Home Automation using Alexa Skill Kit

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ABSTRACT

In this project, we are going to use Alexa Skill Kit to develop Home Automation. Using this user can control their cloud-connected devices using alexa skill. It uses the pre-built interaction model. In this, it will give you a set of predefined utterances that users say to control any electronic device.

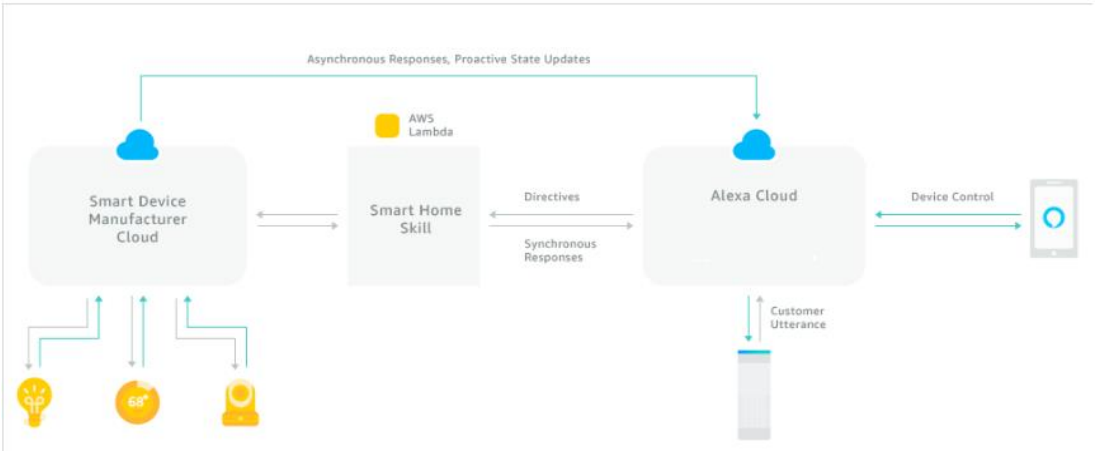
1. Introduction

In most recent years, Internet of Things (IOT) played a major role in automation of Industries. Smart home systems are being employed in buildings to improve energy Efficiency and reduce power wastage. Smart Home Systems or Home Automation systems are widely used and are accepted now-a-days. Automation is important for building Smart Cities. It involves many kind of things like home locking system, traffic monitoring, Water monitoring etc…
Amazon developed a smart speaker known as amazon echo dot which has an interactive artificial intelligence programmed inside it known as Alexa. It can be used in smart home systems to be used for not only for appliance control but also to provide home monitoring. In India, automation systems for home automation systems are very costly, so low-cost systems. Through Alexa append Server, we can register the load device named as smart devices and enable as home automation.

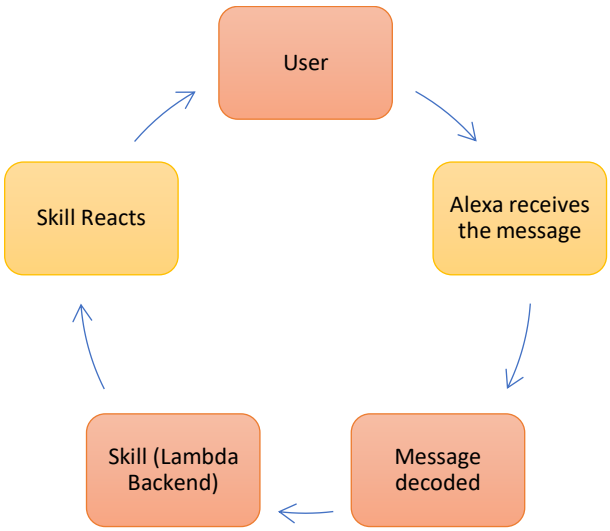
2. COMPONENTS USED FOR HOME AUTOMATION

- An Alexa Echo (or a voice processing device.)
- A IOT kit
- And a relay to connect your IOT kit with your appliances.

3. WORKING



Credits: - Alexadeveloperdocumentation.



1. Your smarthome skill is enabled which links the skill to the user account with your device cloud, and then asks Alexa to discover devices associated with that account.
2. For example, the user says "Alexa, turn the living room light", or makes a change to a device setting in the Alexa app. Alexa uses information from the user's utteranceor the app to compose a message that identifies the end point and the operation to perform. Alexa sends this message, called a directive, to your skill to control the kitchen light.
   Here the directive includes: -

- The capability message (which includes new setting value).

- The endpoint identifier (i.e., living room light).

3. Your skill code, hosted in AWS LAMBDA, receives and parses the directive, and then validates the authentication information. Your skill communicates with your device, or device cloud, using communication channels you've defined, to set the brightness on the customer's living room's light.
4. Your skill responds to Alexa with a message called an event that indicates whether the operation was successful. You have the option of sending the event synchronously from the Lambda function or as an chronously from the device cloud. Alexa uses this response to provide the appropriate response to the customer. For example, Alexa may say, "OKAY" to indicate that the request was successfully handled.
5. Later, the customer switches off the living room's light by himself/herself. This action causes your skill to send a change report event toAlexa to indicate that the light is now off.

CONCLUSION

Main purpose of homeautomation system is to provide ease to people to control different home appliances with the help of the different remote control like Mobile Application, Voice Assistants, Alexa, etc. and to save all the electricity, money and time. This system also helps the user to protect their homes from burglars when they are away from the home by using alarms, the alarm will start ringing whenever a burglar tries to enter the house and the person will receive a message on his mobile phone whenever some other person will try to enter the their house.

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BLOG LINK

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