

AUTOMATION IN INDUSTRY USING VOICE ASSISTANCEG.Nirmala¹, A.Sinduja², A.Vamshi³, D.Nirosha⁴, K.Niharika⁵, E.Naveen⁶¹Assistant Professor, Dept. of ECE, Sri Indu Institute of Engineering & Technology, Hyd.²Assistant Professor, Dept. of ECE, Sri Indu Institute of Engineering & Technology.³⁻⁶Student, Dept. of ECE, Sri Indu Institute of Engineering & Technology, Hyderabad**ABSTRACT:**

Now a days comfort is becoming everyone's priority. The proposed project is based on home automation using Node MCU, and google assistant. This paper describes how to the home appliances like bulbs over the internet using google assistant. Node MCU cannot be directly connected with Google Assistant, an intermediate app. Blynk app is required. Blynk app can be directly connected to Node MCU and send data to it. If we send the commands interpreted by google assistant directly to the Blynk application, the Blynk app forward those commands to the Node MCU. But the google assistant cannot directly understand the commands like “turn on the light” or “turn off the light” on its own. To handle this situation, another intermediate tool called IFTTT is used which will cover the gap between google assistant and the Blynk application. when we say a voice command to google assistant, IFTTT will interpret that command and send the request to the Blynk application via the Blynk server and the Blynk app sends the command to the Node MCU and home appliances like bulbs, etc.

Keywords: Node MCU (ESP8266), IFTTT (If ThisThan That) Application, Blynk Application, Internet of Things (IoT), Google Assistant, Voice Control, Home Automation.

1. INTRODUCTION:

Today in the headway of Automation innovation life is getting simpler and less demanding in all spheres. Home automation is a modern technology that modifies your home to perform different set of tasks automatically. No wonder, home automation in India is already the buzzword, especially as the wave of second-generation homeowners grows, they want more than shelter, water, and electricity. There is no shortage of possibilities for smart home IoT devices as home automation seems to be the wave of the future. The requirement Office and Home automation arises due to the advent of IoT, in a big in homes and office.

2. PROPOSED SYSTEM:

In this project, node MCU ESP8266 is put in with a blank application account with the IFTTT application and then added to google assistant for voice command. voice command controls the home appliances. The proposed system eliminates the complication of wiring in the case of wired automation. The system's operating range is more than the Bluetooth. The existing system doesn't allow the monitoring and controlling of appliances via remote but the proposed system that uses the Wi-Fi-based home automation system allows to monitor and control of the appliances.

Node MCU is linked with the Blynk application account with the IFTTT(if this then that) application which is connected to the Google assistance cloud. Home appliances bulb, fan, motor, etc. are connected to the node MCU.

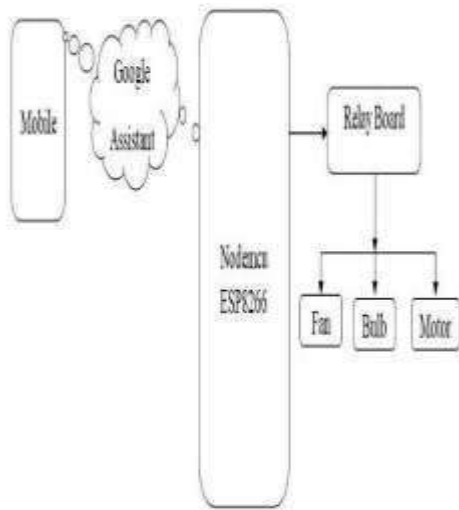


Fig .1 Block Diagram

Hardware Component Description:

1. **Node MCU:** Node MCU is an open source-based firmware and development board specially targeted for IoT- based applications. It includes firmware that runs on the ESP8266 Wi-Fi SoC from Es press if Systems, and hardware that is based on the ESP-12 module. The Node MCU ESP8266 development board comes with the ESP- 12E module containing the ESP8266 chip having a 32-bit LX106 RISC microprocessor. This microprocessor supports RTOS and operates at in 80MHz to 160 MHz adjustable Programming Node MCU with the ARDUINO IDE will hardly take 5-10 minutes. All we need is the ARDUINO IDE, a USB cable, and the Node MCUboard itself.



Fig 2 Node MCU

Relay: The relay is the device that opens or closes the contacts to cause the operation of the other electric control. It detects the undesirable condition with an assigned area and gives the commands to the circuit breaker to disconnect the affected area through ON or OFF.

Every electromechanical relay consists of

1. Electromagnet
2. Mechanically movable contact
3. Switching points and
4. Spring

There are 3 pins in the relay module, this follow:

COM: common pin

NO: normally open – there is any contact between the common pin and the normally openpin. So, when you trigger the relay, it connectsto the COM pin, and power is provided to the load.

NC: Normally closed – there is a contact clock. frequency. Node MCU has 128 KB RAM and 4MB of Flash memory to store data and programs. Its high processing power with in-built Wi-Fi / Bluetooth a Deep Sleep Operating features make it ideal for IoT projects. Node MCU can be powered using a Micro USB jack and VIN pin (External Supply Pin). It supports UART, SPI, and I2C interfaces.

The Node MCU Development Board can be easily programmed with ARDUINO IDE since it is easy.



Fig3. Relay

Between the common pin and the normally closed pin. There is always a connection between the COM and NC pins, even when the relay is turned off. When you trigger the relay, the circuit is opened and there is no supply provided to the load.

It works on the principle of an electromagnetic attraction. When the circuit of the relay senses the fault current, it energizes the electromagnetic field which produces the temporary magnetic field. This magnetic field moves the relay armature for opening or closing the connections. The small power relay has only one contact, and the high-power relay has two contacts for opening the switch

3. WORKING:

There are mainly four steps involved in the working of the project.

Step 1. Install and et up the blank application.

Step 2. Setting up ARDUINO ide and blank library.

Step 3. Hardware connections

Step 4. Configure IFTTT

Install and setup the blank application:

Create a Blank Account: After downloading the Blynk App, is a need to create a New Blynk account.



Fig 4. Create a Blynk Application Create a New Project: After successfully log in

Create a New Project: After successfully log in.

Fig 5. Create a new project

Choose Your Hardware: Select the hardware Node MCU.



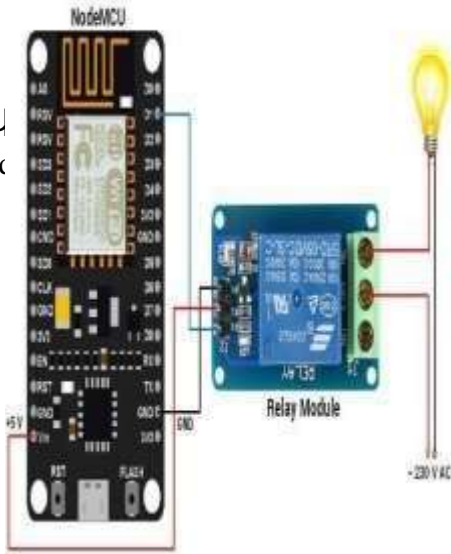
Run the Project: When all settings are done-press the PLAY button. This will switch the user from EDIT mode toPLAY

Fig 6 Run the project

Hardware Connections:

Hardware requirements: node MCU, one

The result of the project was positive and the system responded well. The demo is shown below.



channel relay module (active low), 1 bulb, Jumperwires, breadboard, ARDUINO board.

Connections:

1. Attach the node MCU to the breadboard then connect digital Pin D2 of node MCU to the input pin of the relay board using the Jumper wires, ground pin of node MCU to the GND pin of the relay.
2. Connect the one end of the bulb to the open ends of the relay using wire and the other end of the bulb to the socket to supply power to the bulb.
3. Use data cable to power the node M C U via PC and to power the relay using ARDUINO board (can use battery also), connect Vcc of relay board to the 3.5v of ARDUINO board.
3. Attach the bulb to the wire and in the end, plug the light bulb into the power socket and turn this on.



Fig 7. Connections

4. RESULT:

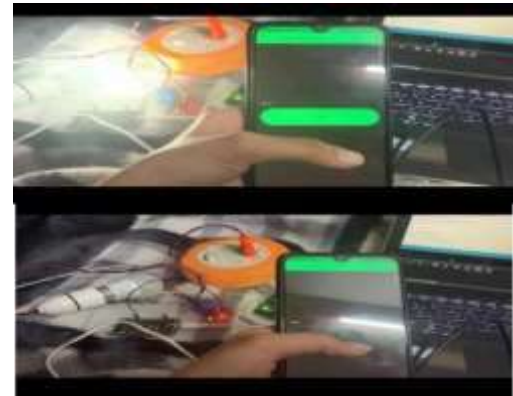


Fig 8: bulb turn on and off app

5. APPLICATIONS:

1. Using voice, we can interact with Google Assistant and it can search on the internet. This service is available on smartphones and devices. We can control smart home devices like lights, and thermostats using our Google Assistant.
2. Lighting control system: a "smart" network that incorporates communication between various lighting system inputs and outputs, using one or more central devices.
3. Home automation for the elderly and disabled.
4. Smart Kitchen and Connected Cooking. Using voice.

6. CONCLUSION

The system was to implement a low-cost, reliable, and scalable google assistant based voice-controlled automation system that can be used to switch on/off any home appliances. The purpose of this project is to make homes simpler, better, or more accessible. This system is highly reliable and efficient for the elderly folks in the house and

differently-abled people in a wheelchair who is dependent on others and cannot reach the switch for the turning on/off.

7.FUTURE SCOPE

The future scope for google assistant automation can be huge. Many factors make the project more reliable, intelligent, scalable and become better over all automation. For a fan, more devices can be integrated, like a coffee machine , AC .

8. REFERENCES

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