VOICE CONTROLLED HOME AUTOMATION SYSTEM USING IOT

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for the completion of the UROP project

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CERTIFICATE OF APPROVAL

Certified that the project report entitled VOICE CONTROLLED HOME AUTOMATION SYSTEM USING IOT, submitted by

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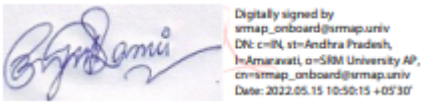

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LIST OF ABBREVIATION

IOT-INTERNET OF THINGS

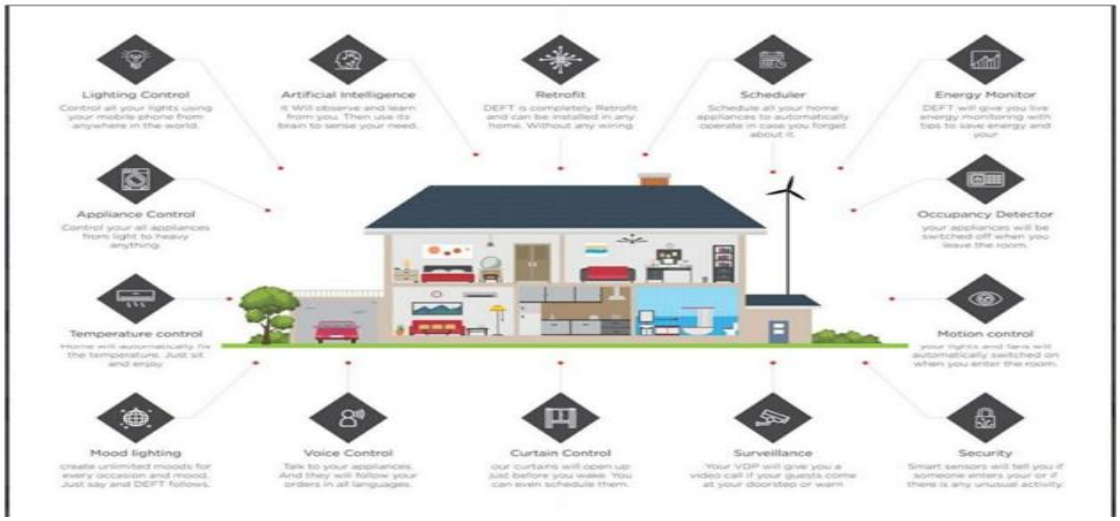
IFTTT-IF THIS THEN THAT

ABSTRACT:

Google assistant became common in everyone's lifestyle we can also called as personal assistant. Our main thought is to control gadgets with voice with google assistant's help. Special instructions are necessary in this project to react to the Google Assistant. To make virtual switches the cloud web server for IoT of Adafruit account to be used, for connection. With Help of IFTT site the voice commands were added to the google assistant. In this home automatization, home machines like as bulbs, fans, and motors can be operated as needed using commands provided by the client to the Google assistant. The instructions from Google assistant are encoded and then sent to Using it as a controller, microcontrollers control transfer links. According to the client's request to the Google Assistant, the device linked with the separate transfer can be switched on or off. NodeMCU is the microcontroller used (ESP8266) Wi-Fi is also used to establish communication between the microcontroller and the application (Internet). If This Than That (IFTTT) is a website that allows you to create if-else statements.

MOTIVATION:

Home Automation simply means making our Home Smart. In actual sense it becomes smarter only when IoT comes into the role. We have countless benefits as we can Save our energy and connect "n" number of appliances with its help. As it becomes smarter only when IoT enters the picture. Not only can we save on energy, but we can also connect a large number of appliances. The Internet of Things allows everyone to have access to their home appliances through Google clouds as it helps to pass information. Technology is changing and today's world demands "Smart Living". In addition, Home One Technologies uses IoT for Home Automation and provides the advantage of a Complete Wireless & Retrofit Solution. It makes it convenient and easy to control Electrical Appliances from anywhere in the world. Making your home smart is not anymore, a difficult task.



KEY WORDS:

1.Internet of Things (IOT)

2.Sensors

3.Microcontroller with inbuild Wi-Fi Module

4.gesture-controlled system

INTRODUCTION:

The automatic and electronic capability to handle household components and devices is called "home automation. “Our home's services and functions can be easily controlled over the Internet. A home automation system has three main components they are sensors, controllers, and actuators. The basic goal of technology is to increase efficiency while reducing effort, as automation reduces work while increasing efficiency.

The Internet of Things refers to anything that has the capacity to be issued an IP address and reliably transport data across a network. We can control appliances in numerous areas utilizing the Internet of Things, one of which is home automation using the Node MCU. Internet helps us to connect from any remote place. Within a few years, the Internet of Things will dominate the world. It shows how to use a Node MCU and an ESP8266 Wi-Fi module to create a real-time home automation system that is both cost-effective and portable.It is used to control and monitor home appliances (like fans and lights) via the Internet from everywhere on the planet.

In today's technology, everything is done through communication, hence the most effective means of communicating is through voice, this is what our speech-enabled home automation system does to control the devices by voice. If the speech recognition is very poor then home automation will not work.

If there are any disturbances, the user's speech would be provided as the microphone input, which will recognize the person's voice and seek the nearest word. To complete the action, the command (ON/OFF) must be supplied. The advantage of adopting home automation by voice-controlling is that it is completely wireless, unlike conventional home automation systems which rely on wired connectivity. Another advantage of home automation by speech control is that its user only needs to pronounce the device name into the smartphone's mic and tell it whether to turn the appliances on or off.

The main target audience is the old, blind and the ones who come home tired. These people feel problematic moving once they sit. Our technology will enable them to switch on / off their lights and fans with their voice with the help of their smartphones would make their life easier.

It would be better for the people who come home tired if everything such as switching on the lights and fans already were completed before they arrived at their destination, simply by issuing a verbal order. As a result, when people come home, they feel more ease and can relax.Though the technology is handy enough, only rich people in society are having smart home devices because of their cost. Everyone is not rich enough to afford the cost of kit for smart homes. As a result, demand for a low-cost smart assistant for everyday families is growing.

Our system's hardware design incorporates a Node MCU and a smartphone. The phone and the Node MCU connect wirelessly using the Internet. Google Assistant, Android's built-in voice recognition feature, was used to create a smartphone app that can control devices in the home using a user's spoken order.Our program transforms the user's voice input into text, and then sends that text message using IFTTT to libraries attached to the Node MCU. [IF THIS THAN THAT] website. It is a website used for creating applets which are a simple chain of conditional statements.

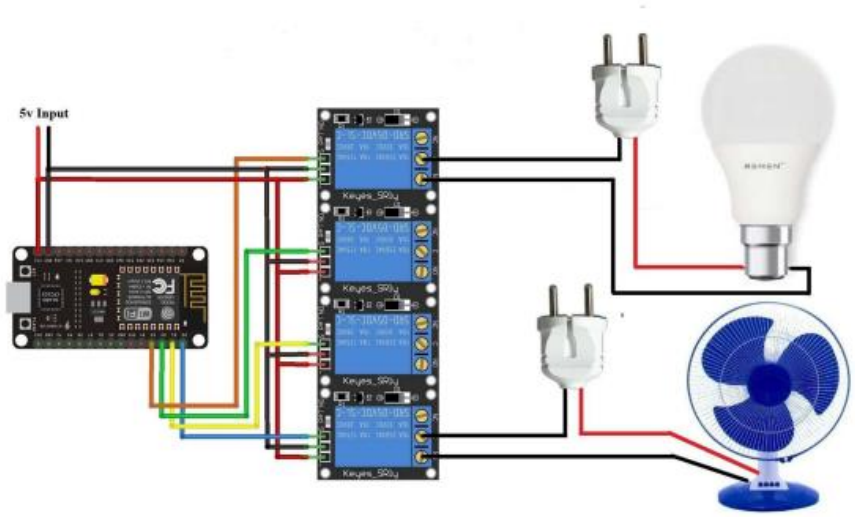
Users can add more home appliances to the system using a speech recognition programmer that has a user-friendly interface. This smart home system works in any house that has electronic appliances at home. The key advantage is that because we used the Internet instead of Bluetooth, it has a limited range, and its range can be extended

COMPONENTS REQUIERED/SOFTWARE:

- Relay
- DC fan
- Bread board
- Connecting wires
- IFTTT web application
- ESP8266
- Arduino IDE
- LED
- Mobile phone with Google assistant
- Blynk app
- Wi-Fi router

METHODOLOGY

Using the Blynk app on the mobile phone, the Blynk controller is in charge of controlling the Home Automation through the Node MCU esp8266 regulator. The Nodemcu esp8266 as inbuilt wi-fi module and the gadgets associated with home automation. Both wi-fi is associated with a verification token. For exhibit in this undertaking DC machine and power supply are utilized, NodeMCU Vin and Ground were given to voltage supply either miniature USB additionally power supply will be given. Computerized Pins D1, D2 are associated with hand-off IN1, IN2 individually and VCC and Ground of transfers associated lined up with Vin and ground. For apparatuses association will associated with yield pins holder of transfers.



A home automation framework automates the majority of electronic and electrical assignments with in a home. It utilizes a mix of hardware and software to empower control and the executives over machines and gadgets inside a home. Home automation alludes to decrease human endeavors as well as energy productivity and efficient. Here we are performing home automation by utilizing ESP8266-WIFI SoC and Blynk Play store App.

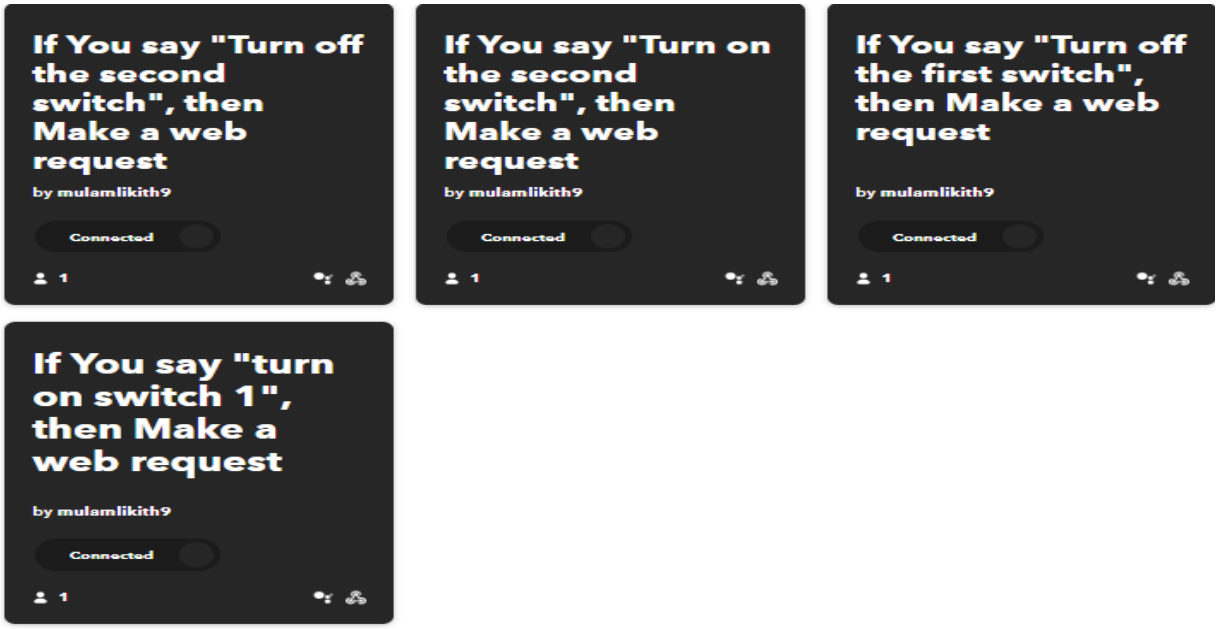
CODE

BLYNK SETUP CODE:

/* Comment this out to disable prints and save space */

```
#define BLYNK_PRINT Serial
/* Fill-in your Template ID (only if using Blynk.Cloud) */
//#define BLYNK_TEMPLATE_ID   "YourTemplateID"
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
// You should get Auth Token in the Blynk App.
// Go to the Project Settings (nut icon).
char auth[] = "DcCiba8m6L8COrUHTzHq0gS8oMtUSVBO";
// Your WiFi credentials.
// Set password to "" for open networks.
char ssid[] = "BUNNY";
char pass[] = "1122334455";
void setup()
{
  // Debug console
  Serial.begin(9600);
  Blynk.begin(auth, ssid, pass);
}
void loop()
{
  Blynk.run();
}
```

IFTTT COMMANDS:



WORKING

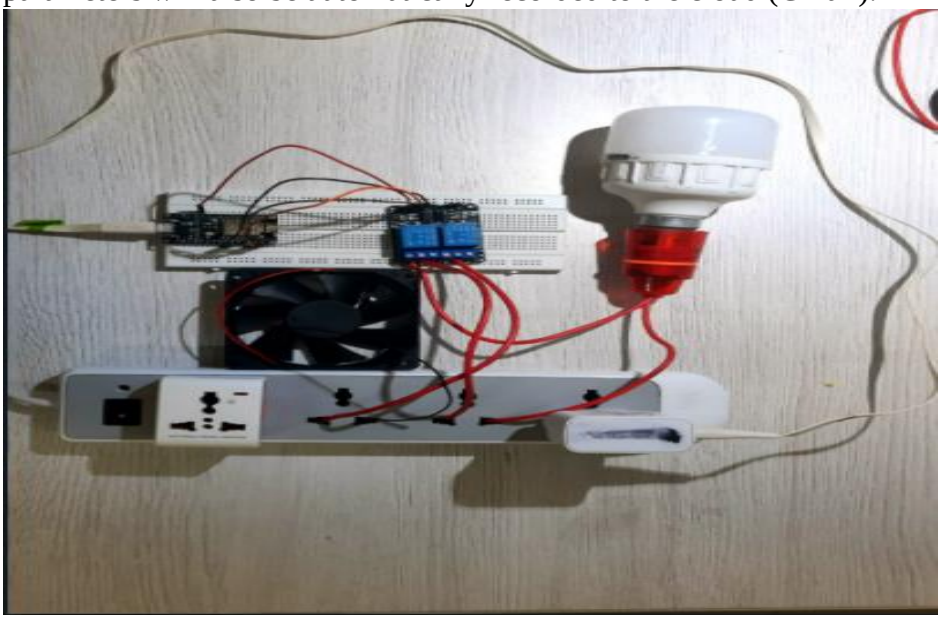
The Home automation Framework is working with NodeMCU ESP8266 regulator and A cell phone app using WIFI allows the Blynk app to place an order. The NodeMCU ESP8266 has an inbuilt WIFI module and the gadgets associated with Home Robotization Framework. Both WIFI is associated with a verification token.

This project's heart lies in the ESP8266-based NodeMCU development board is a Wi-Fi enabled board that requires runs NodeMCU software and is based on the popular ESP8266 Wi-Fi module. And is an open-source platform for developing embedded systems that use Wi-Fi. NodeMCU emerged from the need to overcome the limitations associated with the first versions of the ESP8266 module, which were not compatible with breadboards. It was hard to power and even harder to program. NodeMCU is easy to use. Low cost quickly endeared it to makers, and it has become one of the most popular boards today. For this project two channel relay modules are added to the ESP8266 board. Web-based applications control NodeMCU's GPIO through the Internet. GPIO signals control relay coils, which alternate between normally-open (NO) and normally-closed (NC) states based on the status of the GPIO., thus turning the connected appliance " ON " or " OFF ". Using this version, you can operate the device via Micro USB or Vin, GND, or by voice using Google Assistant. You can also use the Blynk app on an Android or iPhone phone, or use it manually with a Blynk application. According to the instructions, the hardware works fine.

CONCLUSION

When linked to basic appliances that can be operated remotely over the internet, home automation via the internet of things has been proved to perform well. Besides monitoring temperature, light, and motion sensors and gas sensors, the system initiates a process based on needs. It will allow the user to assess the status of numerous metrics at home at any time, for example, by turning off the switch. The sensor

parameters will also be automatically recorded to the cloud (Gmail).



LITERATURE REVIEW

Home automation is nothing but smart house systems and devices which was operate by user and automating actions based on the house owners' preferences. The development of an Internet-based system to allow monitoring of important works from a distributed control system any ware in the world. The need of daily life creates new ideas for development of home automation.

The use of speech to interact remotely with the house appliances and many more to perform a specific action. There are a lot of papers on home automation of different types of inventions. One of the best and famous method is controlling the devices by speech recognition. This type of home automation technique is very useful for people having disabilities in real-life. In here we used google-assistant type of voice control method. The Mechanism of this project works on the principle, when someone spoke from google assistant it will, sends a message to micro-controller and this micro-controller pass the command to relay which can turn on and Off the appliances based on our preference's

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