SMART HOME AUTOMATION USING ADAFRUIT AND MQTT PROTOCOL USING VOICE CONTROL

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ABSTRACT

Our project ' SMART HOME AUTOMATION USING ADAFRUI AND MQTT PROTOCOL VIA VOICE CONTROL' provides a low cost-effective and flexible home control and monitoring system with the aid of an integrated web server with internet protocol (IP) connectivity for access and to control of equipment and device remotely using Android- based application. This system can provide live and total electricity consumption of each components in a system. This system make home automation dream of easy to use, inexpensive, smart, wireless, sensor networks to become a reality to very common man.In this project we control house hold devices through human voice. It helps old and disabled peoples. Human voice is given as a input through google assistant and processed by IFTTT and Adafruit followed by NodeMCU which uses MQTT Protocol. Voice converted into command by the above process in turn will control the home appliances.

Keyword : *NodeMCU , Adafruit , IFTTT , MQTT Protocol*

1.INTRODUCTION

In the modern world the internet of things is creating whole new era that which we have never seen before. With the rapid emergence of smartphones, the internet of things made is evolving to meet our needs and rising to the challenges of our changing world. The latest Internet of Things (IoT) devices has changed our home spaces like never before. Virtual Assistants such as Amazon Alexa and Google Home, allow us to dive into smart devices including thermostats, door locks, light bulbs, security cameras, and more. Without getting out of bed or our favorite reclining chair, we can control the environment around us with merely a finger tap on our smartphones. But this technology is not Access to very common people in the world. Our project is to develop the smart modular type which consist automated switchless socket in which the current , power , energy and voltage consumed through each socket is measured and monitored through mobile. Switch operation ON and OFF of each socket is operated through voice command and through a web page The system is connected to this android app using internet connectivity for better and fast communication.

2.LITERATURE SURVEY

This paper presents the planning and implementation of an Ethernet-based Smart Home intelligent system for monitoring the electricity consumption based upon the important time tracking of the devices reception an INTEL GALILEO 2ND generation development board, which may be utilized in homes and societies. The proposed system works on real time monitoring and voice control, so the electrical devices and switches are often remotely controlled and monitored with or without an android based app. It uses various sensors to not only monitor the important time device tracking but also maintaining the safety of your house. it's monitored and controlled remotely from an android app using the net or the Intranet connectivity. The proposed outcome of this project aims as multiple

benefits of saving on electricity bills of the house also as keep the users updated about their home security with an option of controlling the switching of the devices by using their voice or simple toggle touch on their smartphone, and last but most significantly, monitor the usage so as to conserve the dear natural resources by reducing electricity consumption.

This work discusses about the results of work drained development of a "IoT based Personal Assistant using Raspberry Pi" on Python Platform. The work aims at the event of a private assistant that helps users interact with household appliances using speech and gesture commands to supply a more interactive and user friendly living experience and integration of varied tools and components developed during the execution of the project. the web of Things (IoT) is described as a network of physical objects or " things" embedded with software, electronics, sensors and network connectivity that helps these objects collect and exchange data. The smart devices and also sensors in home automation helps to collect or sense the physical experience and convert it into information data.Foremost element of home automation supported IoT is that the Raspberry Pi. This Raspberry Pi will collects data from sensors or also takes in speech or from gesture commands and interprets them to manage household electrical devices like fan, light, heater, door, and opening and shutting of curtains.

3. EXISTING SYSTEM
In the Existing system, HTTP protocol is used. As HTTP protocol is based on client-server architecture, if we requested for more command' s server clash might occur. As it has no publisher and subscriber method of control, there is more latency. HTTP protocol has lengthy headers and footer as it was text message format and also in existing system only the smart appliances can be controlled that too can be controlled with in the limited distance.

3.1 DISADVANTAGES
- Does not support voice command feature.

- It does not have any secure encryption of data.

- It only runs on local server.

- It doesn' t have IOT features.

4. PROPOSED SYSTEM
In this proposed system,we overcome the drawbacks in the existing system. By using MQTT protocol,we will be communicating with Adafruit IO over the Internet. MQTT protocol is one of the most commonly used protocols in IoT projects now a days. It stands for Message Queuing Telemetry Transport.It is designed as a lightweight messaging protocol that uses publish/subscribe operations to exchange data between clients and the server and we can control not only smart appliances but also other normal appliances even we are too far away from it.By using voice control we can provide commands from anywhere.

4.1.ADVANTAGES
- It support voice command to control the appliances.

- It support IOT enabled Access.

- It has secured encryption for data.

- It runs on Cloud Server.

5. BLOCK DIAGRAM
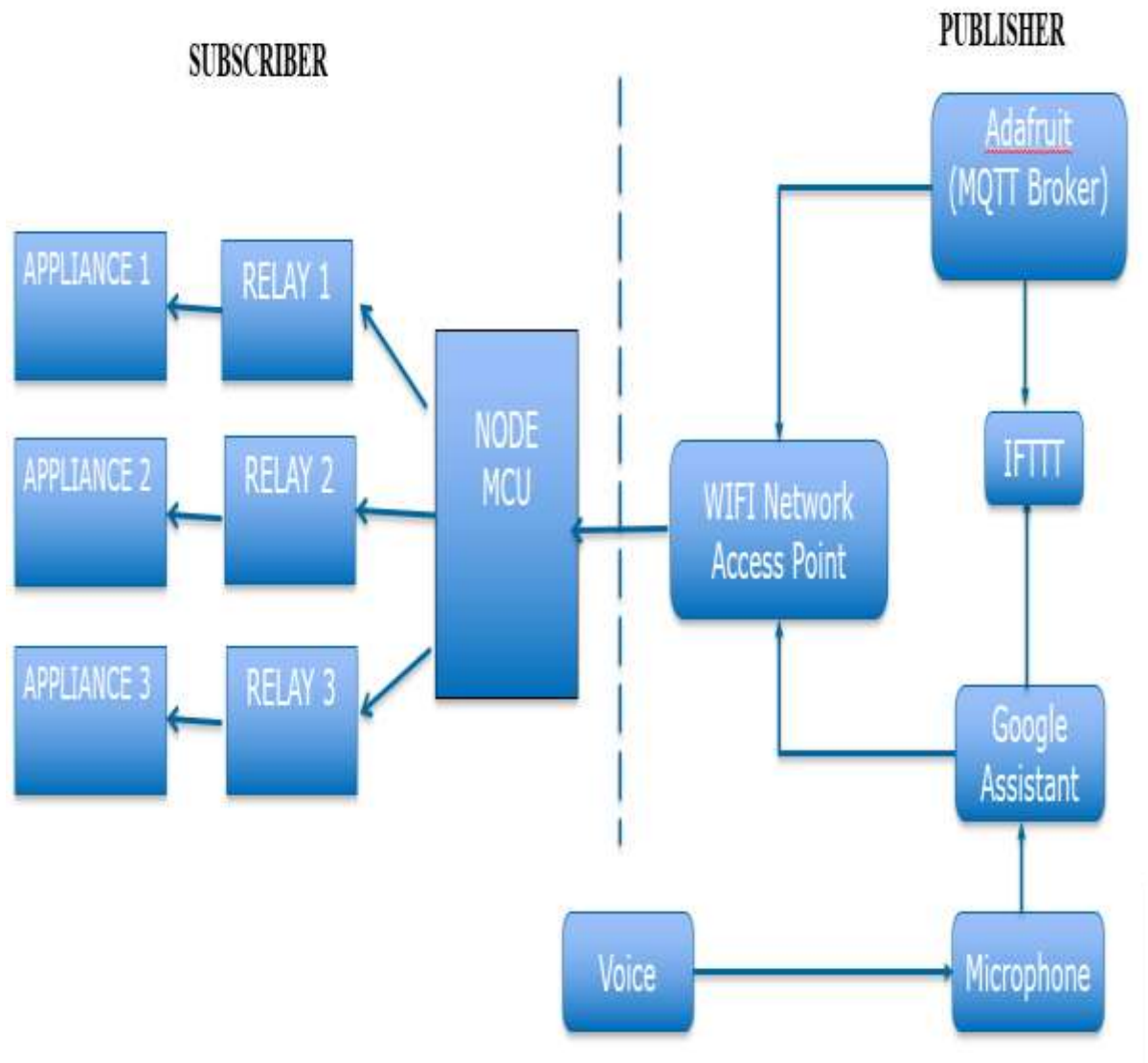
6. HARDWARE REQUIREMENTS

- NodeMCU
- Relay Boards
- Power Measurement Sensors

7. SOFTWARE REQUIREMENTS

- MQTT
- Adafruit

- IFTTT

- Google Assistant

- Arudino IDE

8. IMPLEMENTATION

To control the normal appliances using voice control system for the benefits of disabled and old peoples using IOT. Our objective is to overcome the disadvantages in existing model which controls only the smart appliances by introducing the method of controlling the normal appliances without any smart devices in low cost .In our project we give input as voice to the google assistant and this voice is converted into command by IFTTT and is provided to the appliances. As the input of the project, the person should give their commend to the google assistant as " TURN ON LIGHT 1" . This command is received by the adafruit through IFTTT. From adafruit it gets send to the NODEMCU. When the nodeMCU receives the command to ' ' ON' ' the specific appliances, it checks and identifies the relay which is associated with it. Once the appropriate relay is identified, it passes current to it, which activates the relay so that it can perform the required operations. This relay connected to the appliances which makes the appliances activated. The power supply in the relay makes the appliances activated which is connected to it

9. CONCLUSION

In this paper, the implementation details of a low-cost and low-power Smart Home Automation system is presented. The main idea of this system is to control the normal appliances using voice control system for the benefits of disabled and old peoples using IOT.

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