



Smart Home Automation System By Using Alexa

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ABSTRACT

It is an IOT based paper where designed and implemented to smart home system. Smart Home Automation refers to handling and controlling home appliances by using Alexa. Automation is popular nowadays because it provides easy, security and efficiency. The purpose is behind of that paper to control the switching of home appliances like fan on or off, lights on or off and specially control the all requirements in home. Here I am used three ways for controlling the home appliances. One is Alexa App is used in this project and it's work quickly within a second. Alexa is capable of voice interaction, music playback, 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. Second is Arduino IOT Cloud and another one is manual switches. We will use on this project, the "Alexa App, Arduino Cloud and Manual Switches" which allows users to activate the device using a wake-word, such as "Alexa" or "Computer". Here we are used MQTT protocol that which helps for the communication. Once one operation is completed automatically updated in all three ways like Alexa App, Arduino Cloud. This project provides more comfort combined with simplicity.

Keywords: IOT, MQTT, ALEXA, ARDUINO CLOUD

I. INTRODUCTION

An IOT based projects nowadays implementing very high because of fast growing technology and it is very secure platform to implement many projects. A smart home that contains actuators, sensors, and controllers to improve safety, comfort for the people. Home Automation refers to handling and controlling home appliances by using Alexa. There is an increasing Demand for smart homes, where appliance react automatically to environment condition. A smart home automation system is a network of interconnected devices that can be controlled remotely.

Here most important thing is to control the smart home devices by using Alexa App, Arduino Cloud and Manual switches. In Alexa App two type of functions, one is remotely controlling and another one is through voice command. In this project DHT11 sensor also used for knowing the room temperature. In these temperature value display in Arduino Cloud as well as Alexa App.

II. PROBLEM DEFINITION

Smart home automation has achieved a lot of popularity in recent years and its getting day to day life very fastly growing technology. In recent days almost become automatic and digitalized. In this project system is used MQTT cloud, Node MCU, Arduino UNO, Arduino Cloud and DHT 11 sensor. We are connecting these all things to smart home then control the devices any where by using internet.

III. OBJECTIVE

1. To give control through Alexa android app and Arduino Cloud to Node MCU by using MQTT and to control the devices by using voice command in Alexa App.
2. To control the devices by using manual switches.
3. We will monitor temperature value in Arduino Cloud and Alexa App.

IV. METHODOLOGY

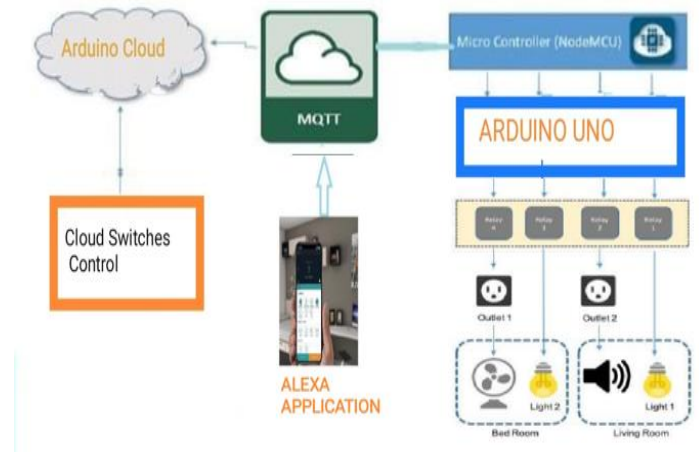
In this project Node MCU can connect to local Wi-Fi network. Here we are using MQTT cloud it acts as a broker for Node MCU, Arduino UNO and Alexa App. We are using MQTT cloud for getting the fast response time sending and receiving the data.

V. WORKING

In this project user can give voice command to Alexa App then Alexa App communicate to Node MCU and Node MCU is connected to Arduino UNO it is connected to Relay Module, Relay Module is connected to smart home devices like, T.V, Fan, Lights, etc.....

Arduino IOT Cloud first configure the switches in Cloud Thing option and next assign the switches to respective device Id.

In device option thing id is associated to respective device name.



TOOLS USED:

- Arduino IDE 2.3.2
- ALEXA APP
- Arduino Cloud
- Arduino IOT APP

VI. FUTURE SCOPE

Here in this project smart home automation system is integrated into Entertainment systems, health monitoring systems and voice-controlled security features.

VII. CONCLUSION

In conclusion, the integration of Alexa into a smart home automation system offers more convenience and efficiency. Through voice commands, users can effortlessly control various devices, from lights to thermostats, creating a seamless and interconnected living environment.

VIII. RESULTS

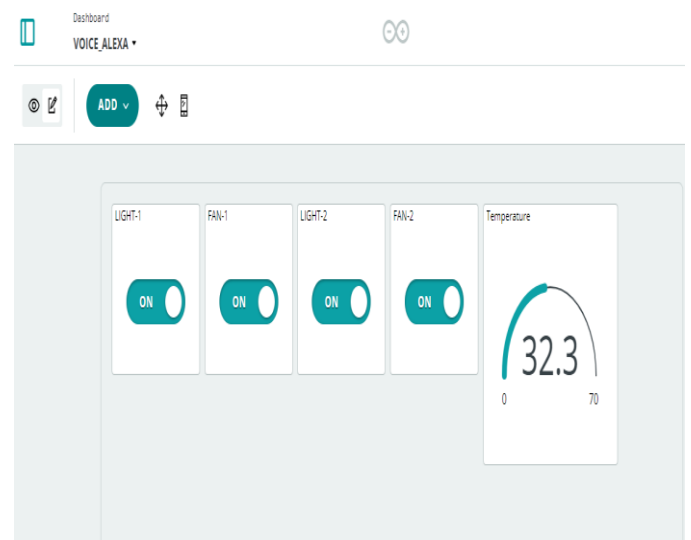


Fig-1. Arduino IOT Cloud dashboard

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