

I did some research on NLP's that Amazon would use. Amazon's Alexa uses NLP's to record sounds and words you say, which are then sent to a server to be analyzed, more efficiently. Amazon also breaks down your orders into individual sounds. It will consult various databases containing various words and how they are pronounced to match which words match the individual combination sounds. Then it will identify very important words to help understand the task you have asked it to, and then carry out the task you have asked it to do. An example would be if Alexa hears, sun or rain, it would open the weather app so you can see the weather in your area. The Amazon servers will then send information back to your Alexa and it may speak to you, and if your Alexa needs to ask you anything, it would go through this process but in reverse order.

The Alexa will start with signal processing, this will give the Alexa a lot of chances as possible to identify and understand the audio by cleaning the signal. The reason behind this is to improve the target signal, so it can identify ambient noises for example radio, and turn them down. To sort out the issue, Alexa has multiple microphones, which will find out roughly where the signal is coming from and then the device will focus on it.

The following task an Alexa will do is to determine a Wake Word detection, as this determines if the user has said one of the words, that the device is programmed to need to turn on e.g. Alexa. This is because it needs to reduce false positives and negatives, as this could lead to accidental purchases, which would give Amazon a lot of angry customers. This is a difficult process as it needs to identify different pronunciations and it has to do this on a device with limited CPU power.

If Alexa detects a wake word, the signal will be sent to the voice recognition software, which will take the audio and changes it into text format. Now it will look at all the words in the English language, the cloud is the only technology capable of scaling this amply. Alexa will turn the audio into text, and then will analyse characteristics of the user's speech such as pitch and frequency to give feature values.