Alexa Based Home Automation

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Abstract: *It is an Iot based paper where designed and implemented smart home system. The purpose is behind of that paper that control the switching of home like fan on or off, lights on or off and specially control the all requirements in home. Alexa is used in this and it is work quickly within a second. Alexa is capable of voice interaction, music playback, making to-do lists, setting alarms, streaming podcasts, playing audio books, and providing weather, traffic, and other real-time information. Alexa can also control several smart devices using itself as a home automation hub. We will use on this project, the "Echo Dot", which allows users to activate the device using a wake-word, such as "Alexa" or "Computer", as in "Star Trek! In the home automation space, Alexa can interact with several different devices like Philips Hue, Belkin WeMo, Sonoff, etc. We emulated WeMo devices on previous projects, using the fauxmo ESP library, which seems outdated and not adequately maintained nowadays. Here we will use mat protocol that which helps for the communication.*

Keywords: IOT, MQTT, VPA, Google assistant, WIFI, Node MCU

I. INTRODUCTION

An Iot is a n internet of things which is very secure platform to implement most things. Nowadays changing technology so human interaction towards machine is increases daily. Now human directly connected to the machines. As per their demands or expectations now they are communicating with the machines. Before they are satisfied with the touch pads, machine interaction and after they are reached to the level of commanding and communicating with machines means human easily control the machines to giving the commands for communication. So less time required and fast working. In this artificial intelligence connects the and also expert systems. human and machines. artificial intelligence includes natural languages, machine vision, recognition of speech Now google assistant, alexa are more interesting to use and more responsible to work. Developers implanted more features in applications, machines and smart devices. Here most important thing that is VPA (virtual private machine) is used. VPA provides a secure environment. Many features to Home security system that making secure more. Bluetooth wireless protocol can also use in the smart home system. This system focuses on implementing the voice interaction friendly. Human machine interface can do a lot in many areas like robotics, smart cars as well as home, etc..easy access for a open source platforms like google assistant, Alexa, various MQTT platforms blynk, different app integration, Thing Speak increases the innovation worldwide spectrum. These platforms provides the opportunity for increase the knowledge level.

1.1 Problem Definition

Home automation has achieved a lot of popularity in recent years, as day-to-day life is getting simpler due to the rapid growth of technology. Almost everything has become digitalized and automatic. In this system for interconnecting sensors, actuators, and other data sources with the purpose of multiple home automations is proposed. The system used AWS lambda function with MQTT hive cloud and nodemcu. We will also develop android app to control and monitor devices like fan light and temperature.

1.2 Objectives

1. To connect nodemcu with MQTT hive cloud which subscribe and published at a over an internet.
2. To discover device satrun time.
3. To give control through android app to NodeMCU using MQTT cloud

4. We will also creater outines for devices.
5. We will monitor sensors data on android app
6. Voice controlled devices.

1.3 Feasibility Study

This project is developed using NodeMCU and third party cloud .We are using mqtt cloud hence response time of data sending and receiving s fast. MQTT uses publish and subscribe methods somicro controller take less energy.

II. METHODOLOGY

1. Node MCU can connect to local Wi-Fi network or mobile hotspot. For this project we used third party cloud i.e. Hive cloud which act as broker for node mcu and Alexa and android app.
2. MQTT based is TCP-IP hence connection reliability is ensured. Alexa skill developed on AWS lambda function to give skill access we will use Identity and Access Management (IAM).

III. WORKING

- Echo Dot is a voice-controlled speaker that uses Alexa to play music, control smart home devices, make calls, answer questions, set timers and alarms, and more.
- Echo dot as soon as it loads the instruction given by the server it emerges node mcu and relay module to programmer which in turn leads to functioning of home appliances
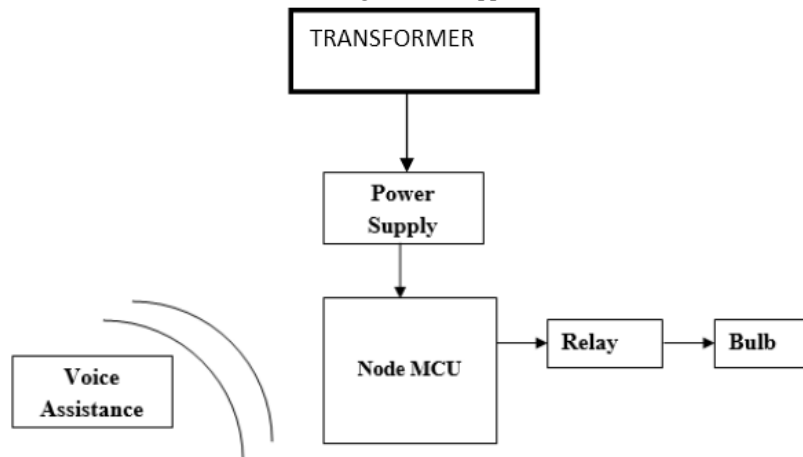
IV. LITERATURE

Home Automation System	Communication	Controller	User Interface	Applications
1.	Bluetooth	PIC	mobileapp	Control indoor appliances
2.	Bluetooth	Arduino	mobileapp	control appliances indoor and outdoor, within short range
3.	Bluetooth,Wi-Fi	RaspberryPI	mobileapp	Control indoor appliances
4.	Wi-Fi	Arduino,ESP8266	mobileapp	Control indoor appliances

V. FUTURE SCOPE

The work can be extended to new levels as adoption rate of is increasing at a rapid pace and IOT has already capture the work the market. This combination of two lead to the development and implementation of much more sophisticated system. These system restrict interactions of human as most of tasks be effectively and efficiently performed by these smart systems only and traffic real time information. That increases the lot of time in human

VI. CONCLUSION

1. Finally has been implemented which technologies like IOT based voice enable of smart aboard system.
2. The two app connect via an IFTTT's real-time APL. Here the created applet connects Google Assistant to the Adafruit to the MQTT broker. It involved user oriented triggers from the services run near instantly.
3. The proper message send the human as declare the every action based on a MQTT Broker.
4. When a particular condition satisfied the this system for interconnecting sensors, authors and other data sources with the purpose of multiple home automations is proposed.
5. This project developed using node MCU and third party cloud .
6. We are using MQTT cloud hence response time of data sending and receiving is fast.
7. MQTT uses publish and subscribe methods so microcontroller task less energy.
8. Data transferring to over the cloud.

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