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## IOT Based home automation system using alexa.

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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 audiobooks, 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 We emulated WeMo devices on previous projects, using the fauxmoESP library, which seems outdated and not adequately maintained nowadays. Here we will use mqtt protocol that which helps for the communication.

**keywords – IOT, MQTT, VPA, Google assistant, wifi, Nodejs etc.**

### 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 communicates 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 used 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, ThingSpeak increases the innovation worldwide spectrum.these platforms provides the opportunity for increase the knowledge level.

### II.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 node mcu. We will also develop android app to control and monitor devices like fan light and temperature.

### III. Objectives:

1. To connect node mcu with MQTT hive cloud which subscribe and published data over an internet.
2. To discover devices at runtime.
3. To give control through android app to Node MCU using MQTT cloud
4. We will also create routines for devices.
5. We will monitor sensors data on android app
6. Voice controlled devices.

**IV. Feasibility Study:**

This project is developed using Node MCU and third party cloud. We are using mqtt cloud hence response time of data sending and receiving is fast. MQTT uses publish and subscribe methods so microcontroller take less energy.

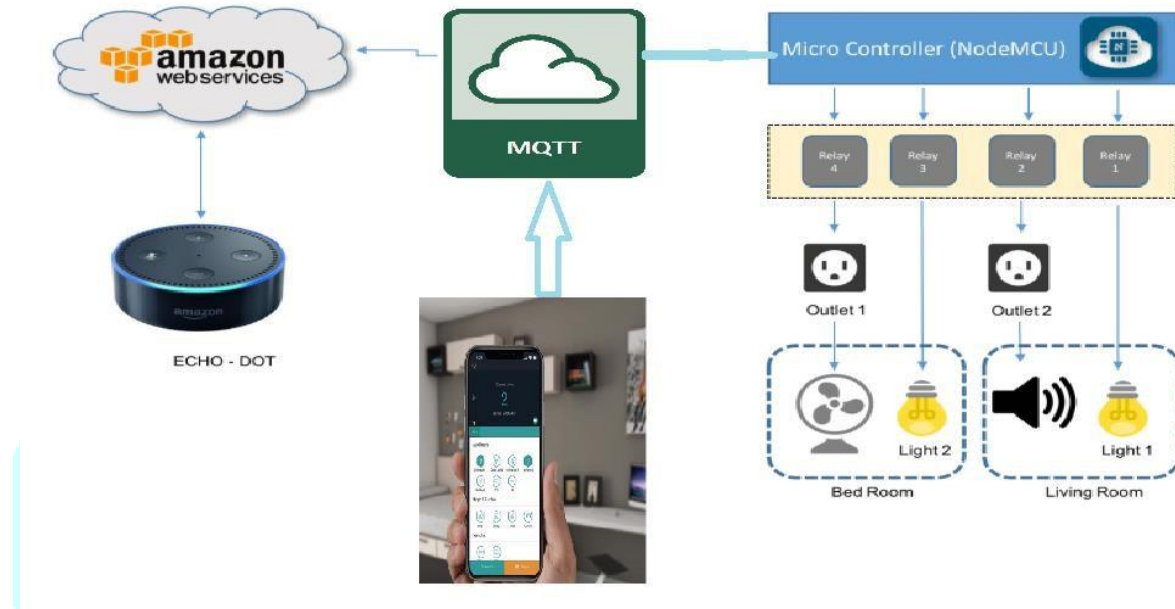
**V. Methodology:**

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.

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).

**VI. working**

User can give voice command to alexa then alexa will send json request to aws lambda function then lambda function will send command to MQTT broker then node mcu will receive that command and accordingly controls devices.



**Tools Used:**

- Arduino IDE 1.8
- Android Studio 4.6
- AWS skill kit

**Literature:**

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

**VII. 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.

### VIII. Conclusion

Finally has been implemented which technologies like IOT based voice enable of smart aboard system.

1. 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.
2. The proper message send the human as declare the every action based on a MQTT Broker.
3. 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.
4. This project developed using node MCU and third party cloud .
5. We are using MQTT cloud hence response time of data sending and receiving is fast.
6. MQTT uses publish and subscribe methods so microcontroller task less energy.
7. Data transferring to over the cloud.

Hence, an IOT based system was implemented that utilizes authors IOT platform for controlling so alexa hardware appliances for home automation purpose was successfully implemented here in this work the voice enable smart aboard system is highly responsive in accepting command and responding with appropriate actions.

In conclusion of our system present an approach to IOT home security is very especially considering the future developments of the Bluetooth protocol. The implemented into a lager home automation system also utilizing the alexa application.

### IX. REFERENCES

- [1] Ali, A. 2001. Macroeconomic variables as common pervasive risk factors and the empirical content of the Arbitrage Pricing Theory. *Journal of Empirical finance*, 5(3): 221–240.
- [2] Basu, S. 1997. The Investment Performance of Common Stocks in Relation to their Price to Earnings Ratio: A Test of the Efficient Markets Hypothesis. *Journal of Finance*, 33(3): 663-682.
- [3] Bhatti, U. and Hanif. M. 2010. Validity of Capital Assets Pricing Model. Evidence from KSE-Pakistan. *European Journal of Economics, Finance and Administrative Science*, 3 (20).
- [4] Haris Isynto AjibSetyo Arifin Muhammad Suryanegra "Design and implementation of IOT based smart home voice commands for disabled people using google Assistant", interationa; conference on smart technology and applications(ICoSTA),2020,publisher :IEEE
- [5] Prof Kapil D.dere, "Efficient retrieval over documents encrypted by attributes in cloud computing.
- [6] Prof.Kapil D.dere. "Best IOT based smart west management system."
- [7] David Sheppard ; Nick Felker; John Schnalzel "Development of voice commands in digital signage for improved indoor navigation using Google Assistant SDK ,IEEE sensors Applications symposium(sas),2019,publisher: IEEE
- [8] Mokh. Sholihuhadi;Mihammad ahmad as shidiqi; Iiham ari elbaithzaeni; muhammad Alfian mizar; mhd lrvan "voice based monitoring and control system of electronic appliance using dialog flow API via Google Assistant", international conference on computer science and engineering (UBMK),2019 publisher:IEEE
- [9] Khatal,sunil;S.A.Kahate "Data security using Kac for Sharing scalable data "
- [10] khatal,sunil,s.a.Kahate"data security in KAC using standard encryption technique"
- [11] Mr.sunil S.khatal1, mr. B.S.Chundhire2, Mr.K.S.kahate3"Survey on key Aggrigation system for secure sharing of cloud data"
- [12] khatal,sunil;S.A.Khate"data hiding in audio-vedio using anti forensic technique for authentication"
- [13] Mr.sunil S.Khatal,SPCOE,otur;Mr.S.A.khate,SPCOE,Otur;"helath care patient monitoring using IOT and maching learning"
- [14] Analyzing the role of heart disease prediction system using IOT and Maching learning.
- [15] Burglary uniform crime report, us department of justice federal bureau of investigation.
- [16] A karmen crime victims:An introduction to victimology, cengage learning ,2012
- [17] M. A. A .A. razak "home security system using zigbee," PhD thesis university teknikal Malaysia Melaka, 2015 [18] Amazon echo,https://www.amazon.com/echo
- [19] <https://www.google.com>
- [20] Prof.Kapil D.dere " security & feature level assesment for mobile communication."