LAMP MONITORING SYSTEM FOR CLASSROOM IN FSKKP USING NodeMCU ESP8266

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SUPERVISOR'S DECLARATION

I hereby declare that I have checked this thesis and in my opinion, this thesis is adequate in terms of scope and quality for the award of the degree in Bachelor of Computer Science (Computer System & Networking).

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STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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ABSTRAK

Sistem pemantauan lampu adalah sistem bilik pintar di mana sistem ini membantu mengurus pencahayaan di dalam bilik darjah. Sistem ini menggunakan NodeMCU ESP8266 sebagai komponen perkakasan. Tujuan sistem ini adalah untuk mengurangkan masa terutamanya untuk juruteknik dan menjamin bilik darjah dari penyalahgunaan dan melindungi kemudahan di dalam bilik darjah. Pada masa ini, bilik darjah di Fskkp telah dipantau oleh juruteknik dengan laman web mereka sendiri yang mengandungi ciri-ciri tempahan makmal / kelas. Setiap juruteknik, harus memantau lab / kelas setiap hari untuk memastikan semua kemudahan dalam keadaan baik. Tetapi, terdapat masalah di makmal / kelas di mana pelajar / pensyarah selalu lupa untuk mematikan lampu. Juruteknik akan mematikan lampu secara manual dan ini akan meminta tambahan kerja untuk juruteknik. Oleh itu, sistem yang dicadangkan ini akan menampung masalah dengan secara automatik mematikan / pada lampu. Sistem ini akan dibangunkan untuk memantau lampu di dalam bilik darjah dengan menggunakan halaman untuk pengguna menggunakan sistem ini. Sistem ini menggunakan model sistem Rapid Application Development (RAD) untuk membangunkan sistem yang dicadangkan. Dalam metodologi ini menunjukkan bagaimana perancangan projek, analisis, reka bentuk, pelaksanaan dan penyelenggaraan sistem ini. Dengan membangunkan sistem ini, juruteknik boleh menggunakan sistem dengan lebih terurus dan sistematik.

ABSTRACT

Lamp monitoring system is the smart room system where this system helps to manage the lighting in the classroom. This system using NodeMCU ESP8266 as a hardware component. The purpose of this system is to reduce the time especially for technician and secure the classroom from the violation and protect facilities in the classroom. Currently, the classroom in the Fskkp have been monitored by technician with their own website which contains features of booking lab/class. Each of the technician, should monitor the lab/class every day to make sure all the facilities are in good condition. But, there is a problem in lab/class where students/lecturer always forgot to switch off the lamp. The technician will switch off the lamp manually and this will demand extra work for the technician. Thus, this proposed system will cater the problem by automatically switch off/on the lamp. This system will being develop to monitor the lamp in the classroom with using the interface for user to use this system. The system using system model Rapid Application Development (RAD) for develop the proposed system. In the methodology shows how the planning of project, analysis, design, implementation and maintenance for this system. By developing this system, the technician can use the system with more manageable and systematic.

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LIST OF SYMBOLS

RAD	Rapid Application Development
FSKKP	Fakulti Sistem Komputer dan Kejuruteraan Perisian
UMP	Universiti Malaysia Pahang
LED	Light-emitting diode
OLE	Oversea Lightung & Electric
HID	High Intensity Discharge
ADC	Analog to Digital Converter
LDR	Light Dependent Resistor
SDLC	System Development Life Cycle
DFD	Data flow diagaram
IDE	Integrated development environment
USB	Universal Serial Bus
Wi-Fi	Wireless fidelity
HTML	Hypertext Markup Language
PHP	Hypertext Preprocessor

LIST OF ABBREVIATIONS

SBPWM	Simple Boost Pulse Width Modulation
ZSI	Z source inverter

CHAPTER 1

INTRODUCTION

1.1 Background of study

Currently, the classroom in the ump have been monitored by technician with their own website, but to switch off /on the lamp they are still using manually which is the lamp will be on or off with manually when class want to use. After finish the class session, the technician will switch off the lamp with manually. To solve this issue, this system proposes to develop the system for monitoring the lamp in classroom.

The Lamp monitoring system is the smart room system where this system helps to manage the lighting in the classroom. Lamp monitoring system will control the lighting automatically by detect the human movement. This system will be developed by using the NodeMCU ESP8266 Wi-Fi Controller Board ESP-12. This system will be function, when the website lamp monitoring send request to NodeMCU. Then, NodeMCU will checking the schedule of class. If the time in the schedule tally with the current time, the lighting will be on by human movement in the class. If the time not tally, the lamp not open.

The user for this system can be student either lecture. The user can add the timetable with sign in account. The user can update in system when want to cancel the using of the classroom. For this project is target to implement at classroom at Fskkp in UMP.

1.2 Problem Statement

Currently, the classroom in the Fskkp have been monitored by technician with their own website which contains features of booking lab/class. Each of the technician, should monitor the lab/class every day to make sure all the facilities are in good condition. But, there is a problem in lab/class where students/lecturer always forgot to switch off the lamp. The technician will switch off the lamp manually and this will demand extra work for the technician. Thus, this proposed system will cater the problem by automatically switch off/on the lamp.

The lamp monitoring system will make the technician more manageable and systematic to handle the works. The classroom also will more secure from the violation of regulations.

1.3 Objective

I) To study existing lamp monitoring system
II) To develop an automatic controller system for lamp in the classroom.
III) To test the functionality of the system.

1.4 Scope

I) The user (administration) will monitor the lamp in the classroom.
II) Switch controller system using the NodeMCU ESP8266 and Ultrasonic sensor in the classroom.
III) The controlled lamp based on the time and follow the appropriate movement sensor.
IV) All of data will store in the database.
V) The user will use interface (website) to login and add class.
VI) The project only covers in FSKKP Universiti Malaysia Pahang.

1.5 Thesis Organization

This thesis consists have 5 chapters.

Chapter 1 discuss details about the automatic switch controller, such as the background and the reason why to develop this system.

Chapter 2 discuss about the existing system for automatic switch controller. In this chapter explains about the theory, concepts and details about this project as a guide to completing this project.

Chapter 3 discuss about methodology, where shows how the automatic switch controller system work and function.

Chapter 4 discuss about implementation, testing and result discussion. This chapter explains, the system been implemented according the requirements.

Chapter 5 discuss about the conclusion in this project, where the clarification on the constraints throughout the project and the future work for this system.

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