

Home Automation using Arduino and Smart Phone

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as ON, the devices will ON.

Abstract-Automation is a trending topic in 21st century making an essential part in our daily lives. Automation decreases the human labor, time, work and some human errors. The key objective of our project is to design a system for physically handicapped people to control and activate home appliances by their own voice .This quality is present in our project which has the aptitude to replace existing technologies. The proposal of the low cost voice recognition based home automation system for the physically challenged people suffering from quadriplegia or paraplegia (who cannot move their limbs but can speak and listen) to control the several home appliances just by his/her voice commands according to their need and comfort. The resulting system can afford a great assistance to the physically handicapped people without any need of third person.

Key Words: Nodemcu microcontroller, Google Assistant APP, IFTTT, Adafruit IO.

I.INTRODUCTION:

The home automation systems are getting more popularity day to day due to their ease of use and wide operational capabilities and more applications. This Integrating voice recognition technology for home automation systems for paralyzed people can make the system more user friendly and easy to operate and control. Some require home automation system to satisfy their needs and comfort while for physically challenged people it can provide great assistance for the patients. There are several researches and developments on the home automation systems. The voice recognition based home automation system for paralyzed people uses the speech recognition module to recognize the voice commands. Google assistant is used to send these commands to the controller to control the various electrical devices. Using of the computer makes this system more expensive and difficult to handle it.

Intelligent home navigation system for disabled person uses voice recognition module for the speech recognition process. The Arduino receives the command from the voice recognition module and to control electrical devices. This proposed a home automation system uses the voice recognition module for the voice recognition function, a microcontroller and relay module are used for the controlling functions like switching lights on and off etc. We can also control the home appliances by two methods by voice commands or by using android mobile as a remote controller. The voice recognition is done by the google assistant and thus given to the controller to control the devices. . When the voice command is given

II.LITERATURE SURVEY:

A. “An elegant home automation system using GSM and ARM-based architecture”, V.L.K.Bharadwaj Manda, Voona Kushal and N.Ramasubramanian 0278-6648/18©2018IEEE.

It is home automation system developed using GSM and ARM processor

The central processing unit of this system is the NXPLPC11U24 microcontroller.

Many peripheral devices cannot be attached using ARM Processor.

B. “Smart Home Automation System Using Bluetooth Technology”,Muhammad Asadullah 978-1-5090-3310-2/17/\$3\00 ©2017 IEEE

It is a home automation system developed using Arduino board, Bluetooth module HC-06, smartphones.

Bluetooth has lower bandwidth and shorter range.

C. “Smart Home Automation and Security System using Arduino”, Siddharth Wadhwani1, Uday Singh2, Prakarsh Singh3, Shraddha Dwivedi4 Volume: 05 Issue: 02 | Feb-2018

It is a home automation system using Arduino Uno board and Wireless fidelity technology.

It accepts command only through clicks.

III. EXISTING SYSTEM:

The existing home automation system was developed by using Global system for mobile communication and ARM based technology. The home appliances are controlled using simple GSM based phone by sending SMS. ARM based architecture has lack of wireless function. The research provided here aims at studying the feasibility of implementing an SMS- based control of home appliances using the GSM technology without trying to access other local networks.

IV. PROPOSED SYSTEM:

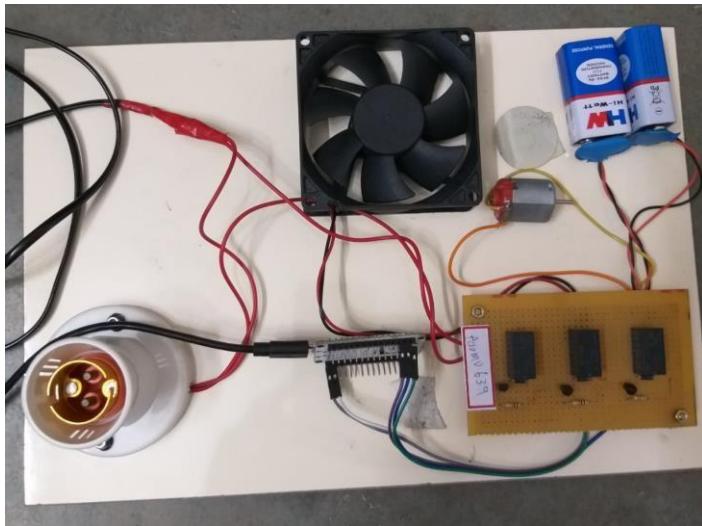
The home automation through android mobile is designed for PHYSICALLY CHALLENGED and DISABLED

PEOPLE. In GSM based architecture only text messages can be send. Voice recognition cannot be done in GSM. In ARM based home automation system, we cannot connect large number of peripherals. But it can be overcome in this Wi-Fi based Home automation system. The electrical appliances are controlled through one common device which replaces television, air conditioner etc., remotes for sleep mode through Wi-Fi Home automation using clicks and voice commands.

V. ADVANTAGES:

1. Voice commands are given to control devices and it is more convenient.
2. Wifi based devices have better bandwidth and also we can connect many peripherals.
3. It includes safety, convenience and control.

VI. ARCHITECTURE:



VII. MODULES:

A. DEVELOPING ARDUINO CODE:

Arduino IDE is used to write code and uploading it to arduino boards.

```
sketch_jun29a | Arduino 16.11
File Edit Sketch Tools Help
sketch_jun29a
void setup() {
  // put your setup code here, to run once:
}

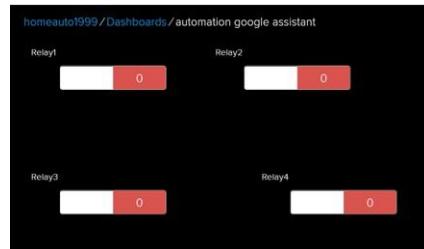
void loop() {
  // put your main code here, to run repeatedly:
}
```

```
// the setup function runs once when you press reset or power the board
void setup() {
  // initialize digital pin 13 as an output.
  pinMode(13, OUTPUT);
}

// the loop function runs over and over again forever
void loop() {
  digitalWrite(13, HIGH); // turn the LED on (HIGH is the voltage level)
  delay(1000); // wait for a second
  digitalWrite(13, LOW); // turn the LED off by making the voltage LOW
  delay(1000); // wait for a second
}
```

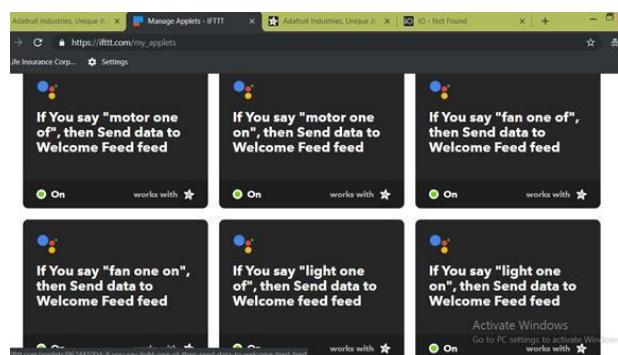
B. CREATING RELAYS USING ADAFRUIT IO

- Adafruit IO is a system that includes client libraries that wraps our REST and MQTT APIs(Message Queuing Telemetry Transport).
- Using a MQTT library or client we can publish and subscribe to a feed to send and receive feed data.



C. CREATING APPLETS USING IFTTT

- IFTTT (If This Then That) services is for automatic activities. It is a free web based facility to create chains of simple conditional statements, called APPLETS.
- IFTTT is the easy, free way to get your Apps and Devices functioning together.



D. C. CONFIGURING MOBILE

- To connect mobile with Microcontroller, Mobile's hotspot name and password should be uploaded in the server using arduino code.

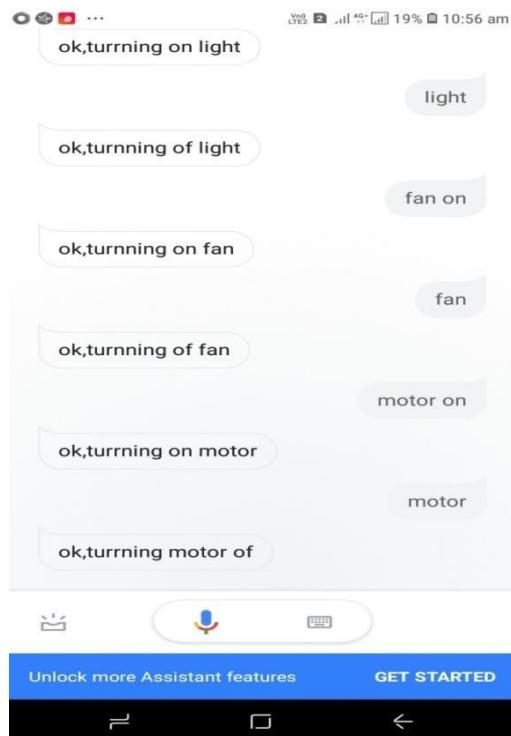
- When voice command is send, it sends signal to relay and it performs ON and OFF operations.

E.B UILDING THE HARDWARE:

Fan, bulb and motor are connected with relays. Relays are connected with microcontroller. Connect the hardware components.

VIII. RESULT:

In this system, voice commands are given as input. The commands format which are feeded while creating IFTTT applets should be pronounced correctly to get the output. We will give the commands through google assistant and it sends the signal to controller. And this controller will control the devices to perform ON and OFF operation.



IX. CONCLUSION:

The operating system of the smart mobile phone in android, we progress remote control program. The program connected with wi-fi to communicate with the robot. Wireless control is the most significant basic needs for all the people. Wireless network controlled robots use wi-fi modules. Our Home automation will be helpful for disabled and Elderly people to perform ON and OFF operation automatically by giving voice commands. Our future work will be focused to reduce the time taken to recognize and response the voice commands. Trying to implement the same idea in other real world application also.

X. REFERENCES:

- An elegant home automation system using GSM and ARM-based architecture, V.L.K. Bharadwaj Manda, Voona Kushal, and N. Ramasubramanian, 0278- 6648/18©2018IEEE
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- Smart Home Automation System Using Bluetooth Technology, Muhammad Asadullah, 978-1-5090-3310-2/17/\$3.00 ©2017 IEEE
- Analyzing the Elderly Users' Adoption of Smart-home Services, Debajyoti Pala, Suree Funilkulb, Vajirasak Vanijja and Borworn Papasratorna, 2169-3536 (c) 2018 IEEE