

# Personal Virtual Assistant in Python

**Abstract-** Intelligent technology begins to be actively used in human life, making it easier to visualize and distribute Internet of Things (IoT). Independent devices are smart in their communication style. New skills are resulting to the creation of various intelligent integration systems in the Internet of Things Network.

One of the most appropriate styles in AI is human technology. New insights during this topic can cause new means of natural human-machine interaction, during which the machine would find out how to know humans language, adjusting and interacting in it. One such tool is that the voice assistant, which may be integrated into many other smart programs. During this, the principles of voice assistants are explained, its main limitations are given. How to create a local voice assistant without using cloud services has been described, which allows you to significantly increase the utilization of such devices within the future.

**Keywords-Voice assistant, machine Learning, Speech Recognition, Low cost, Internet, Speech Synthesis, Visually Challenged.**

## I) Introduction-

Now a days development of AI (AI) systems that are ready to organize a natural human-machine interaction (through voice, communication, gestures, facial expressions, etc.) are gaining in popularity. one among the foremost widely studied and well-known was the interaction manual, supported machine understanding, on the human tongue machine. it's not a person's learns to speak with a machine, but a machine learns to speak with a person's being, exploring his actions, habits, behaviour and trying to become his personalized assistant. The work required on creating and improving such personalized assistants has been happening for an extended time. These systems are constantly improving and improving, transcend personal computers and have already firmly established themselves in various mobile devices and gadgets. the most goal of this work is to create an area voice assistant that does the work of human and therefore the daily task that a person's needed to try to in day to day life.

## II) Related work-

Each company developer of a sensible assistant uses its own methods and techniques for development, which also affects the ultimate product. One assistant can synthesize speech more qualitatively, another can more accurately and without additional explanations and corrections perform tasks, others are ready to perform a narrower range of tasks, but most accurately and because the user wants. Obviously, no universal helper can do all the work equally well. The set of characteristics that an assistant has depends entirely on which area the developer has paid more attention. Since all systems are supported machine learning methods and use for his or her creation huge amounts of knowledge collected from various sources then trained on them, a crucial role is played by the source of this data, be it search systems,

various information sources or social networks that anticipate your paper as a part of the entire case, not as a separate document. Please don't update any of the present words.

## III) PROPOSED PLAN AND WORK-

The task began by analysing the audio commands given to the user via a microphone. this will be anything like getting any information, operating computers internal files, etc. this is often a qualitative study used, supported reading the above-mentioned books and examining their examples. Tests are made by programming consistent with books and online resources, with the specific goal to seek out best practices and a more advanced understanding of Voice Assistant ground noise can easily throw a speech recognition device astray. this is often because it doesn't inherently have the power to differentiate the ambient sounds it hears of a dog barking or a helicopter flying overhead, from your voice. Engineers should design that skill on the machine; they are doing a knowledge collection of those surrounding sounds and tell the device to filter it. Another factor is that the way humans instinctively adjust their tone to evolve to sound; speech recognition systems are often sensitive to those tone changes.

## IV) METHODOLOGY-



### A) Speech Recognition-

The system uses Google's online speech recognition system to convert speech input into text. Speech input Users can receive text from a selected company found out on a computer network server during a microphone on the microphone cache system which is then sent to Google cloud for speech recognition. Equal text is then acquired and consumed in the central processor unit.

### B) Python Backend-

The python backend get the output from the speech recognition module then identifies whether the command or the speech output is an API Call, Context Extraction, and supervisor Call instruction. Output is shipped back to the python backend to supply the specific output to the user.

### C) API Calls-

The API stands for Application Programming Interface. API may be a software interface that permits two applications to speak to every other. In other words, an API may be a message that brings your request to the provider you're requesting from and returns a response to you.

### D) System Calls-

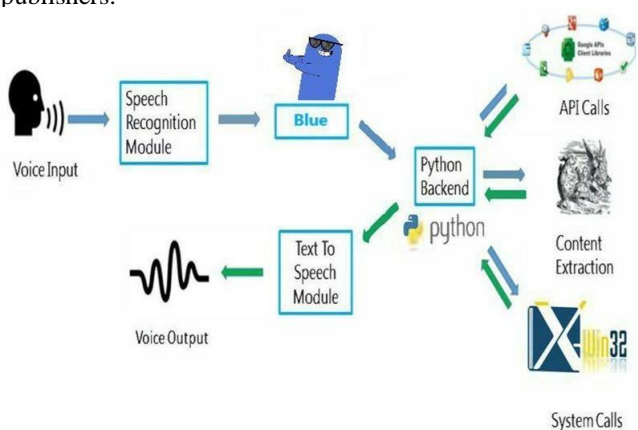
System phone integration is a systematic way during which a computer program requests service from the OS kernel. This might include hardware-related services (for example, hard disk drive access), the creation and implementation of latest processes, and communication with important kernel services like process management. System calls provide and execute new processes, also as connections to big kernel services like process planning. System calls provide important communication between the process and the OS.

### E) Context Extraction-

Context extraction (CE) is the task of automatically extracting structured information from unstructured and/or semi-structured machine-readable documents. In most cases this work involves the processing of human language texts using natural language processing (NLP). Recent tasks in processing multimedia documents such as automated annotations and extracting content from images / audio / video can be considered as EXAMINATION RESULTS for context content.

### F) Text-to-Speech-

Text-to-Speech (TTS) refers to the ability of computers to read text aloud. TTS Engine converts text to phonetic representation, and then converts phonetic representations into waveforms that can emanate as sound. TTS engines with different languages, dialects and special names are available from third-party publishers. Languages, dialects and special names are available from third-party publishers.

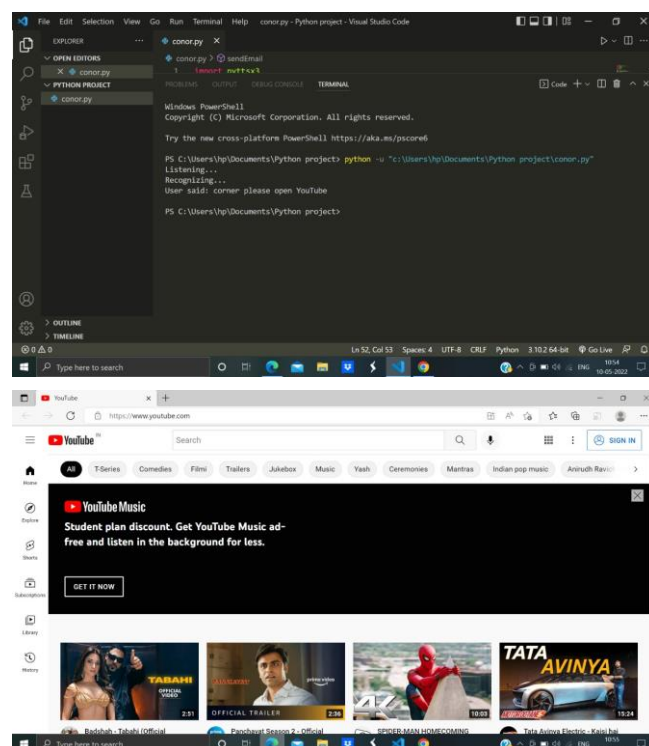


### Working Models:-

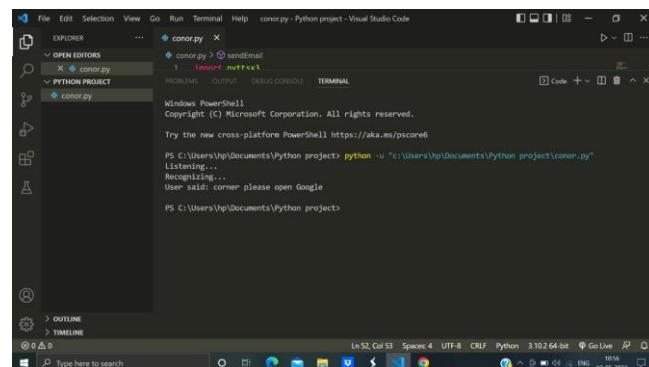
The assistant, when started, will first wait for the input to be delivered to the user. If the user gives input command, via voice, the assistant will capture it, and searches for the keyword present in the input command. If the assistant was able to find a key word, then it will perform the task accordingly, and returns the output back to user, in voice. If not, the assistant will again start waiting for the user to give input. Each of these functionalities are having their own importance in the whole system working.

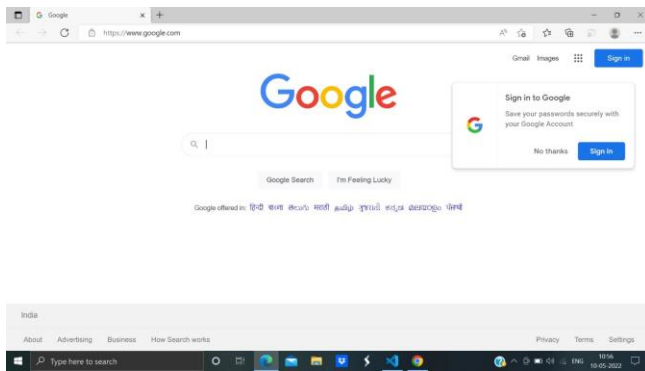
Different outcomes of different commands:-

- 1). **Open YouTube-** If the user ask to open You Tube, then assistant will follow the command and open You Tube

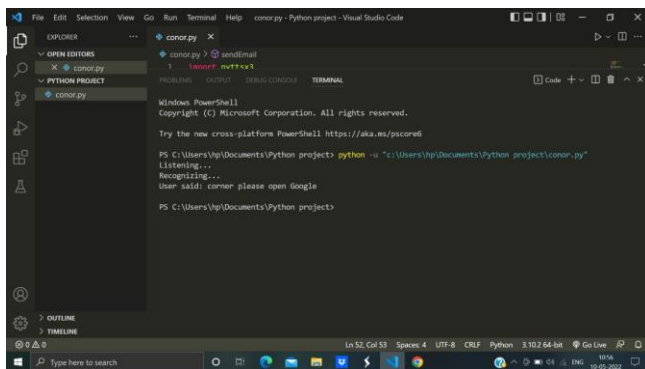


- 2). **Open Google-** If user give the command to open google then it will follow the command and open Google.

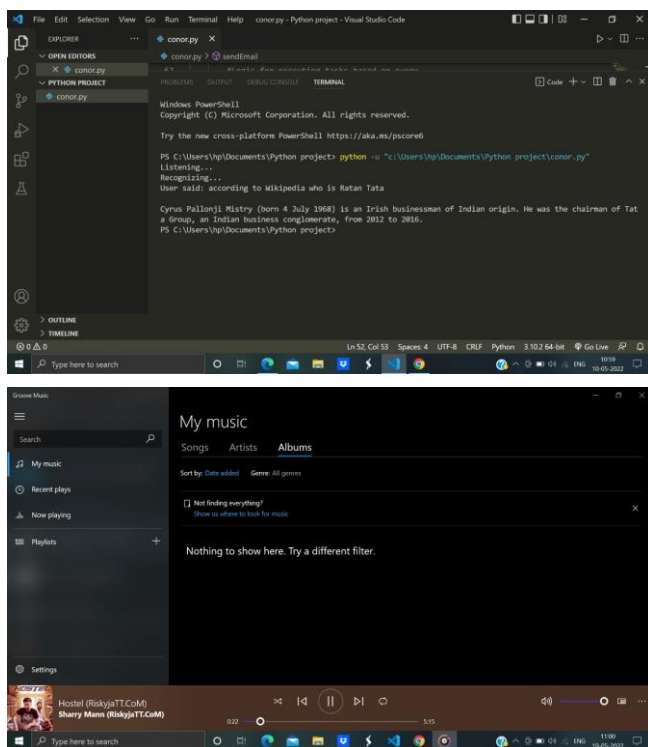




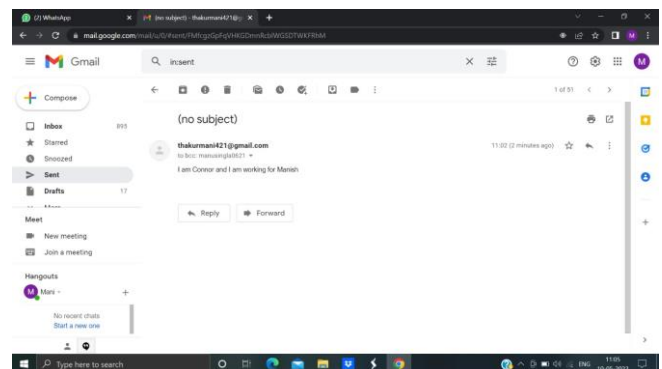
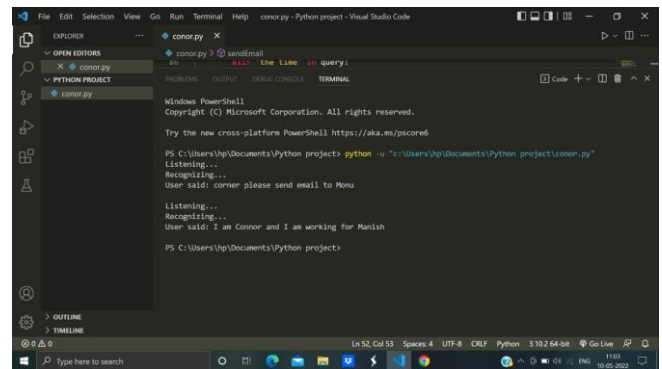
3) **Open Wikipedia-** If user give the command to open Wikipedia about anything to be searched then it will follow the command and tells you about that thing to the user.



4) **Open music-** If the user gives the command to open the music player then it will follow the command and open music player for the user.



5) **Sending email-** If the user gives the command to send email to anyone then it will follow the command and send email to that person.



## IV) Conclusion-

In this paper, we discussed the design and implementation of a Digital Assistance. The project is built using open source software modules with VS code community backing which can accommodate any updates in the near future. The modular nature of this project makes it more flexible and easy to add additional features without disturbing current system functionalities. It not only works on human commands but also provides answers to the user on the basis of the question being asked or the words spoken by the user such as opening tasks and tasks. It is greeting the user the way user feels more comfortable and feels free to interact with the voice assistant. The app should also remove any unnecessary manual activity required by the user Life to do each job. The whole system works by word of mouth rather than in one text.

## V) ACKNOWLEDGMENT-

The possibility of added functionality required in making the assistant more accurate and fast while the interaction with the user. This project can be further enhanced by using the voice command in Google search queries. Better speech recognition so that the user can get prompt output and applications such as locking pc or opening pc on the commands of the user. Form Filling Functionality: Sometimes user are facing trouble while filling the form by their own each and every time so there may be opportunities to add a feature such as saving user data and when required forms are automatically completed with simple instructions.

In the coming days our proposed system could be implemented in multilingualism so that one can use the system in his own language without any problems. In addition, our proposed system can be deployed with IoT. In the future our proposed system will be able to translate the meaning of the text in the best possible way. The Image recognition can be used with much more details about the image captured through the camera. The development of this system can be done by adding features to the recognition.

#### **VI). References-**

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