

HOME AUTOMATION USING A SMART PHONE & BLYNK APP

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Abstract: With the advancement in automation industry and wireless connectivity, all the devices within the home can be connected. This has led to the improvement of comfort, energy efficiency, indoor security, cost savings of the home. Small and constrained embedded devices are used to remotely monitor the conditions within home and control the home appliances. In such case, power consumption and network bandwidth become a major concern. We need a low power device that transmits messages through a less verbose protocol. Owing to the availability of WiFi, all the appliances within home can be connected through a common gateway. The main objective of this paper is to develop a home automation system using an Node MCU board with Internet being remotely controlled by any Android OS smart phone..

Index Terms: Automation, IoT-Internet of Things , MCU-Microcontroller Unit, Wifi-Wireless Fidelity

I. INTRODUCTION

Home automation is part of "The Internet of Things," also known as IoT. The way devices and appliances can be networked together to provide us with seamless control over all aspects of your home and more. Home automation has been around for many decades in terms of lighting and simple appliance control. Recently technology caught up with the idea of the interconnected world at the touch of your fingertips. With home automation, you can dictate how a device should react, when it should react, and why it should react. Set a schedule to determine when you want devices to turn on and off. Based on your personal preference you can control time, money, and convenience. New home automation technology can send alerts to your smartphone and notify you about unforeseen events while you're away from home. Such as water leaks, visitors at your front your door, and even remotely turning on lights while you're on vacation, at work, or anywhere else. Grab your iPhone or Android to remotely control and change the settings in your house through a home automation app.

II. IMPORTANCE OF HOME AUTOMATION

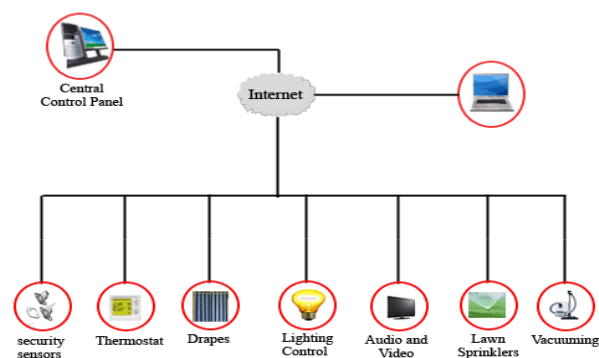


Fig.Schematic Diagram of IoT based Home Automation

Home Automation is a term used to describe the working together of all household amenities and appliances. House hold activities are automated by the development of special appliances such as

water heaters to reduce the time taken to boil water for bathing and automatic washing machines to reduce manual labour of washing clothes. In developed countries, homes are wired for electrical power, doorbell, TV outlets, and telephones. The different application includes when a person enters the room, the light turns on. In advanced technology, the room can sense the presence of the person and who the person is Taking into account the day of the week, time of the day and other such factors it can also set apt lighting, temperature levels, television channels or music levels. In the case of a smoke detector when fire or smoke is detected, the lights in the entire house begin to blink to alert the resident to the probable fire. In case of a home theatre, the home automation system can avoid distraction and lock the audio and video components and can also make an announcement. The home automation system can also dial up the house owner on their mobile phone to alert them or call any alarm monitoring company.

III. BLOCK DIGRAM OF ANDROID BASED HOME AUTOMATION

The main objective of this Paper is to develop a home automation system using an Node MCU board with Internet being remotely controlled by any Android OS smart phone. As technology is advancing so houses are also getting smarter. Modern houses are gradually shifting from conventional switches to centralized control system, involving remote controlled switches. Presently, conventional wall switches located in different parts of the house makes it difficult for the user to go near them to operate. Even more it becomes more difficult for the elderly or physically handicapped people to do so. Remote controlled home automation system provides a most modern solution with smart phones.

In order to achieve this, a relay module is interfaced to the Node MCU board at the receiver end while on the transmitter end, a GUI application on the cell phone sends ON/OFF commands to the receiver where loads are connected. By touching the specified location on the GUI, the loads can be turned ON/OFF remotely through this technology. The loads are operated by IOT board through Relay Module.

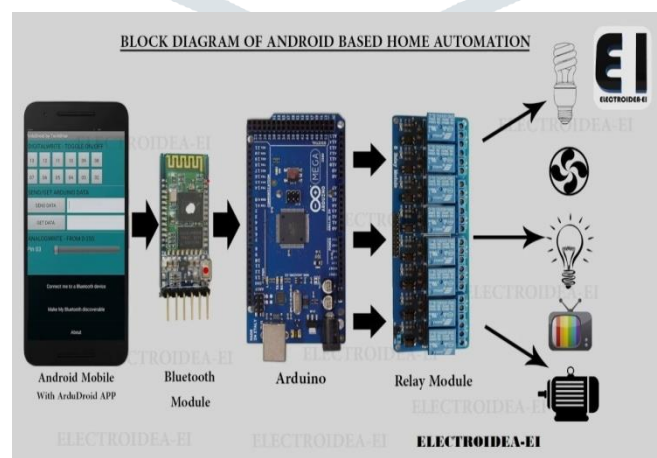


Fig.Block Diagram of Android based Home Automation

Materials Required:

- 1.Arduino
- 2.Relay board
- 3.ESP8266 Wi-Fi module
- 4.Jumper wires

Software required:

1. Blynk app
- 2.Arduino IDE

IV. OPEARTION

The home automation circuit is built around ESP8266, Blynk Android App, and a 4-channel relay board. The hardware set up should be according to the circuit diagram. AC mains appliances(Bulbs) will be connected to relays which are controlled by the ESP8266.

User has to install and configure the Blynk App as per the above instructions.

Whenever the user presses an icon in the app, then that information will be send to ESP8266 via WiFi. The ESP8266 analyses the received commands and turns ON/OFF of the respective device via 4 channel Relay Board.

V.**MODEL**

Fig. HOME AUTOMATION USING A SMART PHONE & BLYNK APP

V. PROGRAMMING

ESP8266 – BLYNK APP

Arduino Code

```
#define BLYNK_PRINT Serial
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>

char auth[] = "YourAuthToken";
char ssid[] = "YourNetworkName";
char pass[] = "YourPassword";

void setup()
{
  Serial.begin(9600);
  Blynk.begin(auth, ssid, pass);
}

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

VI. REFERENCES

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