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Review on Home Automation Dashboard Using IOT

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Abstract: *This project is about finding a solution mainly for elderly people and physically challenged people to make it more convenient and more reliable to operate home appliances. Mobile communication technology is playing a major role in automation. This project is basically on reliable home control for switching ON and OFF the appliances remotely using the Smartphone application. While using this technology the system improves the living standard at home, reduces human effort, is energy efficient, and is easy to access thus making a smart home. The proposed system consists of a Bluetooth module, NodeMCU, 4-channel relay module. This module controls the home appliances with very ease of installation and it is user friendly.*

Keywords: Home Automation, Smart Home, Remote Appliance Control, NodeMCU

I. INTRODUCTION

In our Current era, Home automation is become more beneficial because of its safety and security. Nowadays, home automation became more advance and precise to operate all the home appliances. Home automation system become energy efficient and highly approachable smart home technique. It involves basic features to maintain the user satisfaction and comfort. This proposed system is a precise combination of Android smart phone and embedded system which include NodeMCU, Wi-Fi module, Bluetooth module and Relay circuit. In this paper, we used a wireless technology to operate the device. An android application is installed in a mobile device i.e. android smart phone and it has inbuilt switch interface of all the appliances separately in it. Through which all the respective devices can be control and monitor individually. The Wi-Fi module receives the command from mobile phone and passes to relay circuit. As per the given signal from the user, the relay circuit switched ON/OFF the respective devices. The main purpose of using Wi-Fi wireless technology is to provide a greater extent to range and better feasibility.

II. LITERATURE SURVEY

Home automation systems have evolved significantly with the advancement of the Internet of Things (IoT). These systems aim to improve convenience, energy efficiency, and accessibility for users, particularly in homes where elderly people or physically challenged individuals reside. The IoT-enabled home automation dashboard provides centralized control and monitoring of household devices, enhancing the overall quality of life. Below is a literature survey on the topic of Home Automation Dashboards using IoT.

III. PROPOSED SYSTEM

The proposed system for **Home Automation Dashboard Using IoT** aims to provide an efficient, user-friendly, and accessible platform for controlling and monitoring household appliances remotely. This system is especially designed to benefit elderly individuals, physically challenged users, and anyone seeking an intuitive, energy-efficient way to manage their home appliances. It leverages IoT technologies such as **NodeMCU**, **Bluetooth/Wi-Fi modules**, **relays**, and **sensors** to create a smart home environment where users can easily control and monitor appliances from their smartphones or web interfaces.

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System Components

- **NodeMCU (Microcontroller):** The core component of the system is the NodeMCU, a low-cost microcontroller with built-in Wi-Fi functionality. It acts as the main controller for the system, receiving inputs from sensors, controlling relays, and transmitting data to the user interface (mobile/web app).
- **Relay Modules:** The relay module acts as a switch that controls the appliances based on commands received from the NodeMCU. The user can switch on/off devices such as lights, fans, and other electrical appliances.
- **Sensors:** Temperature and Humidity Sensors, Motion Sensors, Light Sensors, Gas Sensors (optional)
- **Mobile Application**: The mobile application will serve as the primary user interface, allowing users to remotely control and monitor the appliances.

Block Diagram of the proposed system

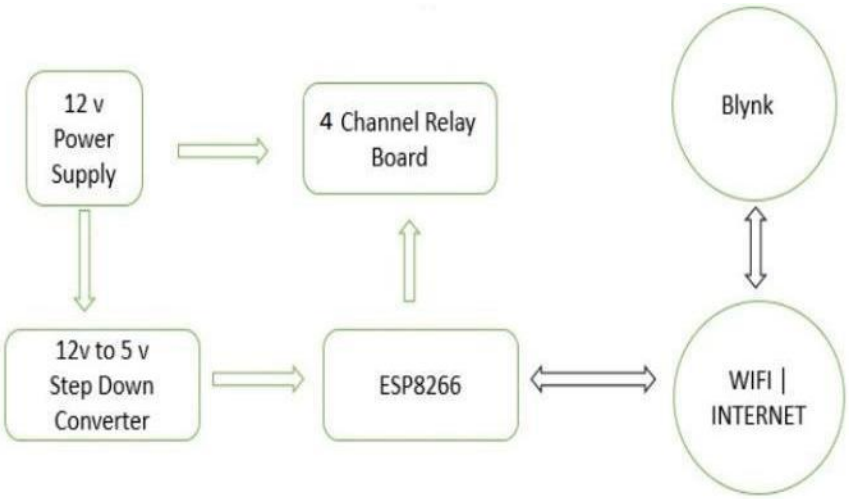

Figure: Block Diagram of the proposed system

The circuit diagram of the proposed system is shown in Fig. 2.

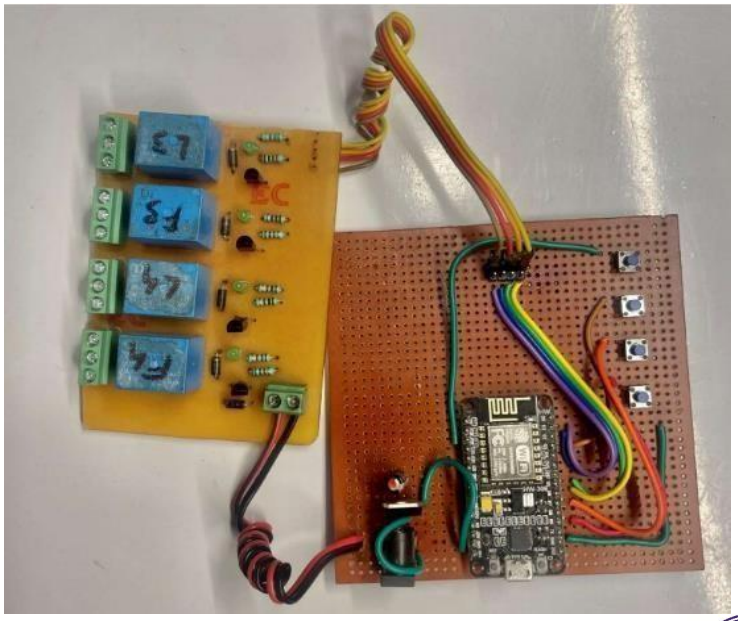

Figure : Circuit diagram of the proposed system

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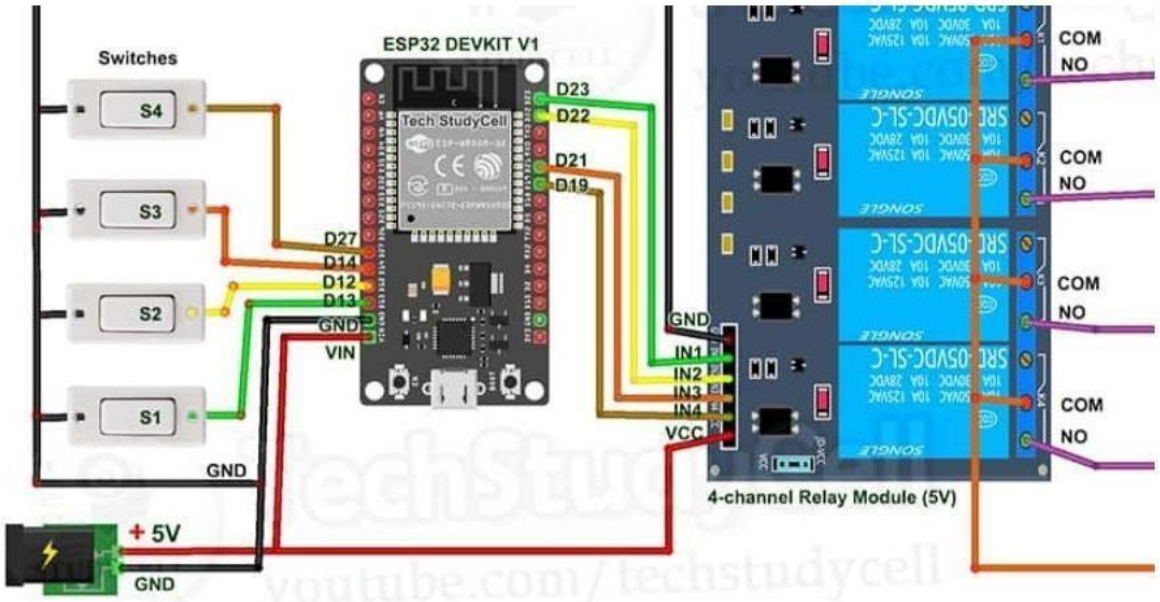

Figure: Relay diagram of the system

IV. CONCLUSION

This project is developed to make a smart home automation system using microcontroller, Bluetooth module. A system that could be operated using by an app, voice control to operate the appliances from anywhere. The differently-abled, old peoples will be the most beneficiary of this system as they can operate the appliances independently. The system requires a WiFi or an internet connection to function and in the absence of internet connection, Bluetooth connection is been used to function the operation efficiently. So, we proposed this system which to be highly energy saving and reliable and make people feel more comfortable and satisfied. Now everyone can utilize this technology to operate the appliances. The home automation system has been experimentally proven to work satisfied by connecting sample appliances to it and the application were successfully controlled from a wireless mobile device. We learned many skills such as soldering wiring the circuit and other tools that we use for this project and was able to work together as a team during this project. The Bluetooth client was successfully tested on a multitude of different mobile phones from different manufacturers, thus proving its portability and wide compatibly. Thus a low- cost home automation system was successfully designed. Implement and tested.

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