Home Automation System Using IoT-using Google assistant

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Abstract-In the world of IOT this is mostly depend on internet availability of internet everywhere, the basic aim of this project to control, transferring the information and monitor the signal from different appliances from anywhere the world by web browser or any other IOT based mobile application in this paper we are use of Google assistant to control and monitor the home appliances.Use of this wireless technology we can reduce the human effort and improve the energy efficiency, this wireless technology can access only those person who have unique key and password.The main objective of this technology to secure, intelligent and energy efficient of our home appliances.

Keywords— Relay, Node MCU (ESP8266), IFTTT, Adafruit(MQTT), Google Assistant,Smartphone,pcb board.

I. INTRODUCTION

Internet is the global network of computer and other electronics de- vice.With the help of internet we can improve our daily life efficiently .The rapid growth of Home automation system can be seen in all sectors and they are useful in providing quality, convenience, comfort, ease of lifetime and safety for residents. Home automation can use for reduce human effort and work properly in the industry and home. With connected to the inter- net without wire(wireless) and ability to control and monitoring the home appliances such as light, fan,smoke and fire sensor and any other emergency system. Most of the automation sys- tem use mobile phones with the interact to the microcontroller by using various wireless communication such as google assistant,bluetooth,wifi, and mobile application. This home au- tomation only can access by the authorised person whose have username and password, no one can access the home automation without username and password.

II. HOME AUTOMATION SYSTEM -

The communication between the system and the user is recognized by the wireless method. The user command to the server through google asisstant by voice recognition, the incoming command through Google assistant are proceed and forward to the next process. And the microcontroller collect these com- mand and apply to the appliances.If the command is right then Node mcu will be work upon it otherwise it will not and need to give new right command to the Google assistant through mobile.In the figure show below there are two section first one is hardware and second is software.first one is control system which is called hardware and second is remote section which is called software.Control system is the collection of pcb mounted component.
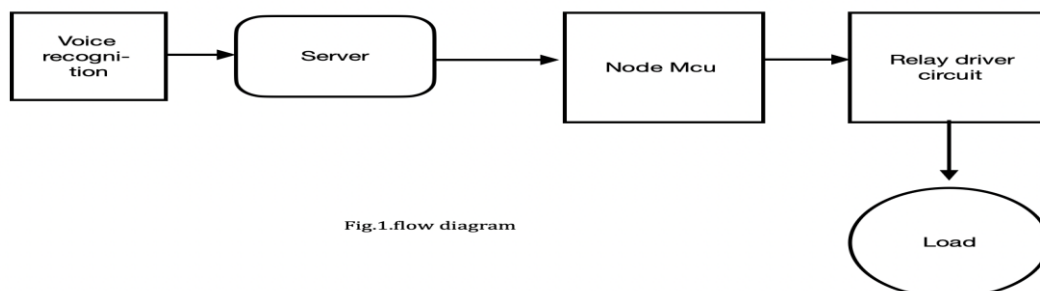

Fig.1.flow diagram

IN the Fig.1 relay are the hardware component which is switching device for the ON/ OFF home appliances.

III.SYSTEM REQUIREMENT -

Node Mcu(ESP8266)- Node Mcu(ESP8266)is an open source firmware and microcontroller which is wifi enabled and low cost. The NodeMCU is an open source software and hardware development environment that is built around a very inexpensive System-on-a-Chip (SoC) called the ES- P8266.It is programable.
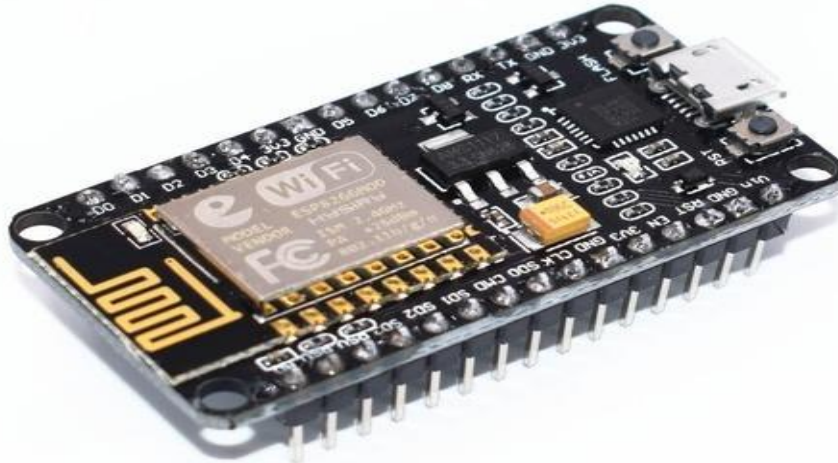

Fig.2.Node mcu

Relay-A relay is a switching device. It is used for isolating a low voltage circuit from high voltage circuit they are used for controlling multiple circuits and are used for automation.The switch may have many number of contacts for the break and close the circuit as our requirement.
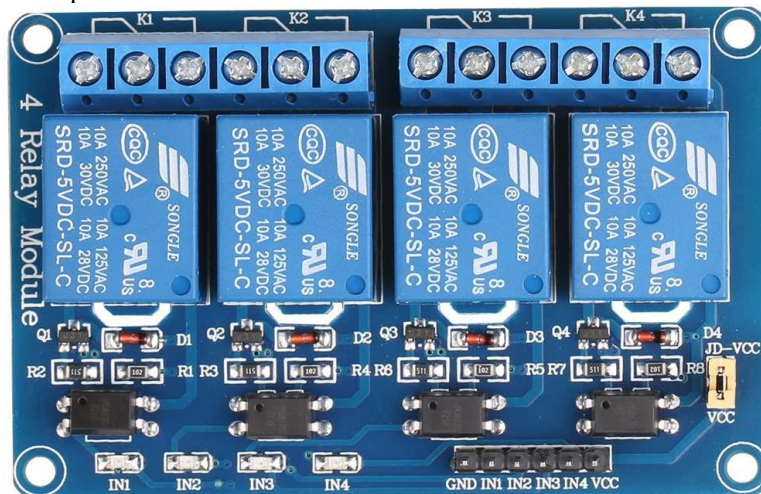

Fig.3.relay

Adafruit-Adafruit is a library that supports the MQTT (Message Queue Telemetry Transport). It acts as an MQTT broker. MQTT is used for provide the service that sending and receiving data.The main advantage of the MQTT is the fast transmission the data and require less data byte,to connect the web Arduino IDE is required.

IFTTT- IFTTT stands for "If This Then That", is an interface between hardware and software which provide the web based service which is connected with the mobile application.Thus, making it much easier to work with the the mobile application using 'the conditional statements'.

GOOGLE ASSISTANT -Google Assistant is an artificial intelligence powered virtual assistant developed by Google company which is easily available and used on mobile and smart home devices . Google assistant can be used by anyone because it is available in many languages providing support to customer to access this.
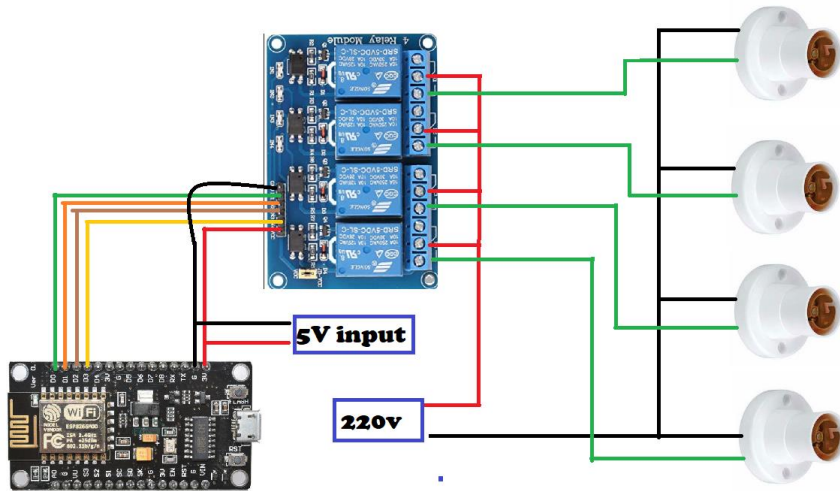
IV. CIRCUIT DIAGRAM-

Fig.4.Circuit diagram

V. WORKING PRINCIPLE-

The working of the smart home automation is shown in Figure below. Firstly require the Internet connection properly and start the giving command which is setup by the IFTTT and MQTT. The Node Mcu detect the command whether it is right or wrong. But we will keep in mind that only authorised person access the control and monitor. If command is right then it will work otherwise it will not work.
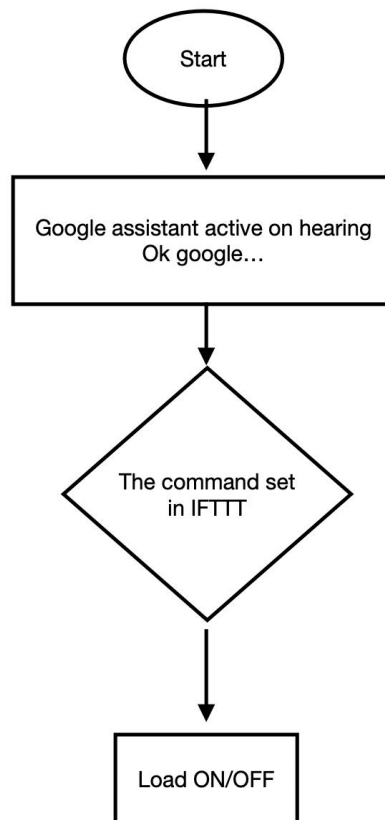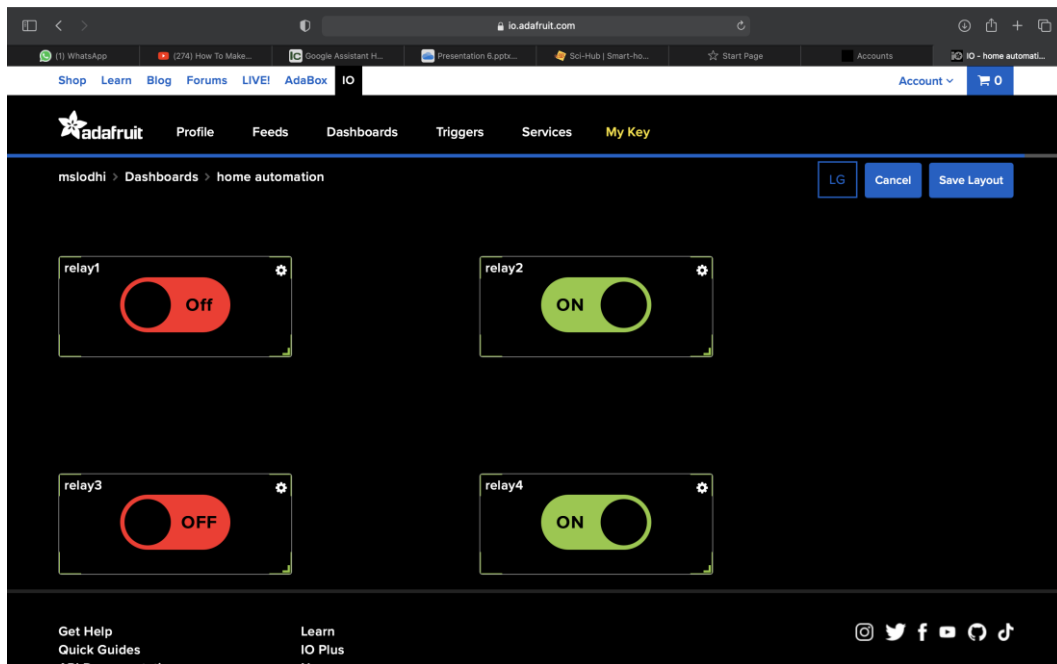

Fig.5.flow diagram
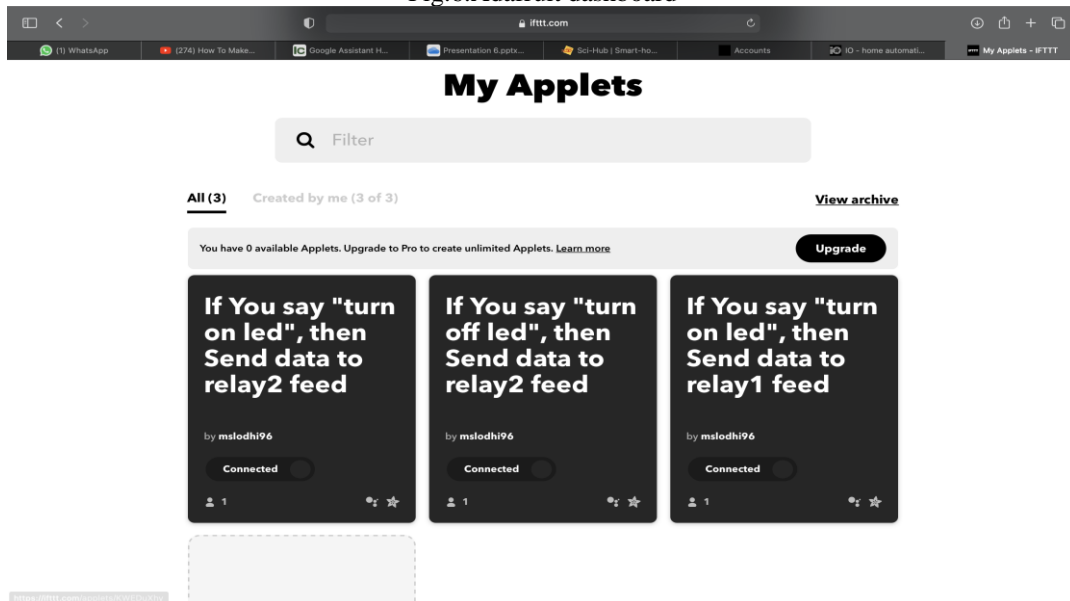
Fig.6.Adafruit dashboard

Fig.7.Screenshot of my applets

VI.CONCLUSION AND FUTURE WORK -

The benefits of home automation typically fall into a few categories, including savings, safety, convenience, and control. Additionally, some consumers purchase home automation for comfort and peace of mind.It is cleared from this project that an individually controlled home automation system.It can be cheaply made from low cost and components available locally and can be used to control multiple home appliances such as air condition system, home lighting system, fan,and many home appliances. Moreover the components required are small and few that they can easily get fitted into a small area or container . The designed home automation system was worked properly tested a number of times and it is certified to control many home appliances used in the lighting system, heating system, air condition system, home entertainment system and many more which is used in the home.

Future scope of the home automation will make the smart home. Designing of Service Robot for Home Automation is introduced. Through the interaction with the intelligent space, service robot and the IOT devices can obtain more comprehensive and eficient environmental.In the future home automation will be reduce the human effort and work efficiently.

VIII.REFERENCE-

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