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REMOTE MONITORING AND CONTROLLING OF LIGHTS USING IOT

Nurul Najihah Yusra Zolkarnain, Nurzaid Muhd Zain and Mahfudzah Othman
College of Computing, Informatics and Mathematics,
Universiti Teknologi MARA, Perlis Branch
2019230378@student.uitm.edu.my, nurzaid@uitm.edu.my and fudzah@uitm.edu.my

ABSTRACT - As technology advances and improves to benefit the environment, daily living has become significantly easier and more convenient. Our lives are becoming increasingly intertwined with the Internet of Things (IoT) as a result of the technological advancement. IoT is a network of physical objects embedded with sensors, software, and other technologies that connect to and exchange data with other devices and systems via the internet. Since humans are prone to forgetting things, it's tough to steer clear of this predicament. As a result, electricity is wasted and the problem of forgetting to turn off the lights is not addressed. The rising cost of electricity is a result of this predicament. Smart lighting is used to conserve energy. This study discusses about developing a prototype of smart lighting system using IoT. The system is supported by Blynk application and Arduino. A smart phone app will be used to monitor and manage all of a house or office's lights remotely.

Keywords: IoT, smart home, Blynk, Arduino, smart lighting system

1. INTRODUCTION

As technology advances and improves to benefit the environment, daily living has become becomes significantly easier and more convenient. Our lives are becoming increasingly intertwined with the Internet of Things (IoT) as a result of the technological advancement. This research aims to develop a prototype of remote monitoring and controlling of lights system which is smart lighting with the help of Arduino UNO, Arduino IDE and Blynk application as well as Blynk server. The objectives of the research are to develop a prototype of smart lighting system that able to control the lights remotely via smartphone using Arduino through Blynk application and to evaluate the functionality and network performance of the prototype. The research will be using ESP8266 WiFi module setup using Arduino Uno. The Blynk server will monitor and control the lighting system.

2. METHODOLOGY

There are 5 phases involved in developing the project which are initiation phase, planning phase, development phase, evaluation phase and documentation phase. The most critical and significant phase is development phase. This is where the prototype is developed. During this phase, hardware and software are acquired in order to develop the proposed prototype of smart lighting system. Then, the assembled prototype will be tested its functionality as a smart lighting system.

3. RESULT AND DISCUSSION

The prototype of a smart lighting system was successfully developed. The user can remotely control and monitor the lights using smart handphone through Blynk application. The functionality of the prototype also being tested to ensure that it can function well. The network performance of the prototype also is tested. There are several upgrades that can be done in order to improve the functionality of the prototype.

4. NOVELTY OF RESEARCH / PRODUCT

There are various of research has been done regarding smart lighting system especially in regards of smart home system. Previous research has been done to control LED through Internet based on NodeMCU with Blynk application (Asmawati et al., 2019). There is also a previous research regarding IoT smart lighting system for university classrooms (Montalbo & Enriquez, 2020). SOA and IoT principles to smart home lighting in a research by merging Raspberry Pi with Python programming, a web server (database) with PHP and Android programming with Java programming also had been done previously (Irawan et al., 2021).

5. CONCLUSION

The proposed prototype still lacking in various aspects and open to enhancement and improvement to make it a better system. The smart lighting system can be enhanced in order to create a more efficient and cost-saving environment.

Yet, the objectives of the research are successfully achieved.

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