

Home Automation Using Raspberry Pi Controlled By Google Assistant

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Abstract : This paper presents a proposal for home Automation using voice via Google Assistant. We saw many home automation technologies introduced over these years from zigbee automation to Amazon Echo, Google Home and home from Apple. We thought what if we can automate our house within (cost of the smartphone is not included as it is owned by every individual these days). Well this paper describes the implementation of such a system. The system is implemented using ordinary household appliances natural language voice commands are given to the Google Assistant and with the help of IFTTT (if this then that) application and the Raspberry Pi. The commands are decoded and then sent to the Raspberry Pi, the Raspberry Pi in turn controls the relay connected to it as required, turning the device connected to the respective relay ON or OFF as per the user's request to the Google Assistant. The communication between the Raspberry Pi and the application is established via WiFi (Internet).

Index Terms - Home Automation, IFTTT (If This Then That) Application, Internet of Things (IoT), Google Assistant, Voice Control, Smartphone.

I. INTRODUCTION

Home, it is the place where one fancies or desires to be after a long tiring day. People come home exhausted after a long tiring day. Some are way too tired that they find it hard to move once they land on their couch, sofa or bed. So any small devices/technology that would help them switch their lights on or off, or play their favourite music etc. on a go with their voice with the aid of their smart phones would make their home more comfortable. Moreover, it would be better if everything such as adjusting the room temperature were already done before they reach their home just by giving a voice a voice command, So when people would arrive home, they would find the room temperature adjusted to their suitable preferences, and they could relax right away and feel cozier and rather, feel more homely. This paper proposes such an inexpensive system. It uses the Google Assistant, the IFTTT application, Raspberry Pi, Natural language voice is used to give commands to the Google Assistant. All of the components are connected over the internet using Wi-Fi which puts this system under the IoT.

II. LITERATURE SURVEY

- 1. Remote control Home Automation System using Bluetooth:** Bluetooth technology is used widely across the globe because of its secure and reliable data transmission technique. Bluetooth uses a short-range radio to transmit the data over a speed of up to 2.4GHz. Project's main focus is on control home appliances using Bluetooth. The Bluetooth system has advantages as it is fast, reliable, cheap, and easy to use and handle and has a low energy consumption rate. This system has two major drawbacks: firstly, if the phone doesn't have Bluetooth, the user can't access the network, and secondly, the Bluetooth has a small range of coverage area so it makes the user bounded and cannot be used outside the coverage area.
- 2. Home Automation System using Arduino Micro-controller :** To control the heavy data communication, we need to have a base i.e. microprocessor or a microcontroller which can handle or control the data processing of the project. This system uses Arduino which is a microcontroller for controlling various data handling of home automation. This system makes use of OTP (One Time Password) that can be used as an entry password for the users. This system has its drawbacks: this too lags in processing heavy data when multiple devices are connected together.
- 3. Raspberry Pi Based Home Automation System**
Using internet of things: This project's main aim is for security and to monitor the flow of water using Raspberry Pi sensors MSP430 microcontroller. Raspberry Pi plays a role to handle the execution of code and to process it. The Raspberry Pi here is connected to internet via a Modulator Demodulator (MODEM) to handle or access various emails sent to the customer. The home appliances to control is been integrated with the circuit using a Relay channel due to high voltage ratings of home appliances. To view the updates this project makes use of display connected to the Raspberry Pi.

III. SYSTEM ARCHITECTURE

The system design is broken down into two main categories:

1. The hardware- It has the capability to connect to the Wi-Fi. It would also be able to turn on/off specified devices, such as lights and fans. It is called Raspberry Pi control unit.

2. The Google Assistant constitute the software of the design, the IFTTT app would be integrated in the android device.

1. System Architecture

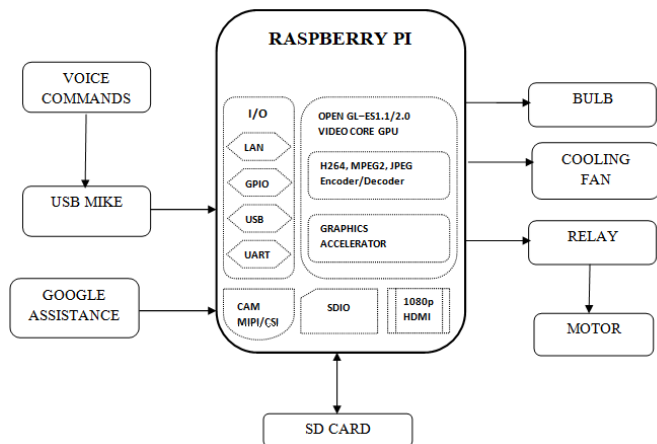
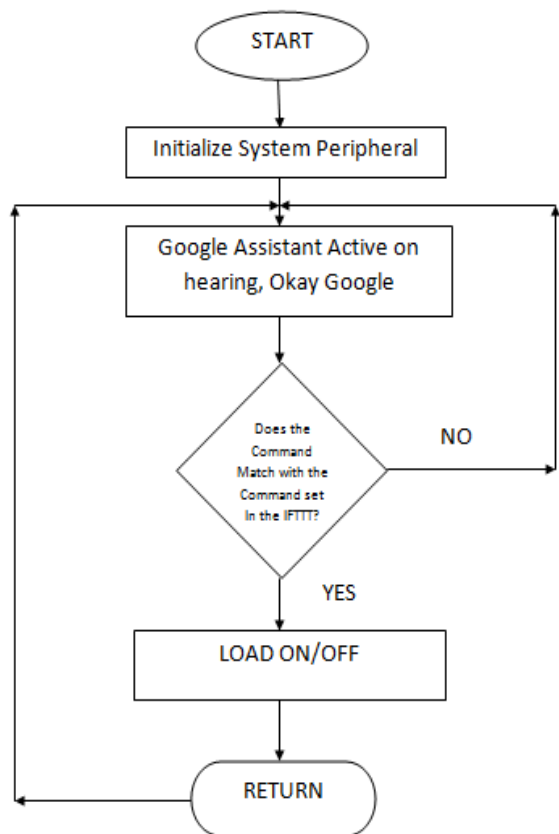


Fig :- Basic Architecture of System

2. FLOWCHART



IV. CONCLUSION AND FUTURE WORK

Conclusion- The conclusion is, the project of controlling the home appliances using raspberry pi controlled by google assistant is successfully done. The advantage of this project is, It is cost effective and will help to aged people and handicapped persons who are not able to control their home appliances by their own.

Future Work- Well, no system is ever perfect. It has a scope for improvement. The future scope of GACHA[Google Assistant Controlled Home Automation] can be huge. There are many factors to improve on to make GACHA more powerful, intelligent,

scalable and to become better overall for home automation. For example- controlling the speed of the fan, more number of devices can be integrated like a coffee machine, air conditioner, etc. To make the system more faster own server can be made.

V. REFERENCES

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