as student development activity in campus and faculty management.

88. IOT ENHANCED AGRICULTURE MANAGEMENT SYSTEM

Wan Nur Najwa Binti Rahimi, Mastura Binti Omar

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Abstract

Agriculture is the practice of growing plants, keeping animals, and other necessities for human survival. However, the traditional agriculture system is facing many problems such as facing an unpredictable pest attack and the effects of climate change that make it increasingly challenging for farmers to maintain consistent production levels. To address these challenges in traditional agriculture, an IoT Enhanced Agriculture Management System was developed, integrating both software and hardware components. The software utilizes Arduino IDE, while the hardware comprises a DHT11 sensor, a PIR sensor, and a soil moisture sensor. A Bluetooth module, connected to the Arduino, facilitates the display of readings on the Arduino IDE's serial monitor. This system effectively displays temperature, humidity, and soil moisture data on an LCD and includes a buzzer and LED to alert farmers of movements detected by the PIR sensor. This project represents a significant step forward in modernizing traditional agricultural practices and can be further improved by substituting the Bluetooth module with a Wi-Fi module for remote farm monitoring. The project holds potential for contributing to the evolution of traditional agricultural methods.

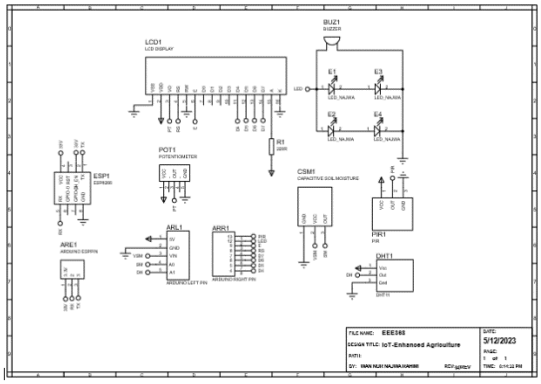
Keywords

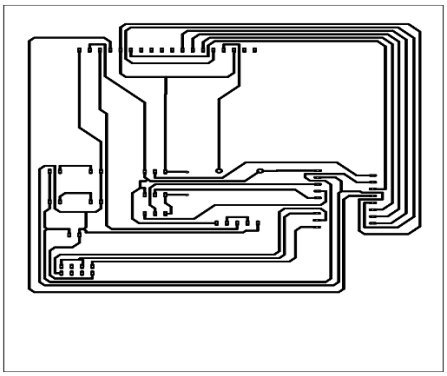
Agriculture system, IoT, Bluetooth, DHT11 sensor, Soil moisture sensor, PIR sensor

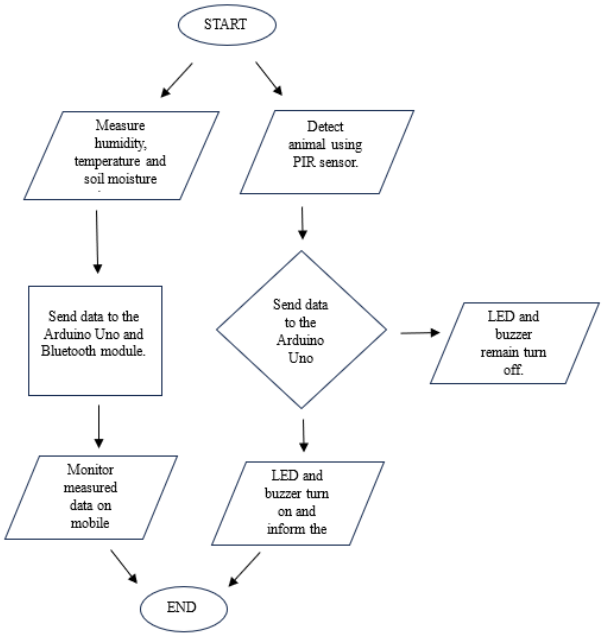
Product Description

This project combines software and hardware elements. It works as follows: Sensors gather data and send it to an Arduino UNO. This data, which includes measurements of humidity, temperature, and soil moisture, is captured using a DHT11 sensor and a soil moisture sensor. The Arduino UNO then displays this information on an LCD screen. Additionally, the Arduino is connected to a Bluetooth module, which allows the data to be viewed on the Arduino IDE's serial monitor. Farmers have the convenience of monitoring these environmental conditions directly on their mobile phones through this Bluetooth connection. Another key feature of this project is the PIR sensor, designed to detect animal movements. When movement is detected, the Arduino UNO activates a buzzer and an LED as an alert. If no movement is detected, both the buzzer and the LED stay off, conserving energy and reducing unnecessary alerts.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.







Member Biographical Data

Wan Nur Najwa Binti Rahimi is currently pursued Diploma in electrical engineering (power) at Universiti Teknologi Mara (UiTM). She is actively participating in many extracurricular activities. She is also an active member of Electrical Student Technology Club (ESTECH). This club plays an important role in overseeing and organizing various activities for the Electrical Engineering major, showcasing Najwa's commitment to both academic and extracurricular.

Mastura Omar is a dedicated Senior Lecturer in the Electronics Department at the School of Electrical Engineering, College of Engineering, UiTM Pasir Gudang. She holds a Bachelor of Engineering in Electrical and Electronics from Universiti Teknologi Petronas and a Master of Science in Microelectronics from Universiti Kebangsaan Malaysia. With over 10 years of experience in academia, Mastura specializes in Electronics System Design, blending her extensive knowledge with a passion for teaching and research.

89. HEALTH MONITORING SYSTEM

Yasmin Hanim Binti Md Yusoff, Dr. Rijalul Fahmi Bin Mustapa

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Abstract

The installation of a human heart rate, oxygen, and temperature monitoring system utilizing Bluetooth technology allows for the collection and analysis of data in real-time. A monitoring system can provide health workers with more precise and timely information, improving patient outcomes. Long hospital wait times and patient monitoring are becoming major issues due to fast population increase and expensive healthcare expenses. Certain vital signs may be measured at home without visiting the hospital, but current equipment in the hospitals and clinics has limits. This issue may be overcome by implementing the technology, which allows for continuous monitoring of person's vital sign from any place. This project aims to construct a prototype of a multifunctional health measurement gadget that can measure and monitor the critical human readings by using Arduino Microcontroller. A simulation will be conducted in Proteus simulation software. The inputs of this system are oximeter sensor and temperature sensor. The outputs of the system will be programme by an Arduino Uno. It will be displayed on LCD display and mobile phone which will be linked with a bluetooth device. This project could display patient's vital sign through LCD display and also phone. The system offers patients a lot of benefits because it allows patient's to monitor their vital sign anytime and anywhere. In the future can detect glucose level on diabetic patient. This project provides a system that can be continuously controlled and monitored.

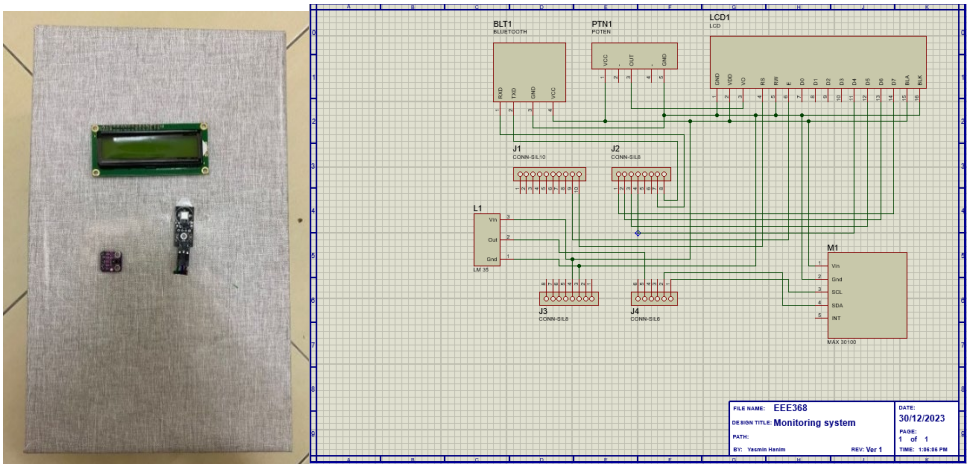
Keywords

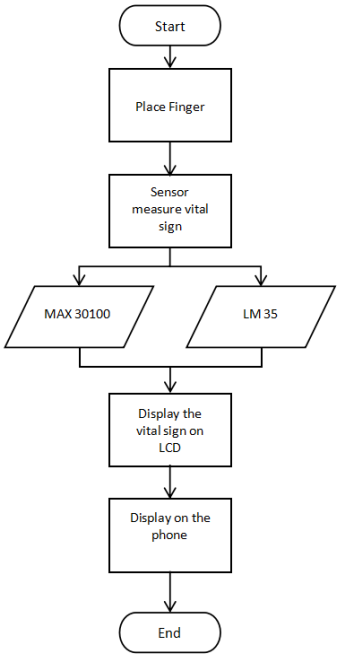
Heart Beat, Oxygen level, Temperature reading, LCD display, Phone Display

Product Description

A health monitoring device utilizes Bluetooth to track heart rate, oxygen levels, and temperature in real time. It is built using an Arduino Microcontroller and shows vital data on an LCD screen. This technology provides data to a mobile phone via Bluetooth, allowing patients to monitor their health remotely.

Photo/ Schematic diagrams/ Flow charts/Screenshots/ Graphs and etc.





Member Biographical Data

Yasmin Hanim Binti Md Yusoff was born on 28 June 2003 in Seremban, Negeri Sembilan. She is currently pursued her diploma in Electrical Engineering in UiTM Pasir Gudang. She exhibit a passion for Power Electronics with an expected graduation year of 2024. Yasmin's commitment to both academic excellence and the vibrant campus community. Beyond the classroom, Yasmin enjoys reading and listening to music, showcasing a well-rounded personality. With a vision for the future that includes Engineer and completion of Degree, Yasmin is poised to make significant contributions in her chosen field.

Rijalul Fahmi Mustapa is a senior lecturer in UiTM Pasir Gudang. He graduated from UiTM Shah Alam in Electrical Engineering. He posses a professional certificate as a measurement and verification and a certified energy manager. His current interest in research is energy consumption prediction and baseline energy modelling.