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Social Media Controlling Home Automation using NodeMCU ESP8266

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Abstract - *This paper is based on Social media controlling home automation using nodemcu ESP 8266. The proposed home automation is designed by nodemcu and relay module. This home automation is designed using Adafruit io and IFTTT platform also. Facebook is the social media application which is mostly used for chatting or messaging. Here I can develop the IOT project with the Facebook. Here I shall use the Facebook to control our home automation. I shall send text message to the chatbot of my Facebook page connected with my Facebook account. The chatbot replies with the working condition of the home automation.*

Key Words: **Nodemcu ESP 8266, Adafruit io, IFTTT, MQTT, Artificial Intelligence (AI)**

1. INTRODUCTION

Social media controlling home automation using nodemcu ESP 8266 is a project where a person can control his home appliances using his Facebook chatbot.Nowadays the internet of things (IOT) becomes the most important topic in the engineering and technology. It gives the ability to control the physical devices with the internet. It can control the devices with the secure security and high efficiency.

Nodemcu ESP 8266:

Nodemcu ESP 8266 is an electronics module which is mostly used in IOT platform. A low cost Wi-Fi is enabled in it. It has GPIO, PWM, UART pins for communication and controlling other external devices. Its hardware is based on the ESP 12 module. In the nodemcu ESP 8266 board there are connected cp2102 ic[1] which provide the USB to TTL functionality.

Fig 1: Nodemcu ESP 8266

Adafruit io:

In the IOT based project Adafruit io is the very common platform to control and view the performance of the external devices. Adafruit io is a server which is provided by Adafruit industries. It is used for connecting with IOT devices with HTTP and MQTT protocols[2]. It helps to view data. It also helps to controlling devices.

IFTTT:

IFTTT is the web based service which can connect the web service and applications such as Facebook, Google, adafruit, Gmail, telegram, webhooks etc. It helps to automate the task. There are many applets in the IFTTT which can connect two web services using a trigger action in this. IFTTT stands for If this than that. Here we can trigger an action in the "this" portion and then we can provide an action connection in the "that" portion[3].

MQTT:

MQTT is the protocol which is created for connection with IOT devices. It is designed for machine to machine interaction with iot devices. It stands for Message Query Telemetry Transport. It helps to communicate with server. So it is called broker. It becomes as a server which allows the client to send short time message to the broker. Then it receives message if the device servers are subscribe to the topic. The MQTT handles the information of this device which is connected with the server.

Artificial Intelligence (AI):

In our modern engineering and technology Artificial Intelligence (AI) becomes a most important things. The Artificial Intelligence (AI) is mainly the simulation of human intelligence using the computer. It is a branch of computer science. It is also known as machine intelligence. It follow the pattern of the machine learning models and then it make decision based on the analysis.

In this paper the artificial Intelligence (AI) is a most important. The home appliances of the project is controlled by the Facebook chatbot. Here the Artificial Intelligence is provided in the chatbot to control the appliances like light, fan etc. Here chatbot is most important part. Here the Facebook app is directed connected to the bot. Facebook is generally used by the people to send message or chat, share photos, videos etc. Here this Facebook is worked for

controlling the home appliances. So it is the best opportunity to control the home using this type of messaging app.

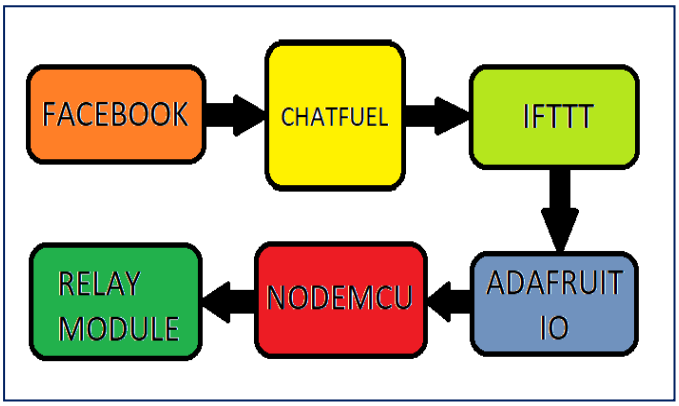

Fig 2: Block diagram of the System

2. WORKING PRINCIPLE OF THE SYSTEM:

Chatfuel is the platform where AI chatbots can create for Facebook. A person can create his own chatbot which is used to trigger any event. A text message from Facebook page can add to AI in this project.

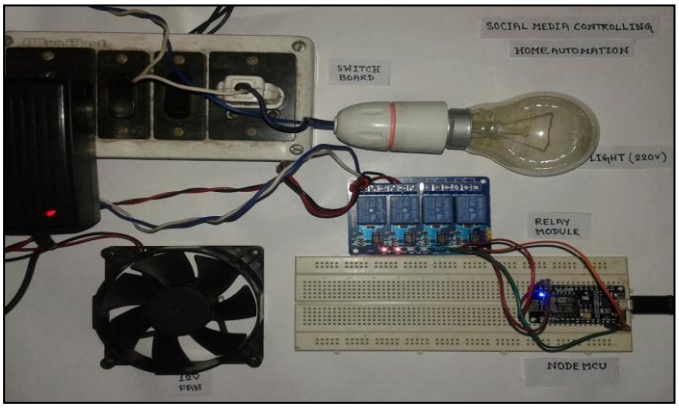

Fig 3: Hardware model of the system

Social media controlling home automation using nodemcu ESP 8266 is an Artificial Intelligence related Internet of things (IOT) based project. In this paper the procedure to make the project is going to discuss here. At first we need some equipment. We need the nodemcu ESP 8266 module, relay module (In this project 4 channel relay module is used), power adapter, jumper wire etc. The procedure is briefly discussed in below step by step.

Step 1: Install the Arduino ide software in the computer.

Step 2: Download the adafruit MQTT library and add the zip to the arduino ide software.

Step 3: Open chatfuel in the Google.

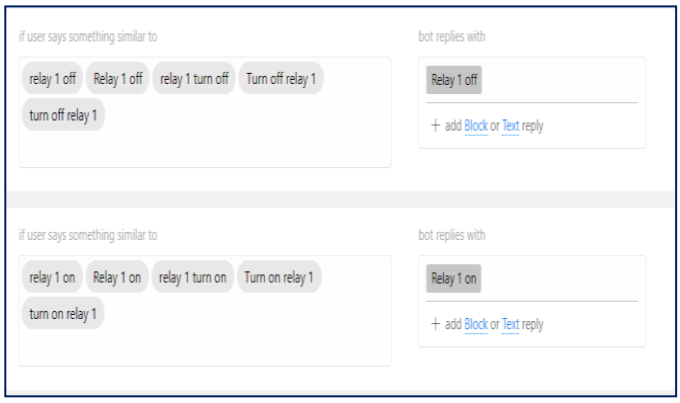

Fig 4: Set up AI in chatfuel

Step 4: Create a Facebook page and continue with chatfuel.

Step 5: Open Adafruit io in the Goggle. Log in or sign up with the mail id. Then create here new dashboard and feed to set up the home automation.

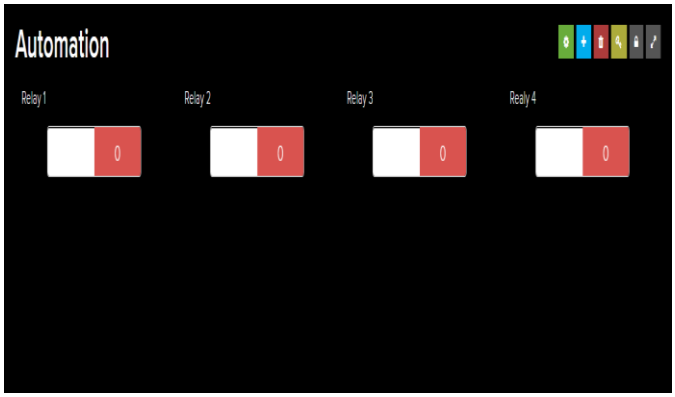

Fig 5: Set up feed in adafruit io

Step 6: Open IFTTT platform. Then create the applet to trigger the event.

Step 7: In the IFTTT, in "this" section trigger the action on the webhooks and in the "that" section provide the adafruit io to connect the server with the nodemcu. Here we can show the all feed in the adafruit action.

Fig 6: Connect adafruit in IFTTT

Step 8: Copy the key from the webhooks and paste in the JSON API of the chatbot event. Here value=0 for off the feed and value=1 for on the feed. Here I set up AI in the chatfuel.

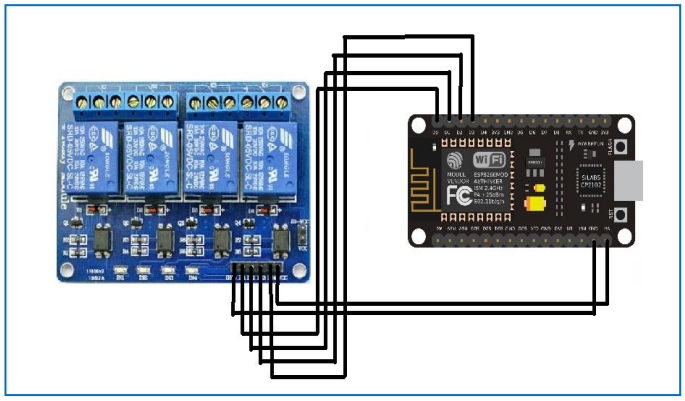

Fig 7: Circuit diagram of the system

Step 9: Connect the all equipments as shown in the circuit diagram.

Step 10: Connect the nodemcu ESP 8266 with the computer and upload the code. Here SSID and password of the home Wi-fi is must be given in the code.

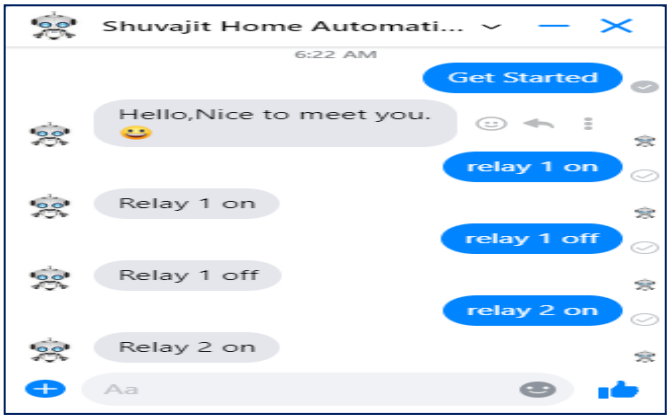

Fig 8: Facebook chatbot conversation

3. RESULT:

This paper proposes the social media controlling home automation using nodemcu ESP 8266. I have used nodemcu and 4 channel relay module in the model. I use Facebook to control the electric appliances. When I write the text "Relay 1 on" in the chatbox the bot reply me "Relay 1 on" and trigger the D1 pin of the nodemcu which is connected with the IN1 pin of the relay module. The electric appliance connected with the Relay 1 is on. Such as when text "Relay 1 off" the bot reply me "Relay 1 off" and the Electric appliance connected with the Realy 1 is off.

4. CONCLUSIONS:

The social media controlling home automation using nodemcu ESP 8266 is the IOT based project which produce a good efficiency in wireless home automation. We can control any home appliances and electrical and electronics equipments[4] from any corner of world.

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