

A REVIEW: DESKTOP VOICE ASSISTANT

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DOI : <https://www.doi.org/10.56726/IRJMETS32982>

ABSTRACT

Voice assistants are a major innovation in the field of AI and can make people's lives easier in many ways. A voice assistant is a program that helps your system respond to the user. Its effectiveness in communicating with users has attracted the participation of many companies. The best examples that can be seen in the voice assistant market are Siri, Goggle Assistant, Cortana, Alexa, etc. The voice assistant is designed in such a way that all the services available in the system can be accessed through the user's voice. This paper will describe the working, expanding its applications over time.

Keywords: Voice Assistant, Text –To-Speech, Speech Recognition.

I. INTRODUCTION

In growing AI world, it is time where machine and human interaction has gained popularity. Now machines have learned to interact with humans and understand its behavior. The voice Assistant basically works on Internet connection as it is cloud based system. Voice assistant are basically easy way to use your device and its services hand- free it allow user to assist them to perform different operations. Voice assistant are oriented towards the task assigned .it understand verbal and written instructions and perform the task requested by end user. Voice assistant has ability to understand human speech and respond to user in synthesized voice for development of voice assistant we use AI and python programming. Voice assistant working includes different process such voice recognition, text –to speech, NLP.

II. METHODOLOGY

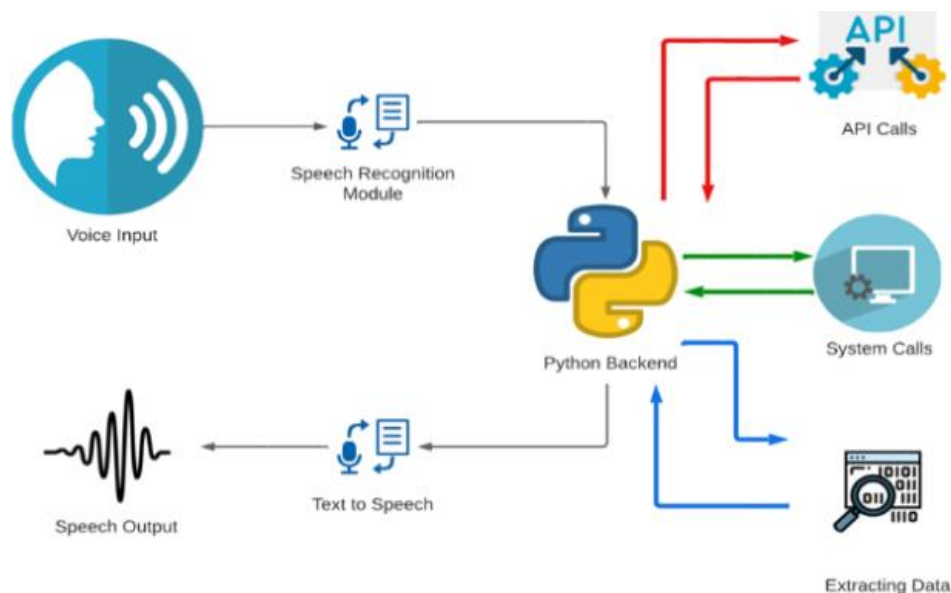


Figure 1: detailed diagram of voice Assistant

- Speech Recognition- The speech recognition module takes voice as input from the user through microphone. The input is converted into text and passed to central processor as output for further processing [2][4][5].
- Python backend- It is important as program is written in python backend .it takes input from speech recognition and identifies whether the operations is system calls, API calls or data extraction [2][4][5].
- API Calls- API stands for application programming interface .It is messenger which send user request to provider and gets response back to user[2][4][5]. .

- Context Extraction-It is task to automatically extract structure information from unstructured or semi – structured information. The process of (NLP) natural language processing is involved in text context extraction [2][4][5].
- System Calls- It is program which asks system for service using kernel of computer system where it is executing. it provides interaction between process and operating system[2][4][5].
- Text –to- Speech –It is process of converting the textual output into speech. It is ability of system which reads the texted output aloud. it is phonetic representation of the processed output[2][4][5].

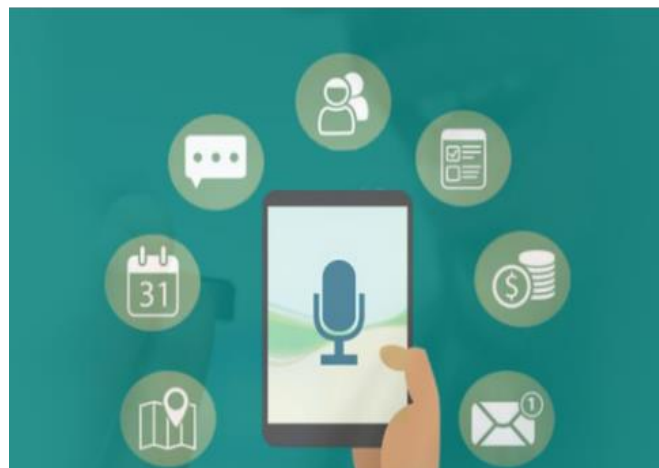


Figure 2: Voice Assistant various applications

III. PROPOSED WORK

The concept of voice assistant deals with providing user ability to use system with voice commands. At the earliest stage of development of virtual assistant work started with analysis of audio command with the help of microphone [2].

There are different voice assistant available in the market such Alexa, Google assistant, cortana and many other. Siri is the oldest voice assistant in market list developed by Apple.

People with disability wish to use computer or laptop the concept of desktop virtual assistant have been introduced. This Voice Recognizer works offline as online and performs various operations as per the user commands and requirements. [3]

System Architecture:

Voice assistance system architecture revolves around different phases. The design consists of:

- Taking voice input from the user through microphone.
- Voice Input data recognition and converting it into text.
- Manipulation of data by executing python script
- Synthesizing speech from processed text output [6].

The first phase include taking input from the user in form of speech, the second phase convert the input speech data to text using NLP. it makes user speech input usable and executable for computer . In third phase data is manipulated through python script .In final step output is given form of speech again, the process involved for this would text to speech [6].

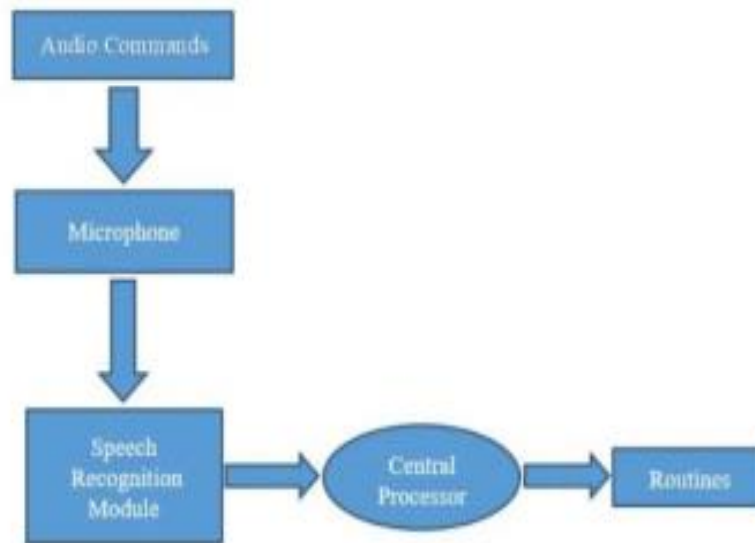


Figure 3: Block Diagram of voice assistant

The figure shows the input would be taken from user through microphone .Here microphone taken as input device to receive those signals. The speech recognition module takes input voice and covert it into signals. The converted text is processed and provided with desired output in central processor [2]. The system architecture also include modules and libraries installed in the system such as Speech Recognition, Wikipedia, GTTS, datetime, OS, pyaudio, requests ,web browser[4].

Features:

- It should be continuously active even when not in use, and should come into action immediately when called for task defined [6].
- It should understand the words spoken by user inconsideration of its fluency, pronunciation and tone.
- When considering the web search, it should give the desired output through audio as well as at the same time it should print it on screen [6].

Challenges:

Voice Assistant may have taken important place in our day to day life as it responds to our commands hand-free. In spite of all the growth and advances in it , it still face some challenges. Even after having hundred of inputs and trainings, other factors come into actions during recognition. The background noise is main factor. The system falls to differentiate between the user input speech and background noises. It need to be trained with different sounds and should be able to filter out inputs and background noises. Other than background noise changing in voice input pitch by user would also efficient its efficiency of understanding the input [2].

IV. RESULTS AND DISCUSSION

The Assistant is fast and time saving system. It takes input from user in form of voice and responds it back in form of speech. The process involves concept of NLP to match user commands to executable commands. The code is written in python programming language. The developed assistant can be implemented on different devices such as laptops, tabs and mobile phones. It will assist to perform different operation on devices hand-free.

V. CONCLUSION

In this paper we have discussed about Assistant operated by voice. The voice assistant has used python programming languages for implementation. The entire system is a verbal process. AI technology has been indulged into it . It can be used for performing different task given by user such as showing weather reports , playing music and videos, opening apps , managing mails, showing date and time , telling latest news, telling jokes and many other . The system provides great help in various fields , it is generally making everything so easy, fast and convenient for humans. Advances in AI and IOT will bring better versions of system.

VI. REFERENCES

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