

BULB AND FAN CONTROL BY ARDUINO AND WIFI

MINOR PROJECT SYNOPSIS

BACHELOR OF TECHNOLOGY

Information Technology

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1 Introduction

Do you want to automate your home? Ever wished to control your appliances with a swipe on your phone? Have you ever wondered about how home automation can give you the facility of controller? Seeing an increasing demand for smart homes, where appliances react automatically to changing environment conditions and can be easily through one common device. We have come up with a new system called Arduino based Bulb and Fan automation. This system is super cost effective and can give the user, the ability to control these device without even spending for a remote control. This system allows automated Bulb and Fan for better convenience, energy efficiency, and security.

With the help of this system you can control your room bulb and fan from your mobile phone ,you can turn on/off them within the range of Wifi . With Wifi, we are using IOT(internetof things) concecpt, IOT is an umbrella term used for all technologies that enable the connection of a device to the Internet. Secondly we are using DCLD(digital circuits and logic design), the system uses DCLD technology that receives commands from phone and produces digital output which initiates relay driver to switch ON/OFF the bulb and fan using IC's,relays etc .Once the call is received by the Smart phone connected to the system, the user can now send commands to operate the light.

2 Objectives

1. The objective of this project is to implement a low cost, reliable and scalable automated Bulb and Fan that can be remotely switched on or off .
2. TO PROVIDE ANYTIME AND ANYWHERE ACCESS - Because you can access your smart Bulb and fan switch system from anywhere via your app using wifi, you can simply open your app and turn them off without reaching out it's switches.
3. HELP HANDICAPPED AND OLD -The objective of this project is to help handicapped and old aged people which will enable them to control mostly used appliances like Bulb and fan with ease.
4. ENERGY SAVING - To save the energy or power used in places like office or homes where lighting is very much important for the people and provide an automated life style.
5. TO SETUP EXCELLENT CONTROL OVER SWITCH - After the system is set-up, with the help of a mobile phone and a controller, tests are driven while data is recorded and inspected. Providing the ease to switch on/off light.

3 Feasibility Study

The project is executed within a one semester frame. The time frame allocated for this project is limited but adequate through proper time management and planning. The aim of this project is to design an open source, easy-to-use and affordable bulb and fan automation. For this reason the Arduino IDE and Node MCU Esp8266 is used, acting as the main controller for the system by sending signals to control bulb and fan. A smartphone application - Blynk app works as the user interface while a standard wireless network is used as the medium between Arduino and smartphone application.

Day by day , the field of automation is blooming and these systems are having great impact on human beings. The project which is to be implemented is using IOT and WIFI and has very good future development. This project intends to encourage the use of home automation systems in all classes of homes, through the design of a low cost, easy to use, and open source home automation system; ultimately helping in providing a convenient, energy efficient, and secure environment for the society. To save the energy or power used in places like office or homes where lighting is very much important for the people and provide an automated life style.

4 Methodology/ *Planning* of work

After confirmation of the project title, preliminary research is done to analyze it. Further research is then made to find the most suitable hardware and software in executing the project. The plan for the system's design is then laid out and materials are purchased. The Arduino programming language must be familiarized. The next step involves getting the system to work wirelessly utilizing the Wi-Fi shield and wireless control through web browser to control fan and bulb. After the hardware setup is finalized and once the system is found to be stable, with the help of android application - Blynk app ,the system is controlled .

- .A coding is written in the C language, which is then given into the NODE MCU module.
- The connections are made as per the connection diagram.
- Source supply is provided to the bulb and fan.
- With the help of application in the android, the switching of bulb and fan can be controlled.

5 Facilities required for proposed work

Hardware Requirement

1. Node MCU Esp8266
2. Channel Relay
3. USB Cable
4. Connecting wires
5. Smartphone
6. Bulb and bulb holder
7. Fan
8. Power supply

Software Requirement

1. Arduino IDE
2. Wifi connection
3. BLYNK App

6 References

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