Alexa

Presentation 2024

SMART HOME SKILLS FOR BEDROOM FAN AND BEDROOM AC WITH ALEXA

ROHIT YADAV

Content

ALEXA

Alexa is a virtual assistant developed by Amazon, 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 SKILL KIT | SKILLS | SKILL TYPES

Alexa Skill Kit

The Alexa Skills Kit (ASK) is a software development framework that enables you to create content, called skills.

Skills

Skills are like apps for Alexa where we build our logics or code to perform some functionality. With an interactive voice interface, Alexa gives users a hands-free way to interact with your skill. Users can use their voice to perform everyday tasks like checking the news, listening to music, or playing a game.

Skill Types

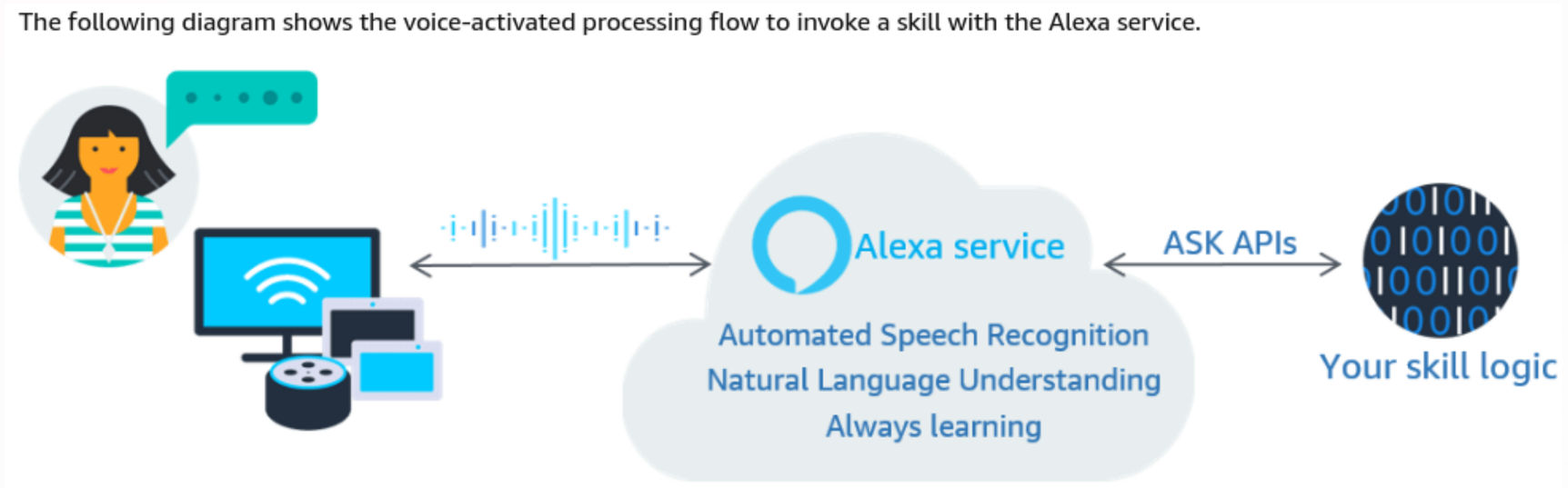
PreBuilt Skills - In this ASK defines the set of words users say to invoke a skill. For example, a user can say, "Alexa, turn on the light." or "Alexa, turn off the television." You simply define your skill to accept these predefined requests. eg... Smart Home Skill

Custom Skill - In this everything needs to be developed with custom utterences, own controllers or APIs.

ALEXA CONNECTIVITY

When user speaks utterances, those utterances are converted to directives which your skill receives as a POST request containing a JSON body. The request body contains the parameters necessary for your skill to understand the request, perform its logic, and then generate a response.

NOTE - Alexa connects with the skill using the skill Id and the skill is hosted using Lambda Function on AWS which has its own ARN (Amazon Resource Names) which are provided in the skill configuration and defines the endpoint location of the Lambda function



FOUNDATIONAL APIS

The Alexa foundational API reference contains the API definitions for Alexa interfaces that all skills use. These APIs include general Alexa directives, response events, discovery, state reporting, change reporting, and error reporting.

- **Alexa.Authorization** — Obtain credentials to send asynchronous responses or proactive messages to Alexa.
- **Alexa.Discovery** — Identify the capabilities that your skill supports.
- **Alexa.EndpointHealth** — Report the detected health of devices to Alexa.
- **Alexa.ErrorResponse** — Send an error response to a directive that your skill can't handle.
- **Alexa.Response** — Send a response to a directive that your skill successfully handles.
- **Alexa.StateReport** — to query your skill for the current state of all retrievable properties of an interface.
- **Alexa.ChangeReport** — a customer might manually turn on the light. You send a change report so that Alexa displays the correct status of the light in the Alexa app.

CONTROLLERS

These controllers or APIs are used to perform some functionality in our skill. A skill can have as many as functionality according to the user needs. We will discuss some of the general controllers we use in our skills.

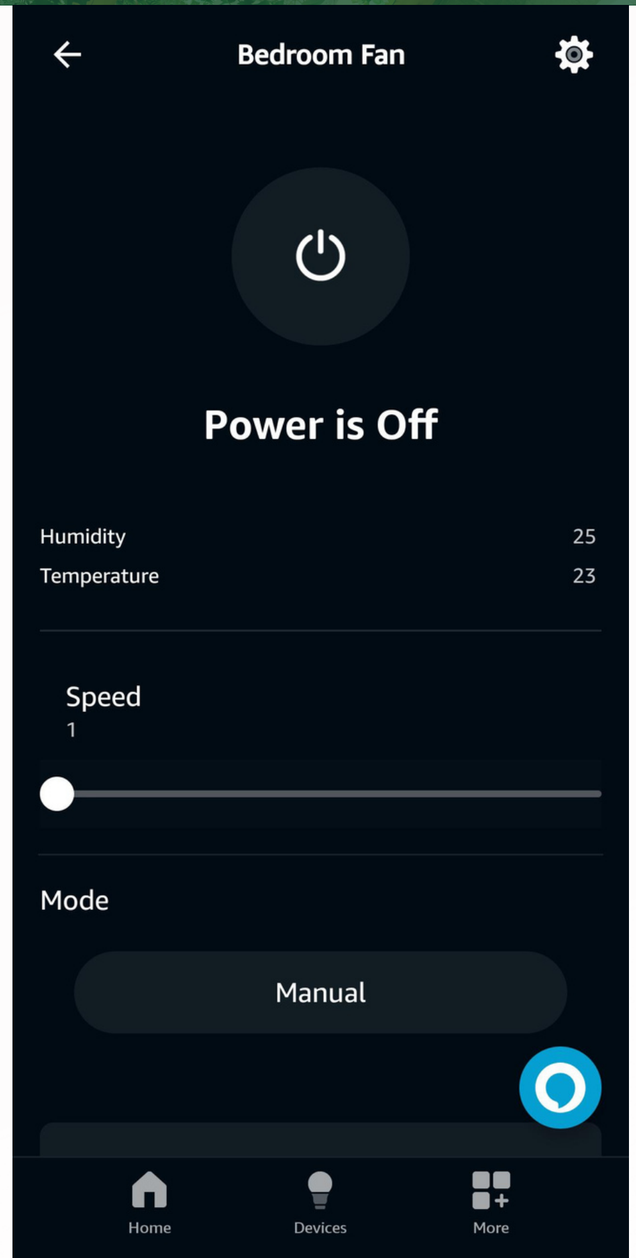
- **Alexa.PowerController** — Users can turn their smart home devices on and off.
- **Alexa.RangeController** — Model properties of a device that the user can set to one of a range of values.
- **Alexa.ToggleController** — Model properties of a device that the user can set to on or off.
- **Alexa.ThermostatController** — Interfaces for smart thermostats. We can perform setting the temerature as well as setting the modes.
- **Alexa.TemperatureSensor** — You can report the temperature for devices that sense the current temperature, such as thermostats.
- **Alexa.ModeController** — Model properties of a device that the user can set to one of a list of values.

AIR-CONDITIONAR

- In this I have implemented the basic functionalities of AC.
- I have implemented Power On-Off.
- Showing the current temperature of the surrounding.
- Setting up Swing, Child Lock.
- Changing the temerature in the range of 16-25.
- Selecting the modes of the AC such as Auto, COOL, HEAT.
- I have implmented some edge cases such as all the functionality will work if the power will be ON.
- If the users try to set up the temperature other than 16-25 range, it would not work.

FAN

- In this I have implemented the basic functionalities of Fan.
- I have implemented Power On-Off.
- Showing the current temperature of the surrounding.
- Showing the humidity around the fan.
- Changing the speed of the Fan in the range of 1-5.
- Selecting the modes of the Fan such as Manual, Smart, Breeze.
- I have implmented some edge cases such as all the functionality will work if the power will be ON.
- If the users try to set up the speed other than 1-5 range, it would not work.



Alexa

THANK YOU