

## Controlling Home Appliances on Google Assistant and Monitoring Data

Mhanta Prasad<sup>1</sup>, Mayuri Ghodke<sup>2</sup>, Swati Gaikwad<sup>3</sup>, Prof. N. V. Kurhade<sup>4</sup>  
<sup>1,2,3,4</sup>(Department of Computer Engineering, SPCOE, India)

**Abstract:** Now a day's this paper presents a proposal for home automation using voice via Google Assistant Home automation or domestics a term for home automation. Flawless controlling of home, monitoring and programming by the end user have yet to enter the mainstream. This can be possible to develop an independent and self-managing system and extensible home system that can support today's smart devices and technologies of differing feature and protocols. This paper describes how to control and monitor home appliances using android application over internet. There are number of commercial home automation systems available in market. But they have certain limitations to it. So that way we come up with idea to develop a pocket friendly system. However, these are designed for limited use. Therefore, home appliances can individually be controlled both from within the home and remotely. This is very helpful to physically challenged people. In the proposed system we have worked on getting the notification on our phone whenever anyone secretly enters into the room. The main intention of this paper is to implement a user feasible system that can everybody can afford and use the latest technology, android home automation system. The android mobile is used to send the commands to the NodeMCU to control all the home appliances. The main feature of this system is to control IOT based air quality monitoring by dust sensor.

### I. Introduction

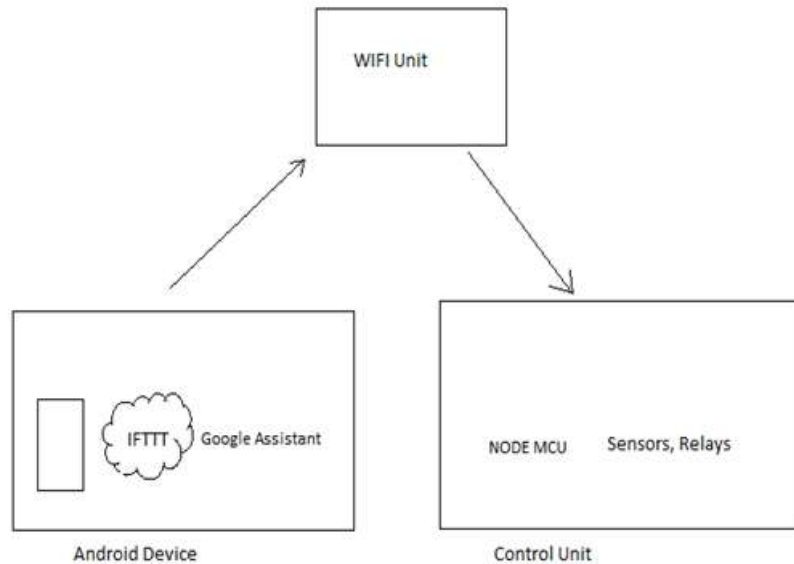
In Home, it is the place where one fancies or desires to be after a long tiring day. People come home exhausted after a long hard working day. And some people with the disability there some are way too tired that they find it hard to move once they land on their couch, sofa or bed. So any small device/technology that would help them switch their lights on or off 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 warming bath water and adjusting the room temperature were already done before they reach their home just by giving a voice command. So, when people would arrive home, they would find the room temperature, the bath water adjusted to their suitable preferences, and they could relax right away and feel cozier and rather, feel more familiar. To make human lives even more easier to live and control their appliances on their finger. Human assistants like housekeepers were a way for millionaires to keep up their homes in the past. Even now when technology is handy enough only the well to do people of the society are blessed with these new smart home devices, as these devices costs are a bit high. However, not everyone is wealthy enough to be able to afford a human assistant, or some smart home kit. Hence, the need for finding an inexpensive and smart assistant for normal families keeps growing. This paper proposes such inexpensive system. It uses the Google Assistant, the IFTTT [1] application, and the adafruit[2] cloud application and the NodeMCU [3] microcontroller as the major components along with a relay board comprising of 4 relays along with different sensors are working in this. Natural language voice is used to give commands to the Google Assistant [4]. All of the components are connected over the internet using Wi-Fi which puts this system under the IoT [5]. And also we monitor data in this that is we using the four different sensors like PIR motion, temperature and humidity, Light sensors, Sound microphone sensors

### II. Implementation and System design

The whole system is broken down into two main categories are as follows

- i. The hardware- It has the capability to connect to the router. It would also be able to turn on/off specified devices, such as lights and fans. It is called the 'Control Unit'. And The sensors and,
- ii. The Software- the IFTTT app and the Google Assistant constitute the software of the design and these applications would be integrated in the Android device.

When the user sends command through google assistant it first goes to the IFTTT there we given set statements that states he IF THIS THEN THAT you can understand this when you see the architecture of the our system. From there it goes to the adafruit is cloud service it is like MQTT broker which interacts with the Node MCU[3] The Control Unit comprises of the microcontroller- NodeMCU and the 4 Channel Relay board. Android device communicates with the microcontroller and sends the desired signal via the internet. Figure 1 below shows the basic system design architecture.



**Fig- 1** Basic System architecture

### III. Motivation

- To enhance the standard of living
- This enables the end user hassle-free interaction with the appliances
- People have been building their own ideal home over the last years. Then, why is this still a “future” topic?

### IV. Proposed System

- Provide a more user-friendly interaction
- Various issue are solved like sending notification
- We are providing the data monitoring system so you can control the sensors data
- Very simple and provide interaction with google assistant

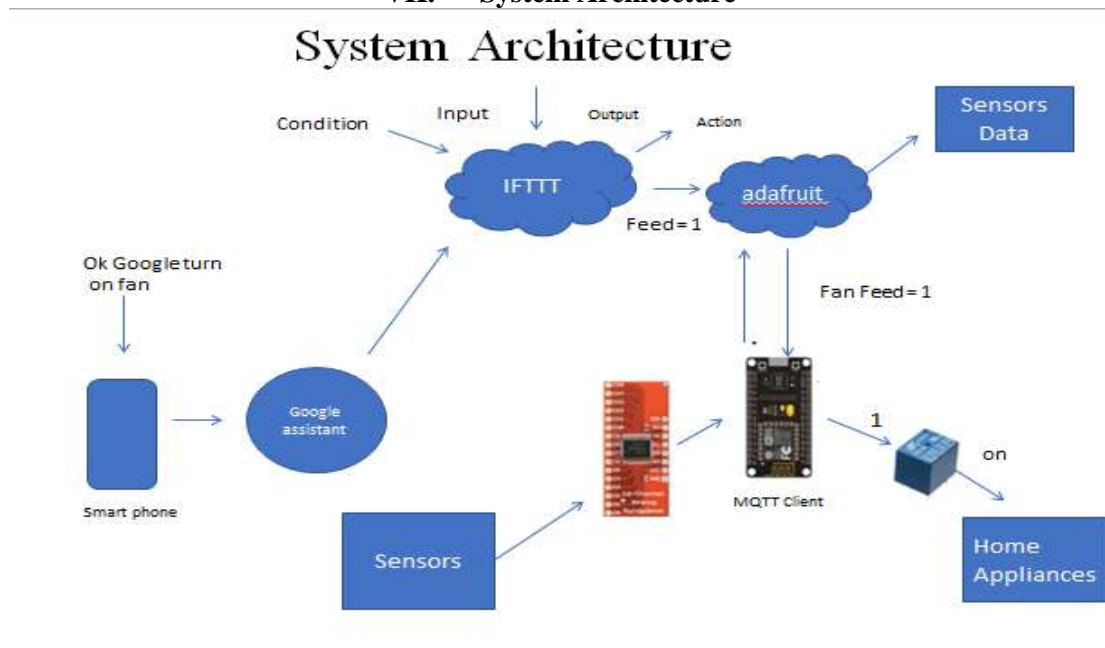
### V. Hardware Required

- 5V relays
- n4007 Diode
- BC547 transistors.
- 330ohm Resistors
- Multiplexer module
- Different sensors
- Ics
- 9v power adapter
- Four Different Sensors

### VI. Software Required

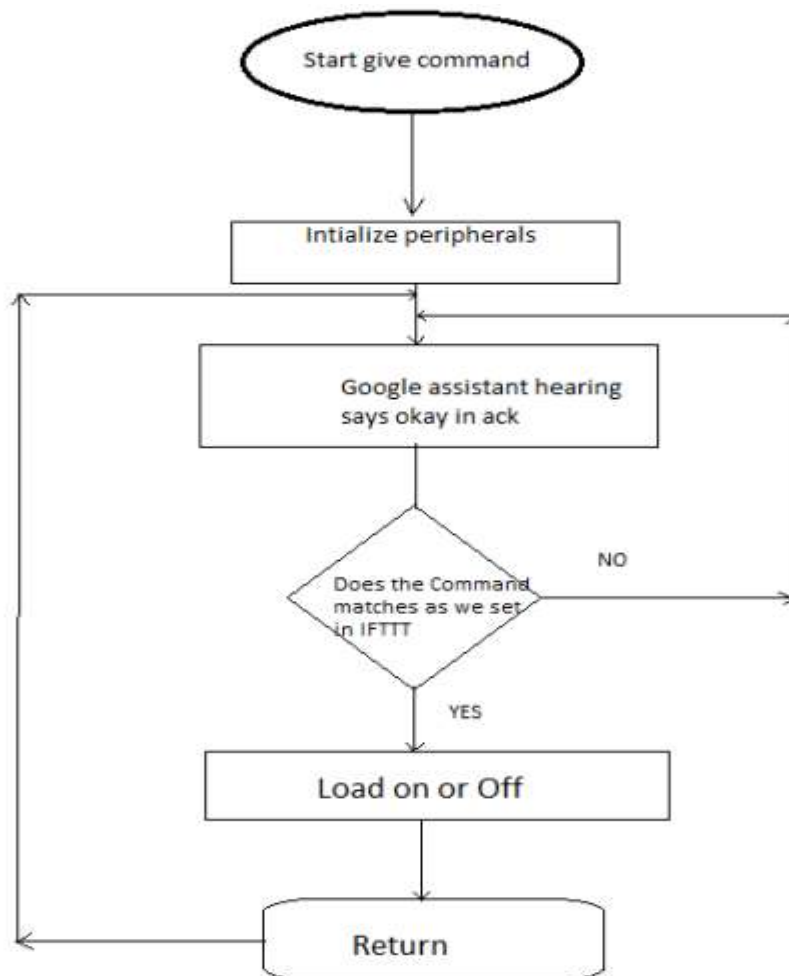
1. Operating System :Windows Family
2. Arduino IDE
3. Android

**VII. System Architecture**



**Fig-** System Architecture

**VIII. FlowChart**



**Fig-** Flowchart

## IX. System Components

### IX.I. adafruit

**Adafruit Industries** is an open-source hardware company based in New York City. It was founded by Limor Fried in 2005. The company designs, manufactures and sells a number of electronics products, electronics components, tools and accessories. It also produces a number of learning resources, including live and recorded videos related to electronics, technology, and programming.

MQTT, or message queue telemetry transport, is a protocol for device communication that Adafruit IO supports. Using a MQTT library or client you can publish and subscribe to a feed to send and receive feed data.

### IX.II. IFTTT

IFTTT derives its name from the programming conditional statement if this, then that. IFTTT is both a website and a mobile app that launched in 2010 and has the slogan "Put the Internet to work for you". The idea is that you use IFTTT to automate everything from your favourite apps and websites to app - enabled accessories and smart devices. What the company provides is a software platform that connects apps, devices and services from different developers in order to trigger one or more automations involving those apps, devices and services. Here, IFTTT application is used to bridge the gap between the Google Assistant commands and the Smart phone. Setting up the IFTTT application first requires logging in after which we need to create an applet and then This, i. e. the trigger, here we select Google Assistant and then we will type in the commands to which the Google Assistant should respond and to this command it should control the appliance/relay associated with it. The response command from the Google Assistant can also be typed in as desired. After configuring the trigger, i.e. This of the application we need to configure the That. What should be done once the Google Assistant hears the command which we just configured? This is decided by setting That of the app. communication is done via the internet and since the microcontroller, NodeMCU comes with inbuilt Wi - Fi module, it is programmed to connect to the desired network once plugged in. C language is used to program the microcontroller and is programmed in the Arduino IDE

## X. Snapshots of Implementation

### X.I. User interaction with Google assistant



Fig- UI1

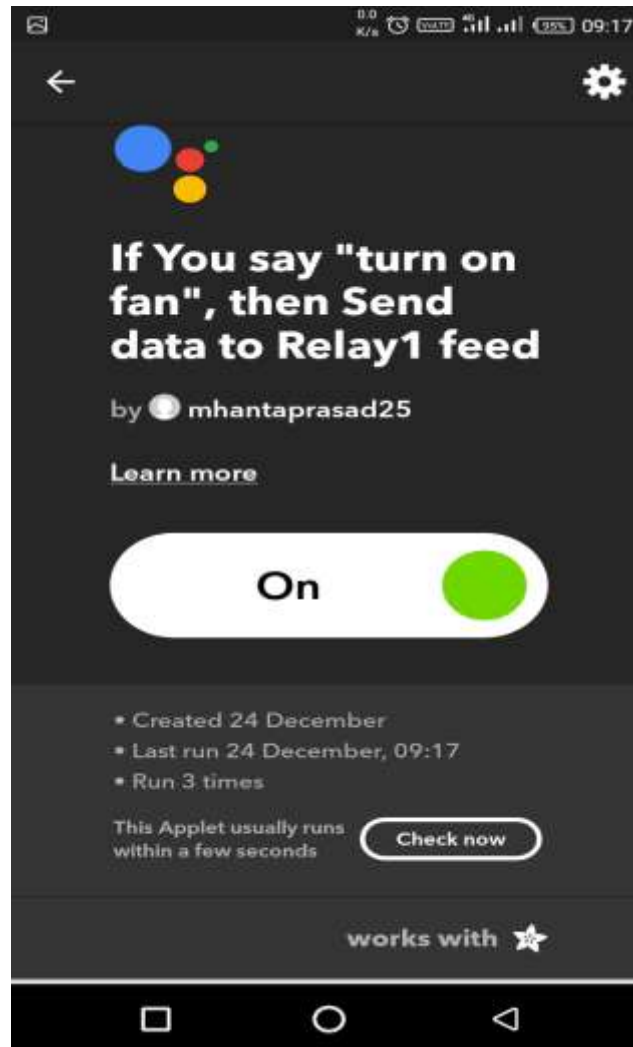


Fig- UI2

## XI. Conclusion

The project has proposed the idea of smart homes that can support a lot of smart home systems. A smart home contains a connection between wireless communication, sensors, monitoring and tracking. Smart homes are a huge system that includes multiple technologies and applications that can be used to provide security and control of the home easily.

## References

- [1]. IFTTT: <https://ifttt.com/discover> <https://www.pocketlint.com/SmartHome/SmartHomenew>
- [2]. adafruit: <https://en.wikipedia.org/wiki/AdafruitIndustries>
- [3]. NodeMCU: <https://nodemcu.readthedocs.io/en/master> <https://iotbytes.wordpress.com/nodemcupinout/>
- [4]. Google Assistant: <https://assistant.google.com/intl/en/in/> <https://www.pocketlint.com/Apps/Appsnews/Googleappnews>
- [5]. IoT based Smart Home Automation System using Sensor Node Himanshu Singh, Vishal Pallagani, Vedant Khandelwal and Venkanna U. 2018
- [6]. "Efficient low cost supervisory system for Internet of Things enabled smart home." Kamal, Md Sarwar, Sazia Parvin, Kashif Saleem, Hussam Al-Hamadi, and Amjad Gawanmeh. In Communications Workshops (ICC Workshops), 2017 IEEE International Conference on, pp. 864-869. IEEE, 2017.
- [7]. Somayya Madakam, R Ramaswamy, and Siddharth Tripathi, Internet of things (iot): A literature review, Journal of Computer and Communications, vol. 3, no. 05, pp. 164, 2015.
- [8]. Arduino IDE : <https://www.arduino.cc/en/Guide/Environment>
- [9]. <https://learn.adafruit.com/adafruit-io/mqtt-api>