POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH

SMART SOCKET IOT WITH BLYNK

NAME	REGISTRATION NO
AHMAD BUKHORY BIN MOHD ADAM	08DEP20F2023

JABATAN KEJURUTERAAN ELEKTRIK

SESI 2 2022/2023

POLITEKNIK

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AHMAD BUKHORY BIN MOHD ADAM	08DEP20F2023

This report submitted to the Electrical Engineering Department in fulfillment of the requirement for a Diploma in Electrical Engineering

JABATAN KEJURUTERAAN ELEKTRIK

SESI 2 2022/2023

CONFIRMATION OF THE PROJECT

The project report titled "SMART SOCKET IOT WITH BLYNK" has been submitted, reviewed and verified as a fulfills the conditions and requirements of the Project Writing as stipulated

Checked by:

Supervisor's name : YAAKUB BIN OMAR

Supervisor's signature:

Date :

Verified by:

Project Coordinator name : WAN MOHD ZAMRI BIN WAN AB RAHMAN

Signature of Coordinator :

Date :

"I acknowledge this work is my own work except the excerpts I have already explained to our source"

1. Signature :

Name : **AHMAD BUKHORY BIN MOHD ADAM**

Registration Number : **08DEP20F2023**

Date :

DECLARATION OF ORIGINALITY AND OWNERSHIP

TITLE : SMART SOCKET IOT WITH BLYNK

SESSION: SESI 2 2022/2023

1. I, **AHMAD BUKHORY BIN MOHD ADAM , 08DEP20F2023**

   is a final year student of **Diploma in Electrical Engineering, Department of Electrical, Politeknik Sultan Salahuddin Abdul Aziz Shah**, which is located at **Persiaran Usahawan,40140 Shah Alam Selangor Darul Ehsan**. (Hereinafter referred to as 'the Polytechnic').

2. I acknowledge that 'The Project above' and the intellectual property therein is the result of our original creation /creations without taking or impersonating any intellectual property from the other parties.

3. I agree to release the 'Project' intellectual property to 'The Polytechnics' to meet the requirements for awarding the **Diploma in Electrical Engineering** to me.

Made and in truth that is recognized by;

a) **AHMAD BUKHORY BIN MOHD ADAM**) .
(Identification card No: - 020316-140439)) .....
) **AHMAD BUKHORY BIN MOHD ADAM**

In front of me, **YAAKUB BIN OMAR** (Click here to enter text.)) .....
As a project supervisor, on the date:) **YAAKUB BIN OMAR**

ACKNOWLEDGEMENTS

I have taken efforts in this Project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them. I am highly indebted to Yaakub bin Omar for their guidance and constant supervision as well as for providing necessary information regarding the Project & also for their support in completing the Project.

I would like to express my gratitude towards my parents & Polytechnic Sultan Salahuddin Abdul Aziz Shah for their kind co-operation and encouragement which help me in completion of this Project. I would like to express my special gratitude and thanks to industry persons for giving me such attention and time.

My thanks and appreciations also go to my colleague in developing the Project and people who have willingly helped me out with their abilities.

ABSTRACT

The abstract presents a smart socket IoT system integrated with the Blynk platform, aimed at enhancing energy management and control in residential and commercial settings. The system leverages Internet of Things (IoT) technology to enable remote monitoring and control of electrical devices connected to the smart socket.The smart socket is equipped with wireless connectivity capabilities, allowing it to communicate with the Blynk cloud-based platform. Through the Blynk mobile application, users can effortlessly manage and automate their electrical appliances remotely from anywhere with an internet connection.Key features of the system include real-time power consumption monitoring, scheduling and timer functionalities, and energy usage analytics. Users can monitor the power consumption of individual devices, set timers for device operation, and receive notifications or alerts based on predefined thresholds.The integration with Blynk enables intuitive and user-friendly control through customizable virtual buttons, sliders, and gauges, providing a seamless user experience. Additionally, the system supports data logging and visualization, allowing users to track historical energy usage patterns and make informed decisions for energy conservation.The smart socket IoT system with Blynk offers convenience, efficiency, and energy savings by empowering users to remotely manage their electrical devices. With its intuitive interface and comprehensive features, it presents a practical solution for smart home automation and effective energy management in various environments.

Commented [FAP1]: The abstract must be simple, written in one
paragraph and not more than 200 words in one page.
The abstract should be written in single spacing.
The abstract should contains, an introduction, problem statement, research objectives, results and conclusion (optional)

ABSTRAK

Abstrak ini mempersembahkan sistem IoT soket pintar yang disepadukan dengan platform Blynk, bertujuan untuk meningkatkan pengurusan dan kawalan tenaga dalam tetapan kediaman dan komersial. Sistem ini memanfaatkan teknologi Internet Perkara (IoT) untuk membolehkan pemantauan jauh dan kawalan peranti elektrik yang disambungkan ke soket pintar. Soket pintar dilengkapi dengan keupayaan sambungan wayarles, membolehkan ia berkomunikasi dengan platform berasaskan awan Blynk. Melalui aplikasi mudah alih Blynk, pengguna dengan mudah boleh mengurus dan mengautomasikan peralatan elektrik mereka dari jauh dari mana-mana sahaja dengan sambungan internet. Ciri utama sistem termasuk pemantauan penggunaan kuasa masa nyata, fungsi penjadualan dan pemasa serta analitik penggunaan tenaga. Pengguna boleh memantau penggunaan kuasa peranti individu, menetapkan pemasa untuk operasi peranti dan menerima pemberitahuan atau makluman berdasarkan ambang yang dipratentukan. Penyepaduan dengan Blynk membolehkan kawalan intuitif dan mesra pengguna melalui butang maya, peluncur dan tolok yang boleh disesuaikan, memberikan kelancaran pengalaman pengguna. Selain itu, sistem ini menyokong pengelogan dan visualisasi data, membolehkan pengguna menjejaki corak penggunaan tenaga sejarah dan membuat keputusan termaklum untuk penjimatan tenaga. Sistem IoT soket pintar dengan Blynk menawarkan kemudahan, kecekapan dan penjimatan tenaga dengan memperkasakan pengguna mengurus peranti elektrik mereka dari jauh . Dengan antara muka intuitif dan ciri komprehensifnya, ia mempersembahkan penyelesaian praktikal untuk automasi rumah pintar dan pengurusan tenaga yang berkesan dalam pelbagai persekitaran

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CHAPTER 1

1 INTRODUCTION

1.1 Introduction

A smart plug is a power plug also known as wall plugs, sockets, outlets, and electrical connectors, which can be fitted between power cords and sockets to function as a remote controlled power switch. As such, smart plugs can be used to make "Dumb" electrical equipment "Smart" and thereby enable such devices for home automation or building automation purposes. Smart plugs can for examplebe controlled via a mobile application, A Smart home hub or a virtual assistant.examples of protocols used for communication with smart plugs include Wi-Fi, Bluetooth, Zigbee and Z-Wave. Many smart plugs have a Built-In Ammeter so that electric energy consumption (Measured In Kilowatt-Hours) of the connected equipment can be monitored. Smart plugs often have a slim profile so as not to hinder access to neighbouring sockets in a wall outlet or power strip. This mini project will link via blynk application to make sure the user always in safe while using this smart socket.

1.2 Background Research

Commented [FAP4]: This section contains the introduction to the issues which the research/project is concerned

Smart homes based on IoT technology are becoming more and more popular. Main motto of IoT is to connect the hardware to the Internet from a remote location. So, we made a survey related to Smart Socket. We have gone thoroughly through a number of journals, research and conference papers and project reports to thoroughly understand the real world scenario of Home Automation and it's importance. Similarly, we have researched various projects that have ESP32 and Blynk App. Some of the points that we noticed are as follows. The Smart Socket aims at reducing the complexity of a common man in his home due to lack of time. This project is intended to generate and provide different models which have been working using the internet nothing but IoT

etc. And similarly we had done analysis of our project in detail. By the analysis we came to know that Home Automation is under developing technology for now. But in future it will be tremendous in nature. People in spite of their busy schedule Home Automation will be helpful for their daily tasks. At this end of survey we conclude that Home Automation is necessary but at low cost and high efficiency in order to successfully implement in our day to day life.

1.3 Problem Statement

Smart socket Home automation allows you to add smart lighting to your system so that you can be able to monitor and control your home's lighting from an app on your smartphone. Some smart lighting systems can even detect when you're away and automatically switch off the lights. Problem statement Smart socket Home automation refers to control the home appliances by using computer technology. Home automation provides security, energy efficiency and ease of use hence, it is adopted more. It also provides a remote interface to home appliances to provide control and monitoring on a web browser. The main disadvantage of smart socket home appliances are Installation, Depending on the complexity of the system, installing a home automation device can be a significant burden on the homeowner. The benefits of Smart socket home automation typically fall into a few categories, including savings, safety, convenience, and control.

1.4 Research Objectives

1. The purpose of this project is to practice the student to solving problem using academic research and also to gain knowledge and skill. This project is also important to train and increase the student capability to get information, research, data gathering and then solves the problem by following the procedures learned. Other than that, the project also will generate students that have capability to get a good research report in thesis form or technical writing. Moreover, this project also train and produce student to capable of doing work with minimal supervisory and more independent.
2. Smart socket design and engineering.
3. Apply the right source code for the device to connect with the smart socket.

4. Produce the minimum cost but high quality and efficient product.

1.5 Scope of Research

Commented [FAP5]: This section contains clear scopes and limitations that you have considered in the project.

1. This project focuses on students and parents to monitor low electricity consumption.
2. The emphasis is for parents or student to control the smart socket from anywhere.
3. The main controller is using ARDUINO UNO

1.6 Project Significance

Commented [FAP6]: This section contains the significance of the proposed project/research. You should cite previous research in this area. You should cite those who had the idea or ideas first, and should also cite those who have done the most recent and relevant work. You should then go on to explain why more work was necessary (your work, of course.)

The significance of using a smart socket with Blynk in an IoT (Internet of Things) context lies in the numerous benefits and capabilities it offers. Here are some key aspects of the significance:

1. Remote access and control: One of the significant advantages of using a smart socket with Blynk is the ability to remotely access and control your electrical appliances. Blynk provides a user-friendly mobile app that allows you to turn devices on or off, set schedules, and monitor energy usage from anywhere in the world. This remote control capability adds convenience and flexibility to managing your appliances.

2. Energy efficiency: Smart sockets integrated with Blynk enable you to monitor and optimize energy consumption. By tracking real-time energy usage data, you can identify power-hungry devices, set energy-saving schedules, and make informed decisions about energy consumption. This helps in reducing electricity bills and promoting sustainability.

3. Automation and customization: Blynk offers a range of automation features that can be applied to smart sockets. You can create custom rules and triggers to automate actions based on specific conditions. For example, you can program the smart socket to turn off the TV automatically when no motion is detected in the room for a certain period. This level of automation enhances convenience and efficiency in managing your appliances.

4. Integration with other IoT devices and services: Blynk provides compatibility with various IoT platforms, devices, and services. This allows you to integrate your smart socket with other smart devices such as sensors, cameras, and voice assistants. By connecting different IoT components, you can create a cohesive and interconnected smart home ecosystem, enabling seamless interactions and automation between devices.

5. Real-time monitoring and notifications: With Blynk, you can monitor the status and energy usage of your appliances in real-time. This monitoring capability provides insights into appliance behavior and performance. Additionally, Blynk can send notifications and alerts based on predefined conditions, such as notifying you when a device is left on or when a power outage occurs. These features enhance safety, provide timely information, and empower you to take necessary actions.

6. User-friendly interface and customization: Blynk offers a visually appealing and intuitive user interface that allows you to customize the layout and design of the mobile app according to your preferences. You can create personalized dashboards with widgets, buttons, and graphs to control and monitor your smart sockets in a way that suits your needs.

Overall, the significance of using a smart socket with Blynk lies in its ability to enhance control, convenience, energy efficiency, and automation in managing your electrical appliances. By leveraging the power of IoT and cloud connectivity, you can transform your home into a smart, interconnected environment that provides flexibility, energy savings, and improved user experience.

CHAPTER 2

2 LITERATURE REVIEW

2.1 Introduction

Commented [FAP7]: This section contains the introduction of this chapter. Briefly tell the reader what are the important matters will be reviewed during the project/research development.

The integration of smart sockets with the Internet of Things (IoT) and the Blynk platform has revolutionized the way we interact with and manage our electrical appliances. Smart sockets, also known as intelligent or Wi-Fi sockets, are devices that can be controlled remotely using a mobile application or a web interface. By combining smart sockets with IoT technology and integrating them with the Blynk platform, users gain advanced control, automation, and monitoring capabilities for their electrical devices.

In this era of digital connectivity, smart homes have become increasingly popular. People are seeking ways to make their living spaces more efficient, convenient, and environmentally friendly. Smart sockets with Blynk offer a practical solution by allowing users to transform their regular electrical outlets into intelligent, connected ones. With the ability to control and monitor devices remotely, users can manage their appliances from anywhere, at any time.

The purpose of this paper is to explore the concept and implications of using smart sockets with Blynk in the IoT context. This literature aims to review existing research, studies, and developments related to this integration. By examining the advantages, functionalities, and challenges associated with smart sockets and Blynk, we can gain a deeper understanding of the significance and potential of this technology.

Throughout this exploration, we will delve into the remote access and control features offered by smart sockets with Blynk, enabling users to turn devices on or off, set schedules, and monitor energy usage from their smartphones. We will also examine

the energy efficiency benefits, as smart sockets allow for optimized power consumption and promote sustainable practices.

Moreover, the automation and customization capabilities provided by Blynk-integrated smart sockets will be explored. We will discuss how users can create rules and triggers to automate actions based on specific conditions, enhancing convenience and efficiency in managing appliances.

Additionally, we will examine the integration of smart sockets with other IoT devices and services. This integration allows for a cohesive smart home ecosystem, enabling seamless interactions and automation between various smart devices.

In conclusion, the integration of smart sockets with Blynk in the IoT domain offers numerous advantages, including remote control, energy efficiency, automation, and integration possibilities. By exploring the existing literature and research, we can gain insights into the potentials and challenges associated with using smart sockets with Blynk, ultimately paving the way for a smarter and more connected living environment.

CHAPTER 3

3 RESEARCH METHODOLOGY

3.1 Introduction

Commented [FAP8]: This section contains the introduction of this chapter. Briefly tell the reader what are the methods and techniques will be used in the project. This is important as it informs the readers on the methods used to achieve the objectives of the project that lead towards collecting the data and generate the findings reported

To realize this Project as a product that ready to use with safety characteristic, a very comprehensive plan is undertaking. A step by step procedure is done so that the Project can be completed in time. This include collecting data of sample children finger, design the mechanical part, circuit design testing and verification.

3.2 Project Design and Overview.

Commented [FAP9]: In this section, you can describe and explain the research methodology used in the study. The subsection may include the research design/research procedures adopted in terms of block diagram and flow chart. Note that all previous works must be cited according to APA (American Psychological Association) style.

The goal of this project is to design and develop an automated surveillance system using the Blynk IoT platform. Smart socket systems will leverage IoT capabilities to provide consumers with enhanced control, convenience and energy efficiency in their electricity consumption process. This overview outlines the main components and features of the project. An Arduino or ESP32 board will serve as the main microcontroller, responsible for collecting sensor data and controlling the system. Sensors such as sensors exceed the limit of electric current consumption.

3.2.1 Block Diagram of the Project

3.2.2 Flowchart of the Project 2

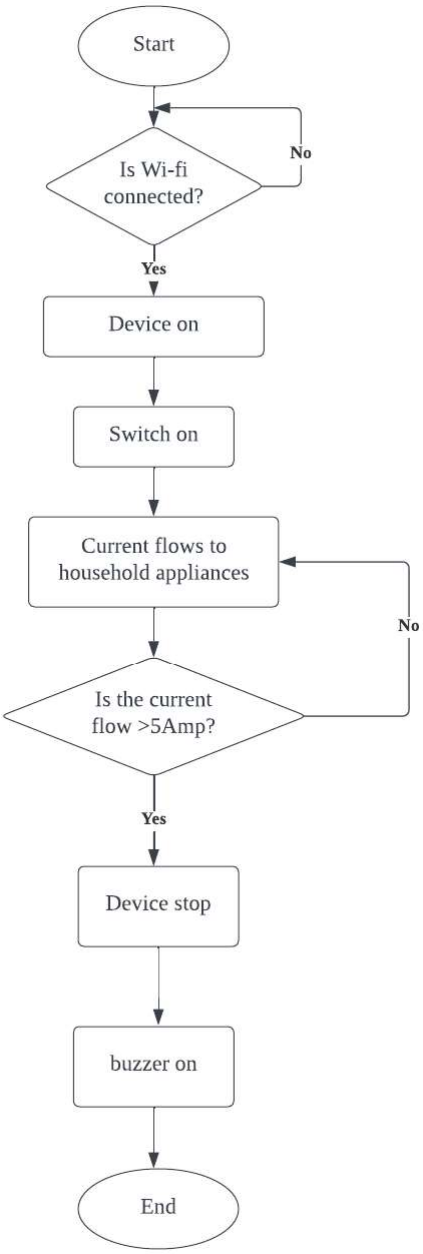

Figure 3.1: Flow chart of operation of the system
*Images may be subject to copyright

3.2.3 Project Description

The project aims to create a smart socket system by integrating Internet of Things (IoT) technology with the Blynk platform. The smart socket system will provide users with remote control, monitoring, and automation capabilities for their electrical appliances.

Key Components:

Smart Socket: The project will require a smart socket device that can be connected to the electrical outlet and controlled remotely. This smart socket should be compatible with IoT protocols and capable of wireless communication.

IoT Connectivity: The smart socket will be integrated with an IoT module or microcontroller board, such as Arduino or Raspberry Pi. This will enable the socket to connect to the internet and communicate with the Blynk platform.

Blynk Platform: Blynk is a cloud-based IoT platform that provides a user-friendly interface and mobile app for controlling and monitoring IoT devices. It allows users to create customized dashboards and control panels for their smart socket system.

Mobile Application: The project will utilize the Blynk mobile app, which is available for both iOS and Android devices. This app will serve as the primary interface for users to control their smart sockets, set schedules, monitor energy usage, and receive notifications.

Cloud Connectivity: The smart socket system will establish a connection with the Blynk cloud server. This cloud connectivity enables users to access and control their smart sockets remotely, as well as store and analyze data collected from the devices.

Functionality and Features:

Remote Control: Users will be able to turn the connected appliances on or off remotely using the Blynk mobile app. This feature provides convenience and flexibility, allowing users to control their devices from anywhere with an internet connection.

Scheduling and Automation: The smart socket system will enable users to set schedules for their appliances. They can define specific times for turning devices on or off automatically. Additionally, users can create automation rules based on certain conditions, such as motion detection or ambient light levels.

Energy Monitoring: The project will incorporate energy monitoring capabilities, allowing users to track the energy consumption of their appliances. Real-time energy

usage data will be displayed on the Blynk app, enabling users to identify power-hungry devices and make informed decisions for energy efficiency.

Notifications and Alerts: Users will receive notifications and alerts on their mobile devices based on predefined events or triggers. For example, they can be notified if a device has been left on for an extended period or if there is a power outage.

Data Visualization and Analysis: The project may include data visualization features, such as graphs and charts, to display historical energy usage data. This allows users to analyze their consumption patterns and make adjustments for better energy management.

Overall, the smart socket IoT project with Blynk aims to create a user-friendly and feature-rich system for controlling, monitoring, and automating electrical appliances. The integration of IoT technology and the Blynk platform offers enhanced convenience, energy efficiency, and remote accessibility for users to manage their smart sockets from anywhere.

3.2.4 Schematic Circuit

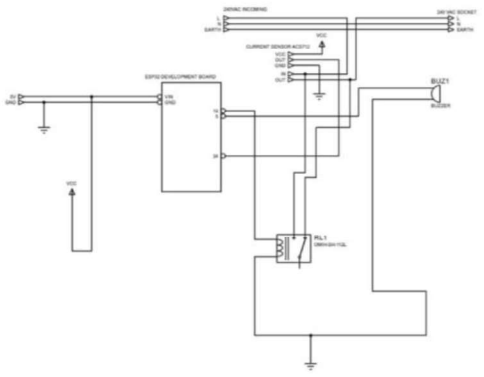

Figure 3.2: Circuit Diagram

3.2.5 Description of Main Component

ESP 32

The ESP32 is a powerful microcontroller module that is widely used in the field of Internet of Things (IoT) and wireless communication. Developed by Espressif Systems, the ESP32 offers a range of features and capabilities that make it popular among electronics enthusiasts and IoT developers. Here are some key points about the ESP32:

Dual-Core Processor: The ESP32 features a dual-core Tensilica LX6 processor, which allows for efficient multitasking and performance optimization. The cores can be individually controlled and used for different tasks, providing flexibility and improved processing capabilities.

Wi-Fi and Bluetooth Connectivity: One of the standout features of the ESP32 is its built-in Wi-Fi and Bluetooth capabilities. It supports both Wi-Fi 802.11 b/g/n and Bluetooth 4.2 protocols, enabling seamless wireless communication and connectivity with other devices, networks, and IoT platforms.

Rich I/O Capabilities: The ESP32 offers a wide range of input/output (I/O) pins, including digital and analog pins, PWM (Pulse Width Modulation) pins, UART (Universal Asynchronous Receiver-Transmitter) interfaces, I2C (Inter-Integrated Circuit) interfaces, SPI (Serial Peripheral Interface) interfaces, and more. This makes it suitable for connecting various sensors, actuators, and other peripheral devices.

Memory and Storage: The ESP32 module typically comes with a generous amount of memory, including both RAM and Flash memory. This allows for ample storage space for program code, data, and other resources.

Development Environment: The ESP32 can be programmed using various development environments, including the Arduino IDE, Espressif's official ESP-IDF (ESP32 IoT Development Framework), and other popular platforms such as MicroPython and

PlatformIO. This flexibility provides options for developers with different programming preferences.

IoT and Cloud Integration: The ESP32 is well-suited for IoT applications due to its wireless connectivity options. It can connect to cloud services, such as AWS IoT, Google Cloud IoT, or Microsoft Azure, allowing for seamless integration with IoT platforms and services.

Low Power Consumption: The ESP32 is designed to be energy-efficient, offering several power-saving features such as a sleep mode, which enables long battery life and efficient use of power in battery-operated devices.

Community Support: The ESP32 has a large and active community of developers and enthusiasts, providing extensive documentation, tutorials, and libraries that make it easier to get started with projects and troubleshoot any issues.

The ESP32's combination of processing power, wireless connectivity, rich I/O capabilities, and compatibility with various development environments makes it a versatile choice for IoT applications, home automation systems, wearable devices, and other projects that require wireless communication and advanced functionality.

3.2.6 Mechanical Design/Product Layout

3.3 Sustainability Element in The Design Concept

In this sub-topic student should elaborate on the design criteria of their Project either environmental design criteria, social design criteria use of sustainable design tool or economic design criteria. Also explain contribution to the society of the Project proposed.

3.4 Chapter Summary

The first section of this chapter focuses on the findings on the problem of identifying the fault of the underground cable, with some summary from the research papers regarding the process of development of the project. The second portion reveals information regarding the technical element, including the choice of controller type. This chapter also summarizes the analysis and explanation of the technologies or approaches employed by previous researchers to answer the problem statement. The main controller in this project will be an ESP 32.

CHAPTER 4

4 RESULTS AND DISCUSSION

4.1 Introduction

Commented [FAP10]: This chapter contains the interpretation of the results and the analysis of data. The findings of the research should be compared and contrasted with those of previous studies presented in the literature review

This chapter presents the results obtained from the data analysis which has been made through several questionnaire where testimony is given to both users and Industrial. Apart from that, the whole process of collecting and analyzing data is discussed properly in order to fully understand the problem occurred and how it is solved for a successful project and lastly this chapter will conclude all parts of the project.

4.2 Results and Analysis

Commented [FAP11]: In this section, you can show your project result by providing related figures and table. Then, elaborate and discuss the results clearly


Hair dryer : 0 ,1 ,2 level

set current >5 cut off	Object	Use current	Result
5 ampere	Hair dryer	2.45 ampere	Hair dryer works
5 ampere	Hair dryer	5 ampere	Hair dryer not works

4.3 Discussion

The use of NodeMCU as a client and installed in every room in the house makes it easy to install smart home. The ability of NodeMCU to read sensors and execute commands to activate actuators can also run as expected. However, with a minimum power supply installed in the NodeMCU, it is necessary to pay attention to the I / O usage load installed to the NodeMCU so that the NodeMCU works within a standardized range.

The use of Raspberry Pi as a server and data center also has an impact on the cheapness of building a smart home. In addition, if needed Raspberry pi has the ability to control the actuator and read the sensor through its GPIO. With data stored on the raspberry pi storage media, users can track and check events that have been recorded in the log data. However, in order for a system to be more reliable, a backup power supply should be designed in the event of a power failure.

CHAPTER 5

5 CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The integration of smart sockets with the Internet of Things (IoT) and the Blynk platform has revolutionized the way we interact with and manage our electrical appliances. Smart sockets, also known as intelligent or Wi-Fi sockets, are devices that can be controlled remotely using a mobile application or a web interface. By combining smart sockets with IoT technology and integrating them with the Blynk platform, users gain advanced control, automation, and monitoring capabilities for their electrical devices.

In this era of digital connectivity, smart homes have become increasingly popular. People are seeking ways to make their living spaces more efficient, convenient, and environmentally friendly. Smart sockets with Blynk offer a practical solution by allowing users to transform their regular electrical outlets into intelligent, connected ones. With the ability to control and monitor devices remotely, users can manage their appliances from anywhere, at any time.

The purpose of this paper is to explore the concept and implications of using smart sockets with Blynk in the IoT context. This literature aims to review existing research, studies, and developments related to this integration. By examining the advantages, functionalities, and challenges associated with smart sockets and Blynk, we can gain a deeper understanding of the significance and potential of this technology.

Throughout this exploration, we will delve into the remote access and control features offered by smart sockets with Blynk, enabling users to turn devices on or off, set schedules, and monitor energy usage from their smartphones. We will also examine the energy efficiency benefits, as smart sockets allow for optimized power consumption and promote sustainable practices.

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and triggers to automate actions based on specific conditions, enhancing convenience and efficiency in managing appliances.

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5.2 Conclusion

Commented [FAP12]: In this section, evidence that the results of the data analysis support the conclusions of the study is discussed here. Reasonable explanations are provided for findings with conclusions supported by results you can show your project result by providing related figures and table.

In this paper, The control system and home monitoring design has been completed. This paper is mainly focused on the use of WIFI to minimize installation, and the design prototype can be applied to real-time control of home, automation, monitoring and remote system control. In conclusion, the prototype of this IoT-based socket control system (S-IoT) has worked well. The use of IoT systems in this project can also be used without the need for extensive wiring from the control system to the socket, it also allows the socket to be controlled remotely without using wires instead, using the Blynk application on smartphones. The use of sockets manually is still used, with this S-IoT system the user does not have to turn on and off an electrical appliance manually the socket can be controlled using smartphone and Blynk application and current readings and electricity consumption for electrical equipment connected to the socket can be measure. The production of projects using IoT is in line with current technology.

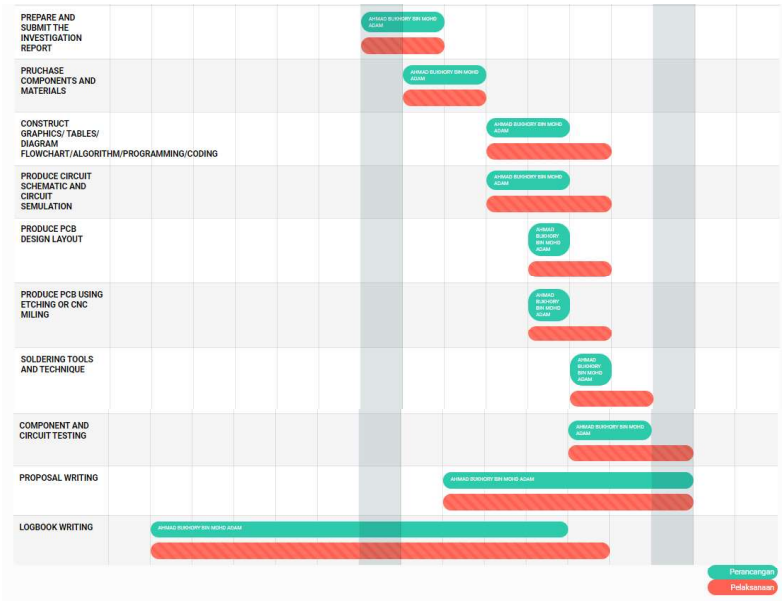
CHAPTER 6

6 PROJECT MANAGEMENT AND COSTING

6.1 Introduction

This chapter presents the project management and costing for overall project that were planned and is done after taking consideration of each values and aspects in order to fulfill all of the things needed for a successful project.Gant Chart and Activities of the Project

Gantt Chart and Activities of the Project during Project 1



Gantt Chart and Activities of the Project during Project 2

CARTA GANTT : PERANCANGAN DAN PELAKSANAAN PROJEK PELAJAR

SESI : 2 : 2022/2023
JABATAN: JKE
KODKURSUS: DEE50102
TAJUK PROJEK : SMART SOCKET IOT WITH BLYNK

]

6.2 Cost and Budgeting

NO	COMPONENTS AND MATERIALS	THE UNIT PRICE	QUANTITY	TOTAL
1	ESP 32	RM45.00	1	RM 45.00
2	RELAY	RM 25.00	1	RM 25.00
3	BOX SOCKET	RM25.00	1	RM 25.00
4	SOCKET	RM15.00	1	RM 15.00
5	JUMPER WIRES	RM 20.00	40	RM 20.00
6	BUZZER	RM30.00	1	RM 30.00
				RM 160.00

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[2] "A SIMPLE SMART HOME BASED ON IOT USING NODEMCU AND BLYNK Compiled as one of the requirements of completing the undergraduate program at the department of Electrical Engineering Faculty By: AHMED H.H IMAM D400 154 012 ELECTRICAL ENGINEERING STUDY PROGRAM FACULTY OF ENGINEERING UNIVERSITAS MUHAMMADIYAH SURAKARTA," 2019. Accessed: May 26, 2023. [Online]. Available: https://eprints.ums.ac.id/77154/3/Naskah%20Publikasi-2.pdf

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APPENDICES

APPENDIX A- DATA SHEET

Commented [FAP13]: Put relevant data sheet that you are referring while doing your project

7th INTERNATIONAL CONGRESS OF EURASIAN SOCIAL SCIENCES

ICOESS - 2023

27-30 April 2023 Bodrum / MUGLA / TURKEY

www.icoess.com

LETTER of ACCEPTANCE

Dear AHMAD BUKHORY BIN MOHD ADAM,

"SMART SOCKET IOT WITH BLYNK" was examined by the referee committee and accepted to be presented as an ORAL PRESENTATION at our congress.

We are pleased to invite you to the 7th International Congress of Eurasian Social Sciences, which will be held on 27-30 April 2023.

Prof. Dr. Kubilay YAZICI
Niğde Ömer Halisdemir University
Head of Organizing Committee


7th INTERNATIONAL CONGRESS OF EURASIAN SOCIAL SCIENCES
27-30 April 2023 Bodrum, Mugla, TURKEY (Online)
ICOESS
PRESENTER CERTIFICATE
Dear AHMAD BUKHORY BIN MOHD ADAM
Hosted by International Vision University; with the contributions of the Korint Publishing, International Journal of Eurasia Social Sciences, International Journal of Education Technology and Scientific Researches and the International Journal of Eurasian Education and Culture, in the 7th International Congress of Eurasian Social Sciences which was held on 27-30 April 2023, participated with a paper titled "SMART SOCKET IOT WITH BLYNK".
Prof. Dr. Kubilay YAZICI
Head of the Organizing Committee
KORINT
IJETS@R
IJOEEC

APPENDIX B- PROGRAMMING

Commented [FAP14]: Put your coding here

```
#include <Wire.h>
#include "EmonLib.h"
EnergyMonitor emon1;

// Template ID, Device Name and Auth Token are provided by the Blynk.Cloud
// See the Device Info tab, or Template settings
#define BLYNK_TEMPLATE_ID           "TMPL6KmY-kGIo"
#define BLYNK_TEMPLATE_NAME         "Quickstart Template"
#define BLYNK_AUTH_TOKEN            "Rso5gLvSSE8fefZeP--Afq5-KcU0UXEH"

// Comment this out to disable prints and save space
#define BLYNK_PRINT Serial


#include <WiFi.h>
#include <WiFiClient.h>
#include <BlynkSimpleEsp32.h>


#define LedG 4
#define LedR 18
```

```
#define RLY 5

#define Buzz 25




#define vCalibration 83.3

#define currCalibration 0.50


#define ADC_BITS    10

#define ADC_COUNTS  (1<<ADC_BITS)


int mode=0;

int SECURITY=0;

int MOTSTAT=0;


// Potentiometer is connected to GPIO 34 (Analog ADC1_CH6)

const int potPin = 34;

const int potPin2 = 35;

const int potPin3 = 32;

const int potPin4 = 33;

const int potPin5 = 25;
```

```
int TW=0;

int Load=0;

float Power;

float KWH;

float KWHbySec=0;

float KWHbyminute;

float TotalKWH;

float KWM;

float TotalUseRM;

int cnter=0;

float ACS;

float WATT;


float Amp;

float Ampx=0;

float REF = 2.55;

float RAWMax = 2.50;

float RAW[200];

float AVMin1=0;

float AVMax1=0;

float TAV1=0;

int SensorPin = 0;
```

```
long duration1x, duration2x, distance2, duration3x, distance3, duration4x,
distance4, duration5x, distance5;
float inch,distance1;
float ADC1,ADC2,ADC3,ADC4;
float temperature = 25;
float h=0,t=0;
float hx=0,tx=0;
// variable for storing the potentiometer value
int potValue = 0;
  long irValue = 0;
int DSP=0;
  int LSTAT=0;
  int SOCKSTAT=0;

int PIRSTAT=0;
int BIT=0;
int ALM1=0,ALM2=0,ALM3=0,ALM4=0;
int Ready=0;
int Ml=0;
String MinS="00";
String HourS="00";
String SecS="00";
int DataIn=0;
String DATA="";
```

```
String Temp1x="";
String PHx="";
String Temp2x="";
String Temp1y="";
String PHy="";
String Temp2y="";
String Temp3y="";
String Temp3x="";
String Temp4y="";
String Temp4x="";
String currentTime;
String currentDate;
String TimerGet="00:00:00";
int MODE=0;
int Hour=0;
int Min=0;
float Tempx=0;
int Spo2=0;
int Sec=0;
float SOIL;
float LEVEL=0;
int ALM=0;
int Val=100;
int Index=0;
```

```
float CV=0;

int CKN=0;

//-----------------------------------------------------------------

int TDIS=0;

int Rly1=0;

int wait=0;

int Rly2=0;

int Rly3=0;

int Rly4=0;

int Rly5=0;




float SBP,DBP;

float TD=0;

float TDm=0;

int STEP=0;

float StepCount=0;

float OldIrValue=0;

int Beat=0;

int BeatCount=0;

float PPg=0;


int Tcount=0;
```

```
long previousMillis = 0;
long interval = 3000;
long previousMillis1 = 0;
long interval1 = 10000;
//---------------------------------------------
  long UpperThreshold = 518;
    long LowerThreshold = 490;
    long reading = 0;
    float Pulse = 0.0;
    bool IgnoreReading = false;
    bool FirstPulseDetected = false;
    unsigned long FirstPulseTime = 0;
    unsigned long SecondPulseTime = 0;
    unsigned long PulseInterval = 0;
    int MyTimer=0;
//---------------------------------------------


//-------------------------------------------------------


char auth[] = BLYNK_AUTH_TOKEN;
```

```
// Your WiFi credentials.
// Set password to "" for open networks.
char ssid[] = "SMART";
char pass[] = "12345678";

BlynkTimer timer;

// This function is called every time the Virtual Pin 0 state changes

BLYNK_WRITE(V10)
{
  int pinValue = param.asInt(); // assigning incoming value from pin V1 to a
variable
  Rly1=pinValue;
   if (pinValue==1){
digitalWrite(RLY,HIGH);

  }
   if (pinValue==0){
digitalWrite(RLY,LOW);
  }

  }
```

```
BLYNK_WRITE(V11)
{
  int pin2Value = param.asInt(); // assigning incoming value from pin V1 to
a variable
  Rly2=pin2Value;
   if (pin2Value==1){
     digitalWrite(LedR,HIGH);
/*
  lcd.clear();
  lcd.setCursor(0, 1);
  lcd.print("SOCKET ON");
  digitalWrite(SOCKET,HIGH);
  SOCKSTAT=1;
  */

  }
   if (pin2Value==0){
     digitalWrite(LedR,LOW);
    /*
 lcd.clear();
  lcd.setCursor(0, 1);
  lcd.print("SOCKET OFF");
  digitalWrite(SOCKET,LOW);
  SOCKSTAT=0;
```

```
  */
  }
  // process received value
}
BLYNK_WRITE(V12)
{
  int pin3Value = param.asInt(); // assigning incoming value from pin V1 to
a variable
  Rly3=pin3Value;

}

BLYNK_WRITE(V13)
{
  int pin4Value = param.asInt(); // assigning incoming value from pin V1 to
a variable
  Rly4=pin4Value;



}

BLYNK_WRITE(V14)
{
```

```
  int pin5Value = param.asInt(); // assigning incoming value from pin V1 to
a variable
  Rly5=pin5Value;

  // process received value
}
//-------------------------------------------------------------------------

// This function is called every time the device is connected to the
Blynk.Cloud
BLYNK_CONNECTED()
{
}
void myTimerEvent()
{
   //-----------------------------------------------------------------
static unsigned long timepoint = millis();


  if (millis() - timepoint > 1000U) //time interval: 1s
  {
```

```
    double Irms = (emon1.calcIrms(1480))/2;


 Irms=Irms*0.06667;


if (Irms<0.06){
 Irms=0.00;
 digitalWrite(LedG,LOW);
}
 if (Irms>=0.06){
 Irms=Irms*10;


}
  WATT=(Irms*230.0);



 Serial.print(Irms);
 Serial.print("\t");
 Serial.print(WATT);
 Serial.print("\t");
 Serial.println(TotalKWH);
  //--------------------------------------------------------
if (Irms>0){
```

```
      KWH = WATT * 1/ 1000;
     KWHbyminute = KWH/60;
     KWHbySec = KWHbyminute/60;

 //------------------------------------------------------------CALCULATE          BY
HOUR USAGE

      TotalKWH = TotalKWH+KWHbySec;
       if (TotalKWH < 201){
       TotalUseRM = TotalKWH*0.218;
       }
       if (TotalKWH > 200 && TotalKWH < 301){
       TotalUseRM = (200*0.218) + ((TotalKWH - 200)*0.334);
       }
       if (TotalKWH > 300 && TotalKWH < 401){
       TotalUseRM = (200*0.218) + (100*0.334) + ((TotalKWH - 300)*0.404);
       }

       //-------------------------------------------------------------
   }
   //*************************************************
  //   lcd.begin();
DSP++;
if (DSP>4){
```

```
  DSP=0;
}
if (DSP<=2){



}
if (DSP>2 && DSP<=4){


}
  //-------------------------------------------------------------


    //  Serial.print(beatAvg);
    // Serial.print("\t");
    //Serial.print(tx);
    // Serial.print("\t");
    //  Serial.println(hx);
if (ALM==1){


}
delay(100);


Blynk.virtualWrite(V0,Irms);
Blynk.virtualWrite(V1,WATT);
  }
```

```
  //------------------------------------------------------------
}
void setup()
{
//                                adc1_config_channel_atten(ADC1_CHANNEL_6,
ADC_ATTEN_DB_11);
  analogReadResolution(10);
 emon1.current(potPin, 34);
  int i,k;
pinMode(LedG, OUTPUT);
pinMode(RLY, OUTPUT);
  pinMode(LedR, OUTPUT);
    pinMode(Buzz, OUTPUT);
  delay(3000);
delay(1500);
  Serial.begin(9600);
  Blynk.begin(auth, ssid, pass);
  // You can also specify server:
  //Blynk.begin(auth, ssid, pass, "blynk.cloud", 80);
  //Blynk.begin(auth, ssid, pass, IPAddress(192,168,1,100), 8080);
  // Setup a function to be called every second
  timer.setInterval(1000L, myTimerEvent);
  delay(2000);
}
```

```
void loop()
{
  Blynk.run();
  timer.run();

}
```

APPENDIX C- PRODUCT POSTER