GOOGLE ASSISTANCE BASED HOME AUTOMATION

Sakib Sadik Shaikh[1], Vandana C. Maindargi[2]

[1]M.TECH Student, Dept. of Electronics and Telecommunication Engineering, TPCT's college of engineering , Osmanabad, Maharashtra, India.
[2]Professor, Dept. of Electronics and Telecommunication Engineering, TPCT's college of engineering , Osmanabad, Maharashtra, India.

Abstract – The world around us keeps getting smarter not only to do we have advanced AI Services like the google assistant, but now we have got the IOT connecting physical objects to the digital world. Its amazing when you think about it, but the real stuff starts to happen when these two technologies intersects. Ever thought of a life where you could just command your home appliances to work as you need just by using your voice? So, in this paper we are writing about the small prototype in which we are going to control the light switching over the internet by using our voice with google assistant and in the same way we will control the other home appliances like lights, fan, TV, college, school, and labs, etc

Key Words: *IFTTT Application, Internet IOT, Google Assistant, Smartphone, Node MCU, relay, Power Supply.*

1. INTRODUCTION

The IoT technology describes the connections between like smart mobiles, PDAs, smart TVs, and sensors to the Internet where the devices are linked to get communicate with people and between themselves. Every day modern people expect a new device and new technology to simplify their day to day life easy and better. It contains the Google Assistant application , IFTTT application, Blynk application, Node MCU, ULN 2803 IC.

For Example, if we thought that the line following robots moving forward and backward by using sensors and a motors. Like that, when we work entire day, we are getting too tired that they got it difficult to move once we slept on our sofa or bed. So at that time Temperature was already set before we are reaching our home. So we can change the temperature just by giving a voice command with the help of google assistant which is already on our mobile phone.

Motivation behind this work come from automation which can reduce the man power and reduce the time required for process. This project will help to shopkeeper to reduce their work and increased the accuracy during their work.

2. SYSTEM BLOCK DIAGRAM

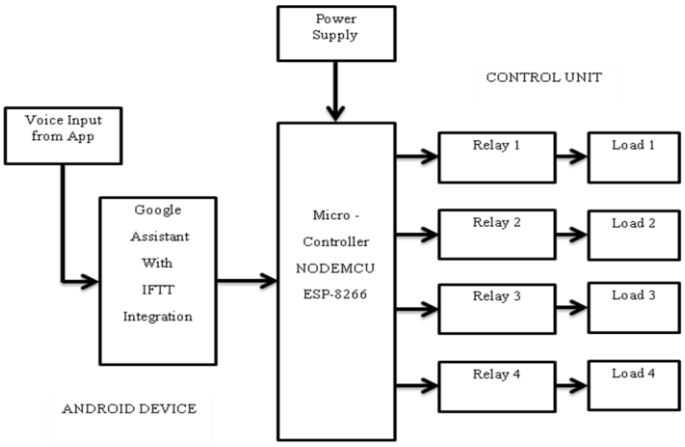

Fig – 1. Block Diagram

System block diagram contains Voice input from apps, poer supply, microcontroller, relay, IFTTT, Blynk application, Node MCU, Google Assistant, smartphone, controlling device and it is connected with Wi-Fi. The node MCU and relay driver will be connected with microcontroller. The operator and controller mainly work to send the required command towards relay board.

The relay board will be acts as a switch between the circuits and the other external components are connected to the relay board so these all the components will be controlled by using internet of thing technology.

2.1 The main blocks of this project

1. Node-MCU ESP-8266
2. Relay Module
3. Blynk
4. IFTT

2.1.1 Node MCU:

Node MCU is an open source IoT platform. This Contains the bios, It can be sprint on the ESP8266Wi-FiSoC out of expressive devices and the ESP-12 module, it is builted in hardware systems.

Specifications of node MCU (esp8266):

1. Developer: ESP8266 Open source Community
2. Type: Single board microcontroller
3. Operating system: XTOS
4. CPU: ESP8266
5. Memory: 128kBytes
6. Storage: 4MBytes
7. Power By: USB
8. Power Voltage:3v, 5v
9. Code: Arduino Cpp
10. IDE Used: Arduino IDE
11. GPIO: 10

Fig – 2. .Node MCU

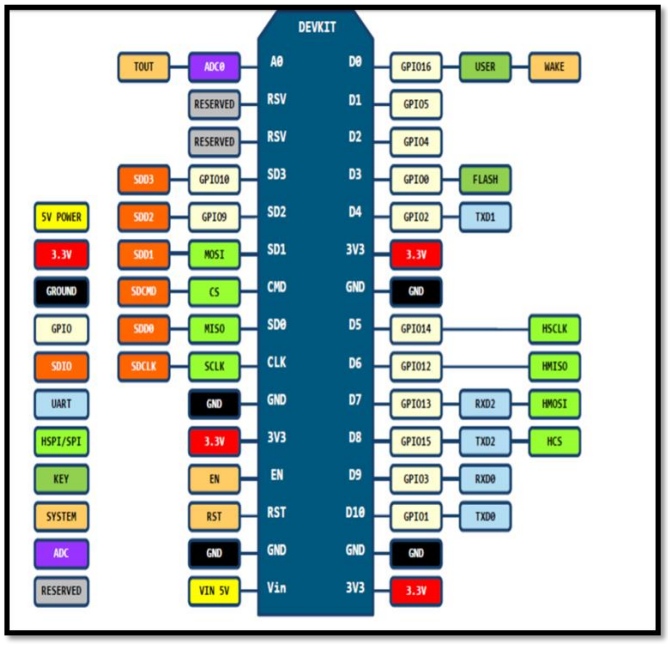

Fig – 3. Pin diagram of Node MCU

2.1.2 Relays:

A relay is a electronically operated switch electromechanically and its opening and closing depends on that. It consists of 5 pins. They are 2 coil pins, 1connection pin, 1 no connection pin, 1 common pin. Initially, at the off state, it is connected to no connection pin. But when we give the input from the microcontroller then magnetic field between the coil pins produces current so it shifts to connection pin and the current will pass through the load.

Specifications:

1. Both controlled by 12V and 5V input Voltage
2. Equipped with high-current relay, AC250V 10A; DC30V 10A
3. Opto-isolated inputs.
4. Indication LED's for Relay output status.

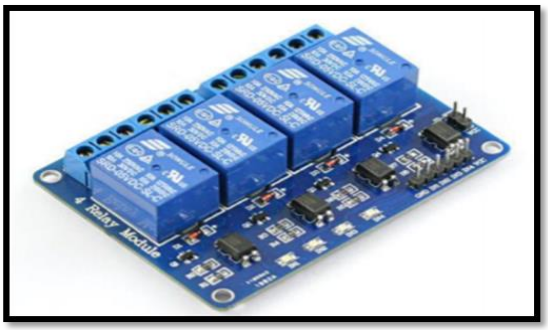

Fig - 4. Relay

Pin Name	Description
"Vcc"	Power(5V DC)
"GND"	Gnd
"in1"	Singal pin, connected with Arduino and control Relay 1
"in2"	Singal pin, connected with Arduino and control Relay 2
"in3"	Singal pin, connected with Arduino and control Relay 3
"in4"	Singal pin, connected with Arduino and control Relay 4
"COM"	Common pin, which usually directly connect with the" Gnd" unless you want to change the TTL mode(default the HIGH level activate)
"NO"	Normally Open Connection
"NC"	Normally Closed Connection
"C"(middle pin)	Common Connection, Which connected with the power for the load.

Fig - 5. Pin Diagram of Relay

2.1.3 ULN 2803 IC:

ULN 2803 IC is used as a relay driver. This IC has a very high voltage and high current transistor Array used with the Microcontrollers that place we needs to run the ver y high loads.

Fig – 6. ULN 2803 IC

2.1.4 Blynk application:

The blynk application was designed to built the graphic interface in the android by dropping and dragging widgets. It can be control the Arduino and other some components over the internet. Fig.7 shows the Functioning of the Blynk Application. It was designed for the Internet of Things. Its setup is required as per the requirement.

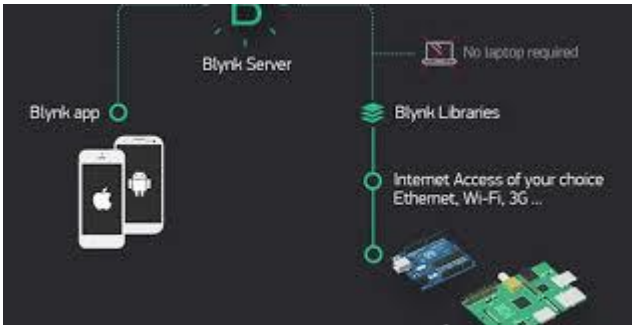

Fig - 7. Working of Blynk Application

2.1.5 IFTTT Application

IFTTT is builted to automates all the things from liked apps apps and websites through app-enabled accessories and devices which acts as a smart as well. The Screenshot of the IFTTT Application showing in the figure 8, it seems after Creating Several Applets. "The company will provide the software platform and that will connects with the apps, devices and services.

Fig - 8. Working of IFTTT Application

3. GOOGLE ASSISTANT

Recently all the people have their phones has android and it contains the Google Assistant tool .It is one type of software which permits the humans to respond the all apps which are present in the device by using voice commanding mode. It permits the people to comply and give the signal to the apps in their devices by using sound tone commands.

Fig- 9. Google Assistance

4. RESULTS

We have added the output for the Google assistant based House automation is shown in following figure number 10 . It is showing the prototype and implementation of the system.

Fig – 10. Connections of the system

4.1 Relay connected to BULB

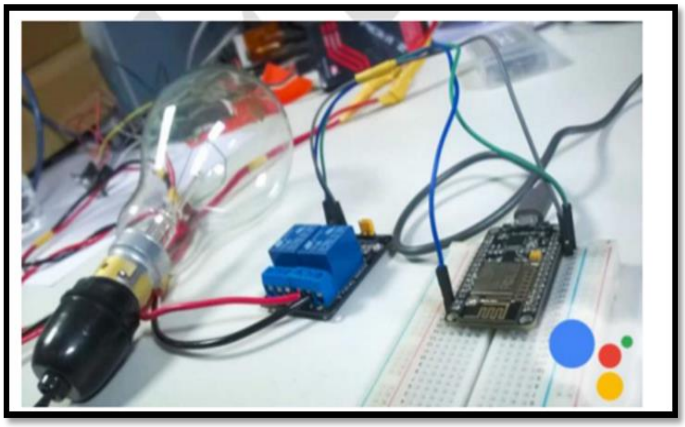

Fig – 11. Results of Google assistant-controlled Home automation

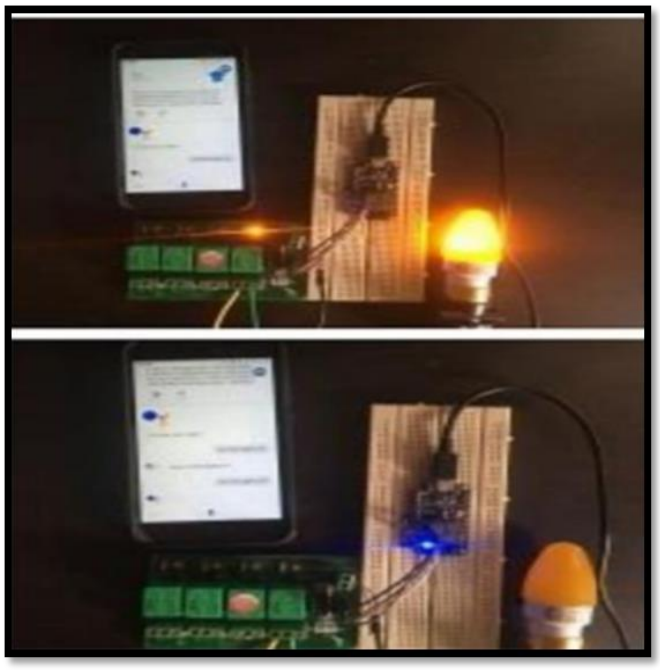

Fig - 12. Light turning on and off

5. APPLICATIONS

1. Smart phones: The mobile app for house control gives the following accessibilities: 1) Remote connection to the Home Gateway. 2) Device control. 3) Device Monitoring. 4) Managing schedule.
2. Home automation
3. School and College
4. Hospital

6. FUTURE SCOPE

1. In sensor technologies
2. In smart robotic appliances.
3. For protection of connected devices.
4. For fault detection and feedback system.

7. CONCLUSION

The review paper shows, the architectures which we are used to build the project has a low cost and having flexibility for house Automation system by using advanced technologies which are proposed and implemented in this paper. It will increase the efficiency of this application. The reason behind to write this paper is to increase the comfortability of users and also reduce the efforts which are required to users.

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BIOGRAPHIES

M.TECH Student, Dept. Of Electronics and Telecommunication Engineering, TPCT's college of engineering, Osmanabad, Maharashtra, India.