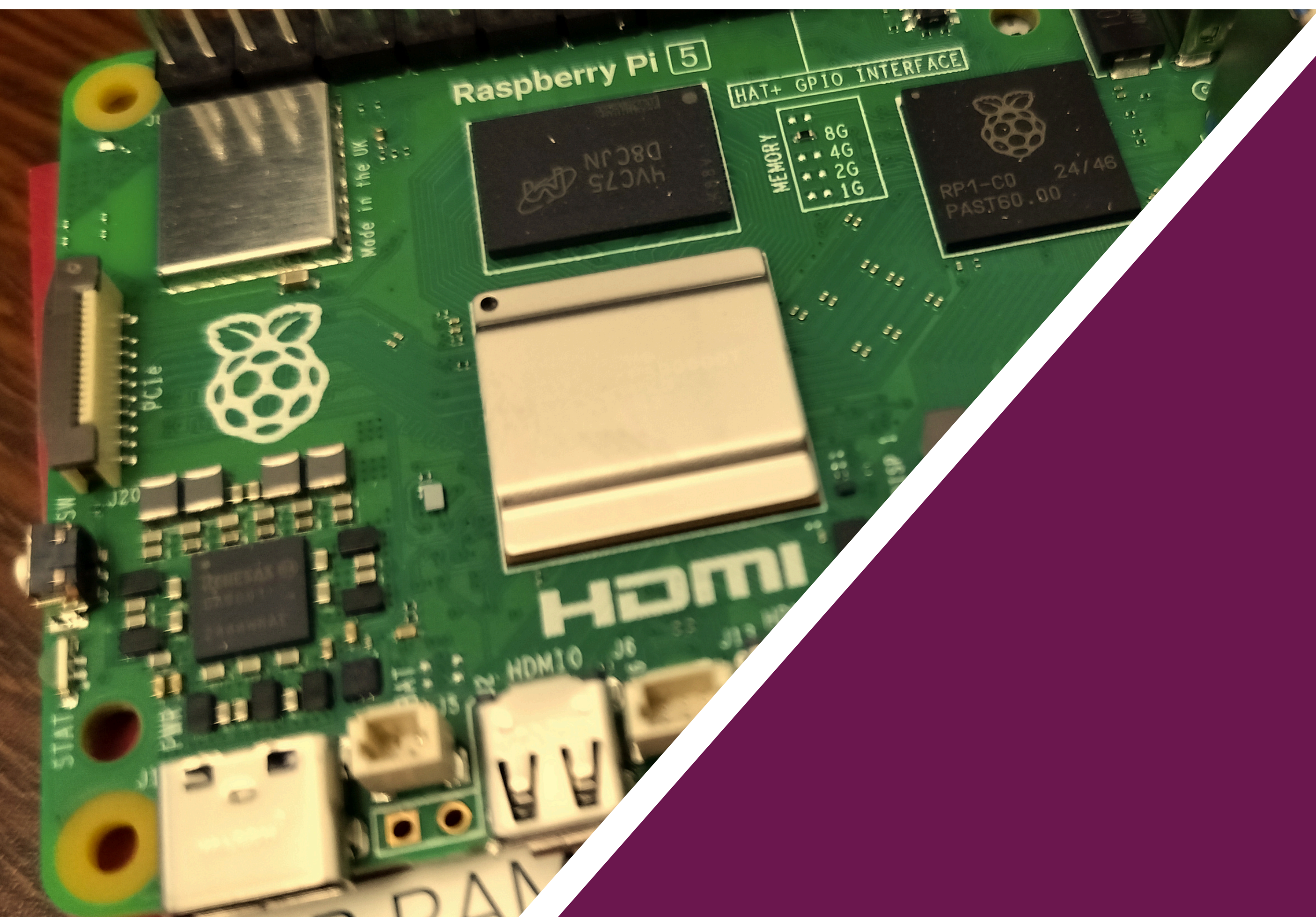




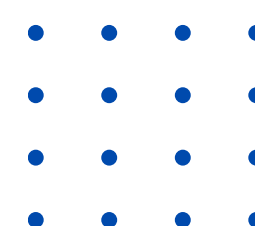
EESEE 2025

10TH ELECTRICAL ELECTRONICS SYSTEMS ENGINEERING EXHIBITION 2025

VOLUME 1



FACULTY OF ELECTRICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
JOHOR BRANCH
PASIR GUDANG CAMPUS



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FOREWORD BY THE PROGRAM CHAIR



Greetings from the Electrical, Electronics, and Systems Engineering Exhibition 2025 (EESEE 2025).

As the Program Chairs, it is our great pleasure to present this compilation of extended abstracts, showcasing the remarkable projects developed by our final-semester students from the Diploma in Electrical Engineering (Power) and Diploma in Electrical Engineering (Electronics) programs at Universiti Teknologi MARA, Cawangan Johor, Pasir Gudang Campus.

This exhibition marks a significant milestone in our students' academic journey, representing the culmination of years of dedication, perseverance, and learning. It also serves as an essential step toward the successful completion of their diploma studies. The projects featured this year are centered on the theme *Engineering Excellence: Bridging Technology and Life*, reflecting current trends and innovations in the engineering field.

This extended abstract book highlights not only the students' technical expertise but also their creativity, problem-solving skills, and ability to engage meaningfully with peers and industry professionals. Within these pages, you will find a diverse range of projects that embody a unique blend of knowledge, innovation, and practical application.

We warmly invite you to explore this collection, which celebrates the achievements of our aspiring engineers. Welcome once again to the Electrical, Electronics, and Systems Engineering Exhibition 2025. May the insights shared here inspire and pave the way for the next generation of innovative engineers.

Warm regards,

Dr. Fatimah Khairiah binti Abd Hamid

Dr. Atiqah Hamizah binti Mohd Nordin

Program Chairs

Electrical, Electronics, and Systems Engineering Exhibition 2025 (EESEE 2025)



The Ventilation Fan and Measurement Energy System

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ABSTRACT

This project focuses on developing an IoT-based system to control and monitor a 5V fan using an ESP8266 microcontroller and the Blynk platform. The system integrates a DHT11 temperature sensor, an INA219 sensor, and a relay to provide real-time monitoring of temperature, voltage, current, and power. Data is displayed on the Blynk app for easy remote access, enabling efficient control and energy management. The project aims to promote energy efficiency, affordability, and accessibility while serving as an educational tool for IoT applications. It demonstrates the potential of smart technology in home automation and environmental monitoring.

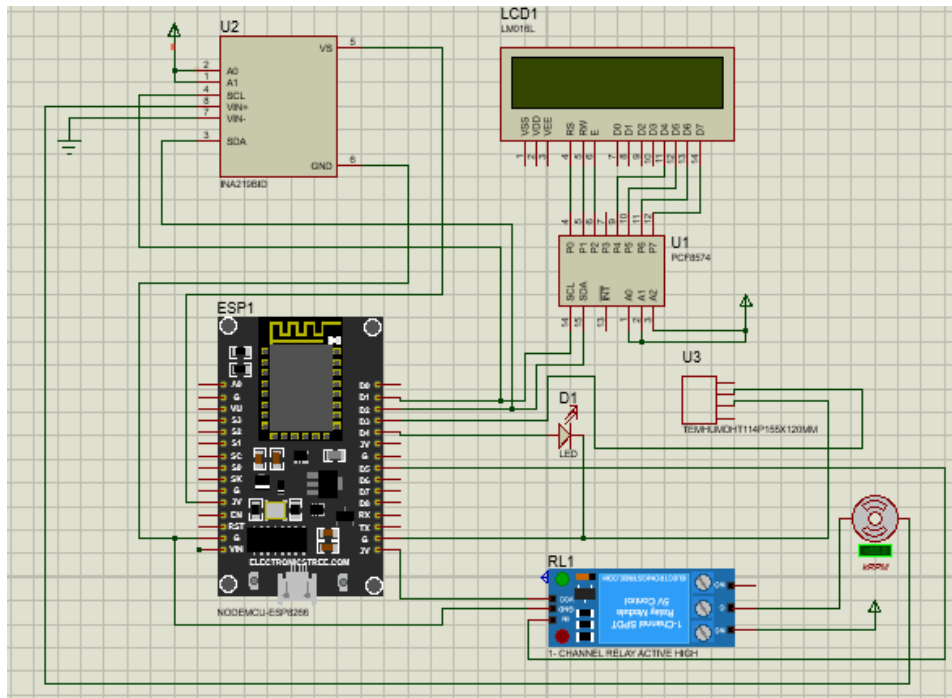
KEYWORDS: ESP8266, DHT11, INA219, Fan 5V, Relay, Blynk

PRODUCT DESCRIPTION

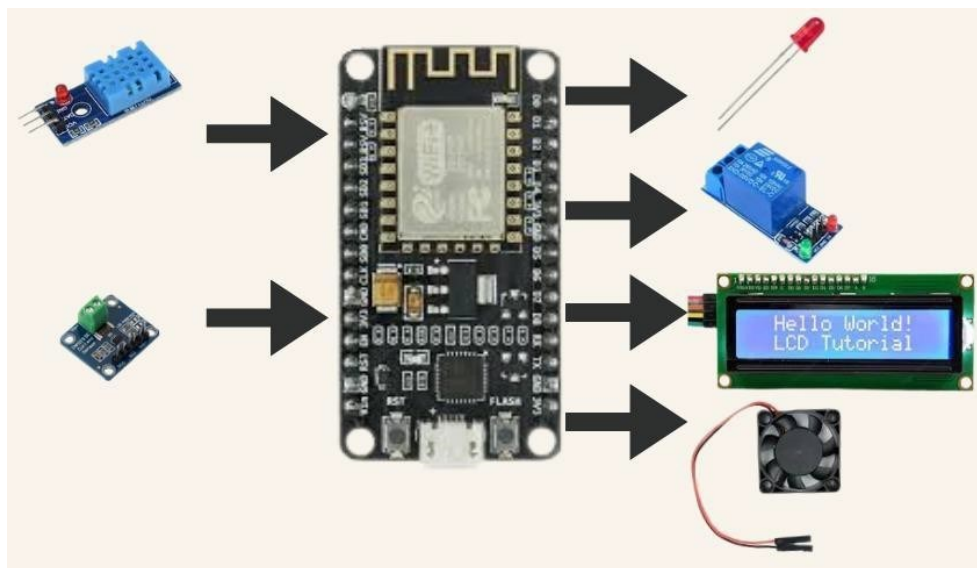
The Ventilation Fan and Measurement Energy System is a smart, energy-efficient solution designed for remote control and real-time monitoring of a 5V fan. Powered by the ESP8266 microcontroller and integrated with the Blynk app, this innovative system provides users with seamless control and detailed insights into environmental conditions and fan performance. Key features include a DHT11 temperature sensor to measure ambient temperature, an INA219 sensor to monitor voltage, current, and power, and a relay for precise fan operation. The system's data is displayed in real-time on the Blynk app, allowing users to access vital information and control the fan from anywhere. The device is powered by a 3.7V battery, ensuring portability and energy efficiency. Ideal for applications in home automation and environmental monitoring, this product offers affordability, accessibility, and ease of use. Whether for educational purposes or practical implementation, it demonstrates the integration of IoT technology in everyday life, contributing to sustainable and smarter living solutions.

PICTURES/ SCHEMATIC DIAGRAMS/ FLOW CHARTS/SCREENSHOTS/ GRAPHS AND OTHER RELATED VISUALS

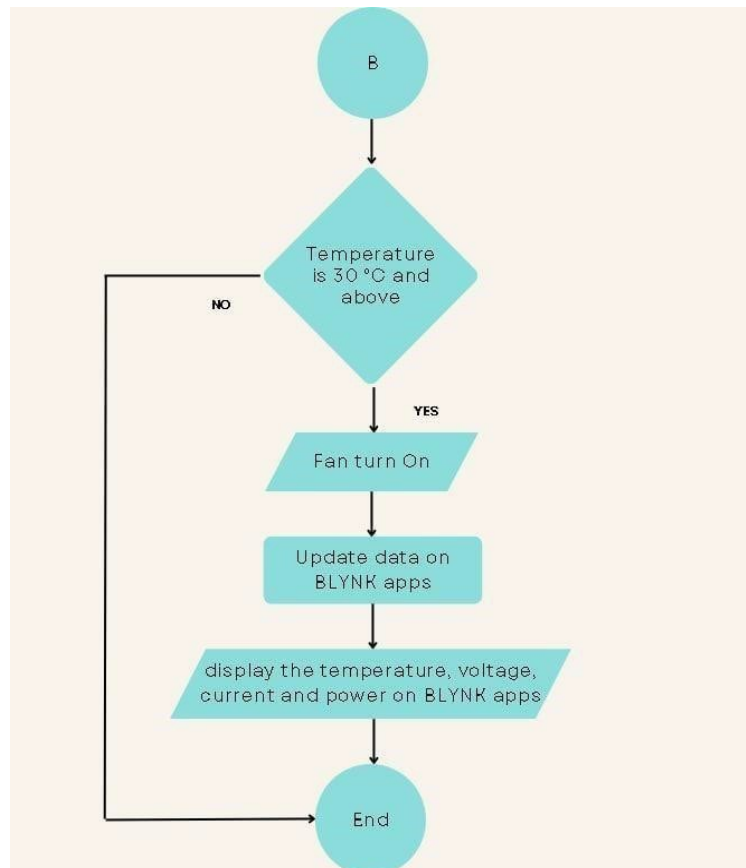
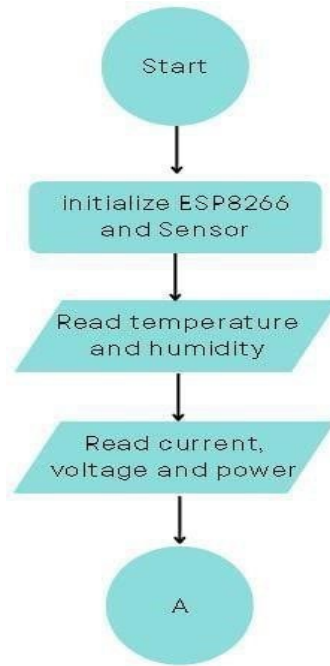
1. Schematic diagram of ventilation fan and measurement energy



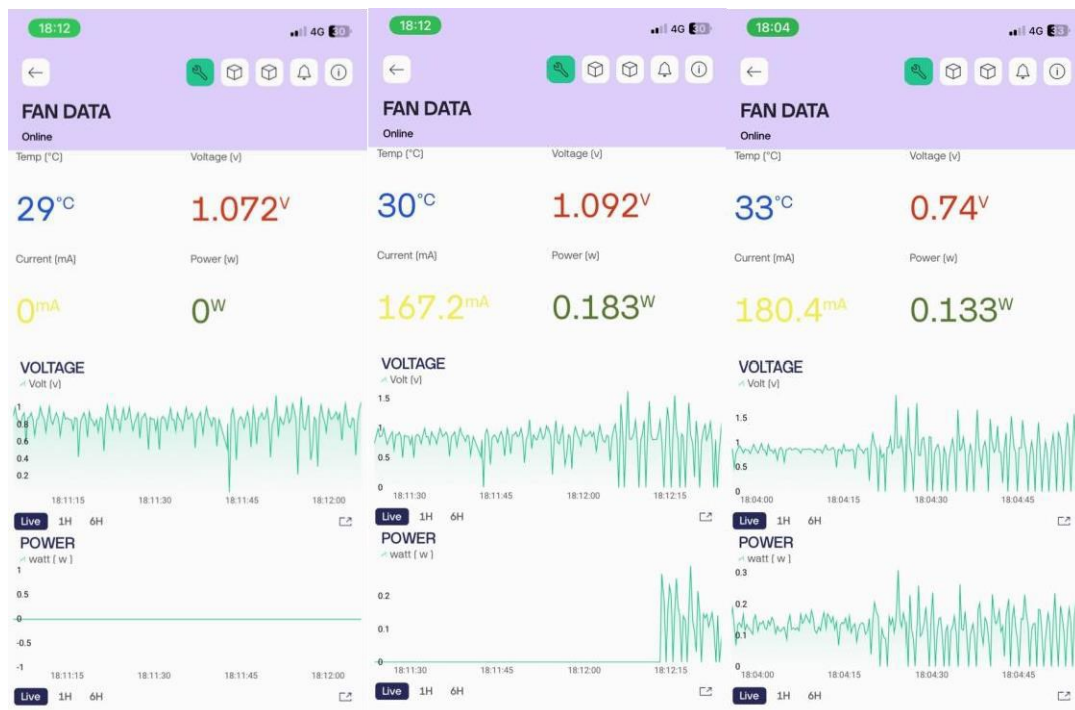
2. BLOCK DIAGRAM



3. Flowchart



4. Data Collection



NOVELTY AND UNIQUENESS

The Ventilation Fan and Measurement Energy System is a unique and innovative project that combines real-time monitoring, remote control, and portability. It uses the Blynk platform to allow users to monitor temperature, voltage, current, and power consumption while controlling the fan remotely. The integration of a DHT11 temperature sensor and an INA219 power sensor provides detailed performance and environmental data, making it stand out among similar systems. Its compact and portable design, powered by a 3.7V battery, makes it convenient for use in various locations. Additionally, the project is cost-effective, using affordable components like the ESP8266 while remaining functional and scalable for future upgrades. This system demonstrates how IoT can enhance everyday devices for better energy management and environmental monitoring.

BENEFIT TO MANKIND

The Ventilation Fan and Measurement Energy System provides significant benefits to mankind by promoting energy efficiency and convenience. By enabling real-time monitoring of power consumption and environmental conditions, it helps users make informed decisions to optimize energy usage, ultimately reducing electricity costs and minimizing environmental impact. The system's remote-control functionality, accessible through the Blynk platform, enhances convenience by allowing users to operate the fan from anywhere, improving comfort in various settings. Furthermore, the project showcases the potential of IoT in everyday life, serving as an affordable and portable solution for efficient cooling and environmental monitoring, which can be particularly beneficial in areas with limited resources or high energy costs.

COMMERCIALIZATION POTENTIAL

The Ventilation Fan and Measurement Energy System holds promising commercialization potential due to its practical features, cost-efficiency, and adaptability to diverse settings. With the growing demand for smart home devices, this project aligns perfectly with the trend toward energy-efficient and user-friendly appliances. Its compatibility with mobile applications like Blynk enhances its market appeal by providing real-time monitoring and remote control functionalities. The system's affordability and ease of integration into existing setups make it attractive to households, offices, and small businesses looking for smarter and greener cooling solutions. Additionally, its portability and customizable features open opportunities for mass production and tailored applications, further increasing its market viability.

CONCLUSION

In conclusion, the IoT-Based Fan Control and Monitoring System effectively integrates smart technology to provide a user-friendly, energy-efficient solution for temperature management. By utilizing components like the ESP8266, DHT11, INA219, and Blynk, the project demonstrates real-time control, monitoring, and data visualization. Its innovative design enhances convenience, safety, and efficiency, addressing practical needs while showcasing potential for future improvements and scalability. This project represents a meaningful step toward smart home automation and contributes to the advancement of accessible IoT solutions.

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