

SMART HOME AUTOMATION SYSTEM USING NODE MCU WITH BLYNK APP

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ABSTRACT

This project presents the overall design of advance smart Home Automation System with low cost and wireless system. Home Automation system achieved huge popularity in the few years and this is increased the comfort of the life and daily activity make simpler. It specifically depends on the platform of an IoT based home automation system that is efficient to control multiple components of home appliances via-internet. Mainly in this project, we develop such a smart technology, by which the complementing devices of the house can be automated i.e., electrical equipment is minimized from human-to-human contact. We used Node MCU, A popular open source IoT platform, to execute the process of automation. A smart home automation technology will monitor or control home attributes such as lighting, climate, entertainment systems, and home appliances. Access control and alarm system when connected to the internet, it also provides smart security. Wherever we are in the world, through is technology, we can see or control the complete details of our entire house through our smartphone. home automation provide energy saving so it can prove to be very useful for energy saving in future. Also, the smart home concept in the system improves the standard living at home.

Keywords: Node MCU (Esp8266) Wi-Fi Module, Android, 8 Channel Relay.

I. INTRODUCTION

Home automation is the automatic control of electronic and electrical devices in your home. All the appliances in the house are connected to the internet through wi-fi mode, which we can control remotely from our smart phone. Voice control feature is also available in this system. The entire home appliances can also be fully automated in this smart home automation system. For example, if a person comes inside the room, the lights or fans etc. will turn on automatically, and if they leave, it will automatically turn off. Blynk is a popular app used in this project it has a lot of features like buttons, gauges, sliders and plotting features also. Smart Home automation systems make life easier and reduce electricity bills. Smart Home automation system can also lead to greater safety with internet of things devices. So, Home automaton s become more beneficial because of its safety and security. Nowadays, home automation become more advance and precise to monitor all the home appliances. A smart phone can be used to control or monitor the home appliances.

(a) Proposed system:

This is IoT project, it's to make a IoT smart home automation system using Blynk app and 8 channel relays. It can control many home appliances through smartphone and manual switches. If internet is not available then it can control by manual switches.

(b) Proposed system functions:

In this project required following components-

- Node-MCU (esp8286)
- 8 channels 5v relay module
- Switches or push buttons
- Smartphone
- 12v DC supply
- Connecting wires
- Jumper wires
- Lamp loads

II. LITERATURE SURVEY

1. IMPLEMENTATION OF INTERNET OF THINGS FOR HOME AUTOMATION:

Mamata khatri, Neethu Kaimal, Pratik Jadhav and Syed Ali Adnan Rizvi [1] They presented a paper on the implementation of Internet of things for home automation. This paper is based on internet of things. In this project, all type of goods such as digital cameras, smartphone, tablets and sensors are interconnected through the internet and thus provide many services and huge amount of data and information. The society need new and scalable, compatible and secure solutions for both the management of the ever broader complexly networked Internet of things. Security concern is overcome by this model since we are using Wi-Fi wireless equivalent privacy (WEP) and Wi-Fi protected Access (WPA) are two most used security access used in Wi-Fi.

2. E-MAIL INTERACTIVE HOME AUTOMATION SYSTEM:

Sirisilla Manohar and D. Mahesh Kumar [2] presented a paper on E-mail interactive home automation system. They presented a basic home automation application on the public domain through the subject of E-mail ID. He uses an application, which is called GVT app. In this, he does the coding by which the home appliances are controlled. In addition, all the results were generated by a series of E-mail sent to the user of G-mail account. We can control easily home appliances instead of going through process.

3. A REVIEW PAPER ON HOME AUTOMATION:

Nikita Baidya and Prem Kumar S [3] They presented a paper on A review paper home automation. This complete system has two parts. One is web page to control and other is the appliances to be controlled like monitor, bulb etc. This consists a login page, which used for authentication of a Particular device, which is associated to that user. The Ethernet shield allows an Arduino type board to connect via- internet and that is based on the platform of Wiz net W5100 Ethernet interface chip.

4. AN IMPROVED AUTOMATION SYSTEM FOR MODERN HOUSES:

Patel Nimesh, Patel Piyush, Patel Pritesh and Patel Rippal [4] They presented a paper on an improved automation system for modern houses. This project based on timing of home appliances using our smartphone. This system is using Arduino ESP8266 wi-fi module. This will be able to control lights, electric fans and other home appliances.

III. IMPLEMENTATION

For the implementation our model, firstly we can download Blynk app from Play store and then connect this application with Node-MCU. This complete system has two parts. One is software part and second hardware part. All appliances like that motor, fans, bulbs etc. can be easily controlled our smartphone. Our project main features are we can control it from any maximum distance through internet. It may also include all type home security such as access control and alarm system. The most important part in this project is the internet of things (IoT), through which all types of home appliances are controlled or monitored.

A) Proposed BLOCK DIAGRAM

In this system, we are going to make a smart home automation system using Node-MCU (esp8266) Wi-Fi module and 8 channel relay-

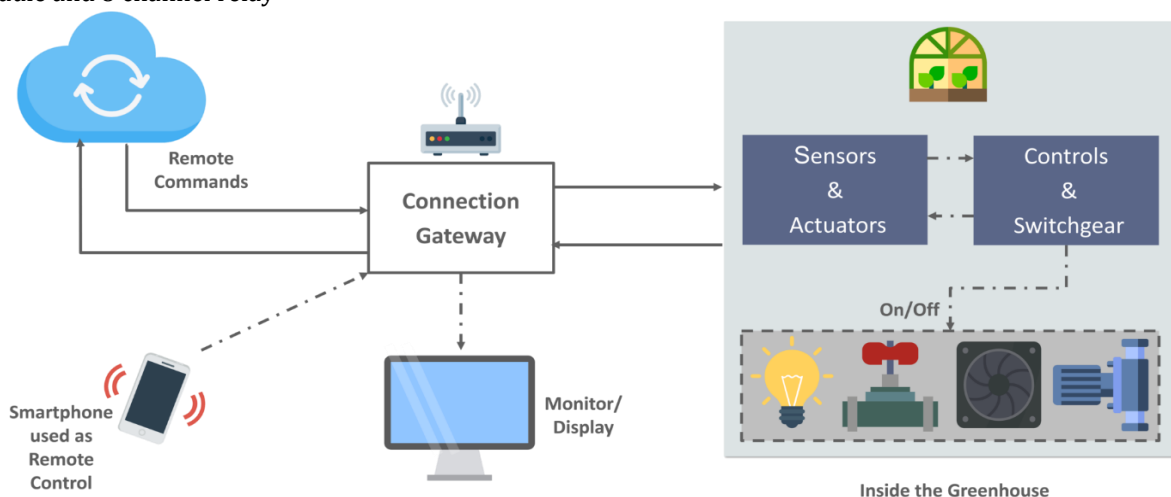


Figure 1: Working of IoT enables care devices.

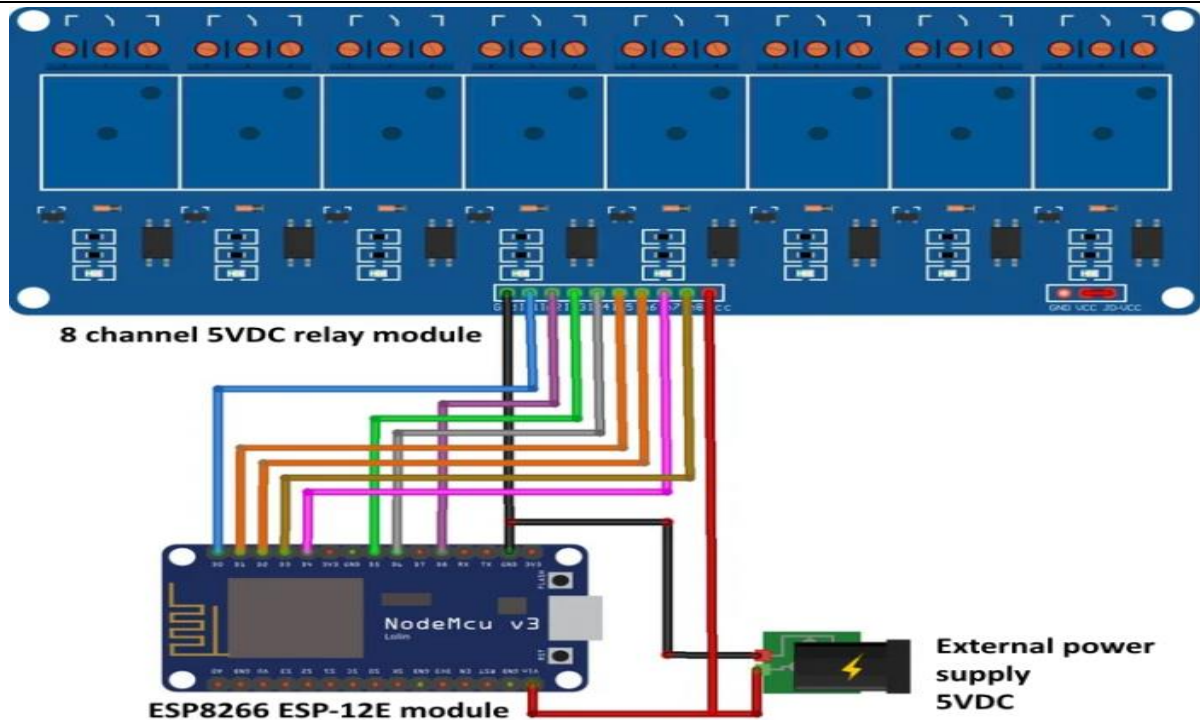


Figure 2: Connection diagram of Node MCU controlling 8 channel relay modules.

B) APPLICATION:

- Lighting control system
- Indoor positioning system
- Heating ventilation and air conditioning (HAVC)
- The most common applications of home automation are lighting control, HVAC, Outdoor lawn irrigation, Kitchen appliances, and security system.

IV. CONCLUSION

Today, Android is the world's powerful mobile platform open-source operating system to fit easily whatever the functionality we had in our mind. This project is wireless home automation, in this project we can install a Blynk app from play store and then connect this app to wi-fi module. And then control all home appliances. It decreases our energy cost; it improves home security. Wi-Fi technology capable solution has proved to be controlled remotely and set time provide home security and cost effective as compared to the previously existing system.

Therefore, we can conclude that smart home automation is currently implemented on the basic lining of home appliances to control and monitor.

V. REFERENCES

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