###### **Desktop Voice Assistant Using Python**

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***Abstract*—** ***A particular voice assistant is the software that can perform task and give different services to the existent as per the existent’s mandated commands. This is done through a coetaneous process involving recognition of speech patterns and also, responding via synthetic speech. Through these sidekicks a stoner can automate tasks ranging from but not limited to mailing, tasks operation and media playback. As the technology is developing day by day people are getting more dependent on it, one of the substantially used platform is computer. We all want to make the use of these computers more comfortable, traditional way to give a command to the computer is through keyboard but a more accessible way is to input the command through voice. Giving input through voice isn't only salutary for the normal people but also for those who are visually bloodied who aren't suitable to give the input by using a keyboard. For this purpose, there's a need of a voice adjunct which can't only take command through voice but also execute the asked instructions and give affair either in the form of voice or any other means.***

***Keywords - Python script, speech recognition, voice assistant Abbreviation: API (Application program interface), NLP (natural language processing), TTS (Text-To-Speech).***

1. **Introduction**

The usage of virtual assistants is expanding rapidly after 2017, more and more products are coming into the market. Due to advancement in the technology many different features are being added in the mobile phone and desktops. To use them with more convenient and fun way we require a means of input which is faster and reliable at the same time. In our project we use voice command to input the data into the system for that the microphone is used which convert acoustic energy into electrical energy.

After taking the input there is a requirement to understand the audio signal for this google API is used. Different companies like google, apple use different API’s for this purpose. It is truly a feat that today, one can schedule meetings or send email merely through spoken commands

These voice assistants work as your companion which performs your day by day task with minimum efforts and also help the user to function better by giving daily updates. It was after the recognition of importance of voice commands in day to day life that we have aimed to develop a personal assistant for desktop which will do every work from playing music to sending an Email.

**II. Literature Survey**

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| **Sr.**  **no.** | **Title** | **Author and Publication on** | **Abstract** |
| 1 | Comparing speech recognition systems.(Microsoft API, Google API And CMU Sphinx) | Veton Këpuska, Gamal Bohouta.  **March 2017.** | The idea of this paper is to design a tool that will be used to test and compare commercial speech recognition systems. |
| 2 | Real conversations with artificial intelligence: A comparison between human–human online conversations and human–chatbot conversations. | Jennifer Hill ,W. Randolph Ford Ingrid G.Farreras.  **August 2015** | This study analyzed how communication changes when people communicate with an intelligent agent as opposed to with another human. . |
| 3 | An Empirical Investigation of Voice-Activated Personal Assistant . | A. Abdolrahmani, Ravi Kuber, Stacy M. Branham  **Oct 2018.** | In this paper explains about the design and implementation of a digital assistance and built using  open-source software modules. And this nature of this project makes more flexible and adding additional features  of without disturbing current system functionalities. |
| 4 | Voice assistant . | Algoufi  **May 2016.** | In this paper provides overview of voice-recognition and contextual understanding between users and  human interaction. And it frequently asks the questions to the voice assistant it will be answering all the queries. |
| 5 | Exploring requirements and opportunities of conversational user interfaces for the cognitively impaired. | B. R. H. F. Balduf M.  **Mar 2018.** | In this paper overview of the various PARI design technology it provides especially for blind persons  and works on their voice command. |
| 6 | Automatic speech recognition application. | Mr.D. T  **August 2018** | In this paper provides overview of personal assistant and natural language interaction to the user  device and the co-ordination range of job assistants. |
| 7 | Using voice assistant Skills. | Y. D. Yulli.  **Oct 2019.** | In this paper the author proposed the solving the problem of voice-recognition technology and he will  conclude the future there will be center the attraction on implementation of application/ |

**III. Proposed Methodology**

**i) Methodology**

### ***1. Speech recognition***

The proposed system used the google API to convert input speech into text. The speech is given as an input to google cloud for processing, As an output, the system then receives the resulting text.

### ***2. Backend work***

At backend the python gets the output from speech recognition and after that it identifies whether the command is a system command or a browser command. The output is send back to python backend to give desired output to user.

### ***3. Text to speech***

Text to speech, or TTS, is a new wave technique of for transforming voice commands into readable text. Not to mix it up with VR Systems that instead, generate speech by joining strings gathered in an exhaustive DB of preinstalled text and have been developed for different goals which form full-fledged sentences, clauses or meaningful phrases through a dialect's graphemes and phonemes. Such systems have their limits as they can only determine text on the basis of pre-determined text in their databases TTS systems, on the other hand, are practically to "read" strings of characters and dole out resulting sentences, clauses and phrases.

**ii) Proposed Architecture**

## **The system design consists of**

1. Taking the input as speech patterns through microphone.
2. Audio data recognition and conversion into text.
3. Comparing the input with predefined commands

4. Giving the desired output

The initial phase includes the data being taken in as speech patterns from the microphone.in the second phase the collected data is worked over and transformed into textual data using NLP. In the next step, this resulting stringified data is manipulated through Python Script to finalise the required output process. In the last phase, the produced output is presented either in the form of text or converted from text to speech using TTS.

### Features

The System shall be developed to offer the following features:

1. It keeps listening continuously in inaction and wakes up into action when called with a particular predetermined functionality.
2. Browsing through the web based on the individual’s spoken parameters and then issuing a desired output through audio and at the same time it will print the output on the screen.

Other useful services such as playing any kind of media, browsing weather forecasts, setting, reminders, shut down computer, sending an Email etc. Are provided as a result of spoken commands.

# **V Conclusion and Future Scope**

Voice assistants have had a huge change in user’ s interaction with technologies embedded in their devices. Like any other technology of such magnitude, they have altered the basic genome of the sphere in which they operate. While this has largely created a better world with drastic benefits for communities, which were before kept in dark with reference to technological innovations, they have posed new kind of threats with respect to user’s privacy and security.

The future of voice assistants can be parameterised on an array of dimensions. With respect to compatibility and integration with other devices and systems, there i sill a lot to be achieved, Another dimension would be with respect to the redundant use of wake words at the beginning of each command. The individuality of results also poses a big problems.

But for all intents and purposes, the future of these technology is a bright one. With advances in it and in technologies related to it (search processes, for example) Voice assistants can carry out even more complex tasks like booking tickets, etc.

##### **VI References**

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