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 voice-control their cloud-connected devices by using your skill. They use the pre-built interaction model. In this it gives you a set of predefined utterances that users say to control your device.

Working: -

User -> Alexa interprets the message -> Sends message to your skill -> Skill Reacts (i.e., by dimming the lights etc...)

Introduction: -

In recent years IOT (Internet Of Things) is playing major role in automation of industries. Smart Home Systems or say Home Automation systems are widely used and accepted now – a – days. Automation is necessary for building Smart City. 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**.

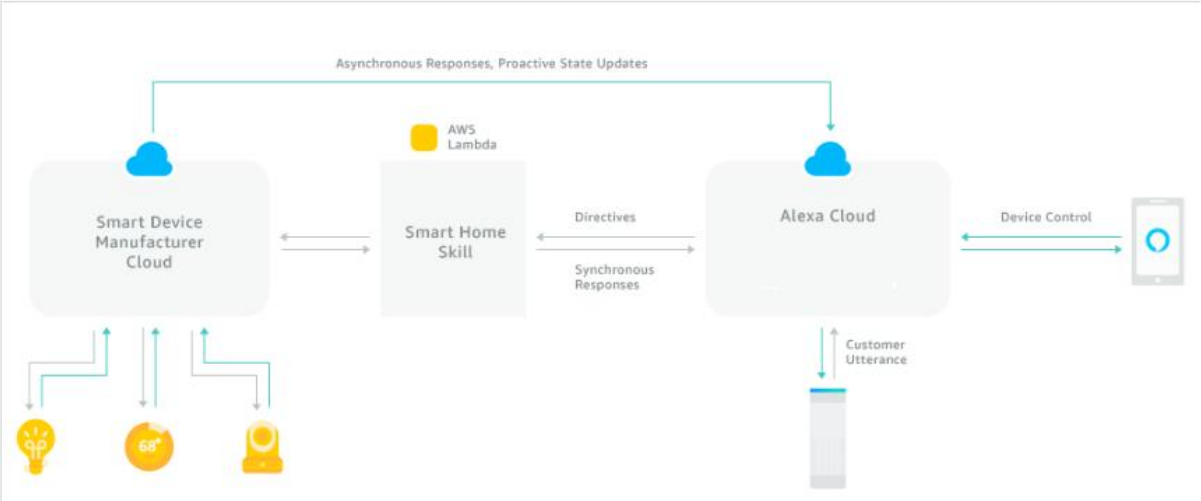
It can be used in Smart home systems to be used for not only appliance control but also to provide home monitoring. In India, automation systems for home automation systems are very costly so low-cost systems.

Through Alexa app and Server, we can register the load device names as smart devices and enable as home automation.

What we need to make simple home automation model: -

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

Working: -



Credits: - Alexa developer documentation.

1. Your smart home 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 customer says "Alexa, turn the living room light", or makes a change to a device setting in the Alexa app. Alexa uses information from the customer's utterance or the app to compose a message that identifies the endpoint 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 asynchronously from the device cloud. Alexa uses this response to provide the appropriate response to the customer. For example, Alexa might say, “OK” to indicate that the requested directive was successfully handled.

5. Later, the customer switches off the living room’s light manually. This action causes your skill to send a change report event to Alexa to indicate that the light is now off.

Conclusion: -

Main purpose of home automation 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 electricity, time and money. This system also helps the user to protect their homes from burglars when they are away from the home by using alarm as 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 owner’s house.

References: -

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3. https://developer.amazon.com/en-US/docs/alexa/smarthome/understand-the-smart-home-skill-api.html

Blog link: -

https://homeautomationusingalexa.blogspot.com/