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My Voice Assistant Using Python

Dr. Ranjeet Kumar[1], Muhammad Faisal[2], Mohd Faisal[3], Owaish Ahmad[4]
[1]*Assistant Professor,* [2, 3, 4]*B.Tech Student, Department of Computer Science & Engineering,Meerut Institute of Engineering & Technology, Meerut, Uttar Pradesh India*

Abstract: ***In the current situation of technology development within the field of augmented reading and voice assistant systems development, many researchers are writing in this regard for the development of new and effective technologies. The voice assistant are software package agents that may interpret human speech & responds via synthesized voices apple siri, microsoft cortana & google assistant are the foremost common voice assistant & embedded in smartphones .Today the technological advancement is increasing day by day. with the assistance of computer system in which we are able to do solely few task however currently artificial intelligence ,machine learning and few a lot of technologies have created computer system so advance that we are able to implement any type of task. In the present paper, The thought of speech technology extremely encompasses 2 technologies: Synthesizer and recognizer. A speech synthesizer takes as input and produces an audio stream as output. A speech recognizer on the opposite hand does opposite. It takes an audio stream as input and thus turns it into text transcription. The voice may be a signal of infinite information. for this reason, we have got created our own virtual personal assistant just for windows using python 3.6 that is ready to right to use on any windows explorer such as windows 7,8,10.we will use python as a programming language as a result of it have a major libraries which is use to implement command.***
Index Term: Artificial Intelligence, Desktop Assistant, Python, Text to Speech, Virtual Assistant, Voice Recognition.

I. INTRODUCTION

Virtual assistant is employed to run machine like laptop or PC's on your own command. Virtual assistant is an application program that acknowledges natural language and voice commands to finish tasks for the users. Virtual Assistant are completely software package based but nowadays they're integrated in numerous devices and additionally a number of the assistants are designed explicitly for single devices like Alexa. Due to forceful amendment in technology now it's a high time to train our machine with the assistance of machine learning, deep learning, neural networks. Today we are able to talk to our machine with the help of Voice Assistant. Today every huge company is using Voice Assistant so that their user will take the assistance of machine through their voice. So, with the Voice Assistant we are moving to the consecutive level advancement where we are able to talk to our machine. Dr. Kshama V. Kulhalli (2017) et al. proposed the Most famous application of iPhone is "SIRI" that helps the end user to connect end user mobile with voice and it additionally responds to the voice commands of the user[1].The earliest makes an attempts to plan systems for automatic speech recognition by machine were created in the 1950's, when various researchers tried to exploit the fundamental ideas of acoustic-phonetics. In 1952, at Bell Laboratories, Davis, Biddulph, and Balashek engineered a system for isolated digit recognition for a single speaker [2].

II. RELATED WORK

In the analysis paper of J. B. Allen etal described about the Language that's the utmost vital significant means of communication and speech is its major interface. The interface for human to machine, speech signal was regenerate into analog and digital wave form as a machine understood. [1].

In the analysis paper of B. S. Atal and L. R. Rabiner et al, explained regarding speech analysis, and result's regularly completed in together with pitch analysis. The analysis described a pattern recognition technique for determining whether a given slice of a speech signal should be categorized as voiced speech, unvoiced speech, or silence, counting on dimensions finished on signal. The main restriction of the technique is the demand for exercise the algorithmic on precise set of dimensions picked, and for the precise recording circumstances [2].

In the analysis paper of Deny Nancy (2019) et al. within the Era of fast paced technology we are able to do things which we never thought we tend to may do before however, to achieve and accomplish these thought s there's a desire for a platform which can automate all our tasks with ease and luxury. Thus we humans developed applications like Personal Voice Assistant having the ability to inter act with the surroundings simply by one of the materialistic form of human inter action i.e .Human Voice[3].

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III. METHODOLOGY

when a user asks a question to personal assistant to perform a task, then natural language audio signal is regenerate into possible command or digital data that may be analyzed by the software package then this knowledge is compared with a knowledge of the software package to search out an appropriate answer virtual assistant is to run machines on your own commands.

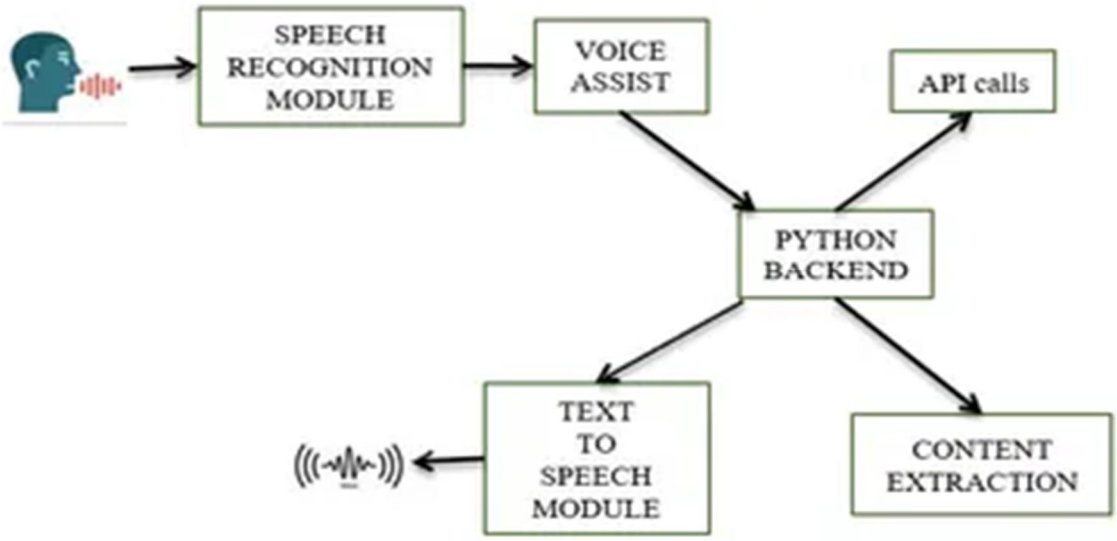


Fig 3

A. Speech Recognition

The first element of speech recognition is, of course, speech. Speech should be regenerate from physical sound to an electrical signal with a microphone, and then to digital data with an analog-to-digital converter. Once digitized, many models can be used to transcribe the audio to text.

B. Python Backend

The whole program is written on python backend.the python backend work on obtaining the output in exchange of voice input provided by the user through speech recognition module.

C. API Calls

An API call is the process of a client application submitting a request to an API and that API retrieving the requested data from the external server or program and delivering it back to the client.

D. Google Text to Speech

Text to Speech is largely used for conversion of speech from test provided by the user in other words,a tts engine converts written form of text into phonemic representation,then converts the phonemic representatiopn to waveforms that end in sound.tts has developed a lot and comes with different languages provided by the third party publishers.

IV. RESULT

Virtual assistant is a less time consuming. Virtual assistant is a software that understands commands and complete task assigned by client. Virtual assistant use NLP to match user voice or text input with executable commands. With the help of virtual assistant you able to run your machine like laptop or PC's on your own command. It is the fast process, therefore it saves time. We have employed this idea by means of Python, Machine Learning and AI. Our main aim is to assist the users in their tasks with the help of their voice commands. This can be done in two phases. Firstly, taking the audio input from the user and converting it to an English phrase with the help of speech recognition

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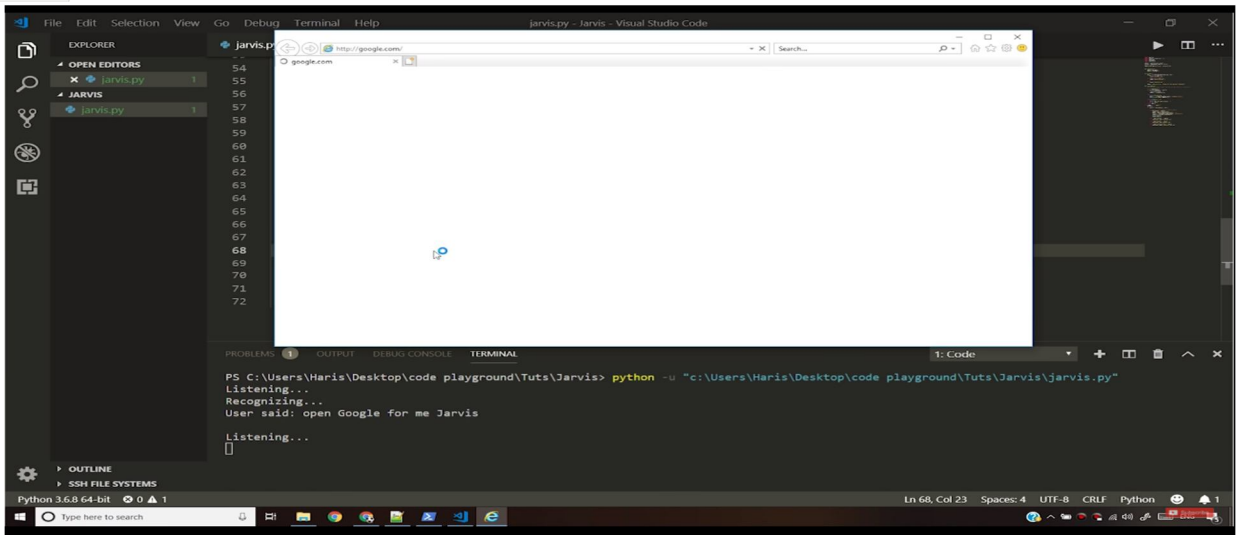


FIG 4.1

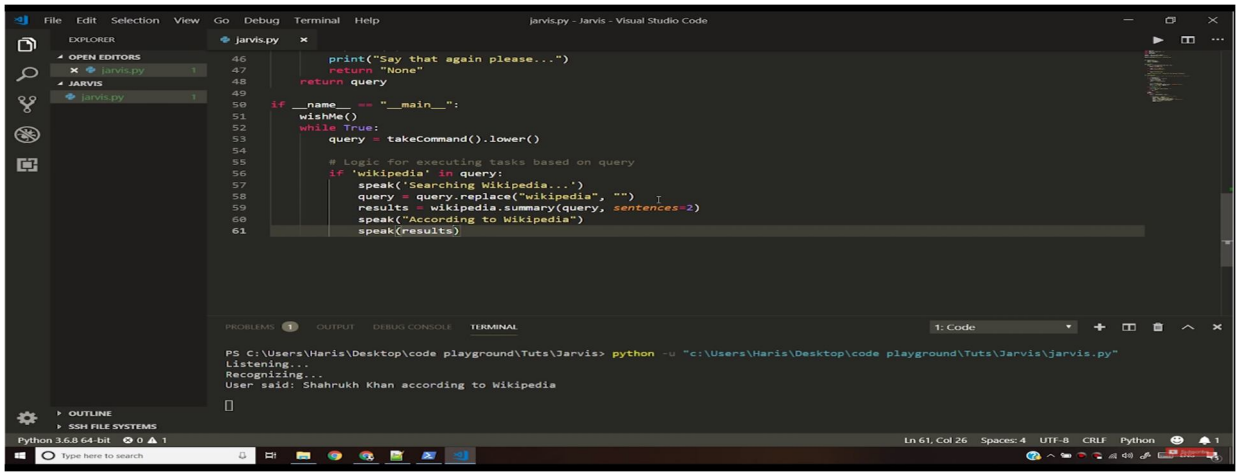


FIG 4.2

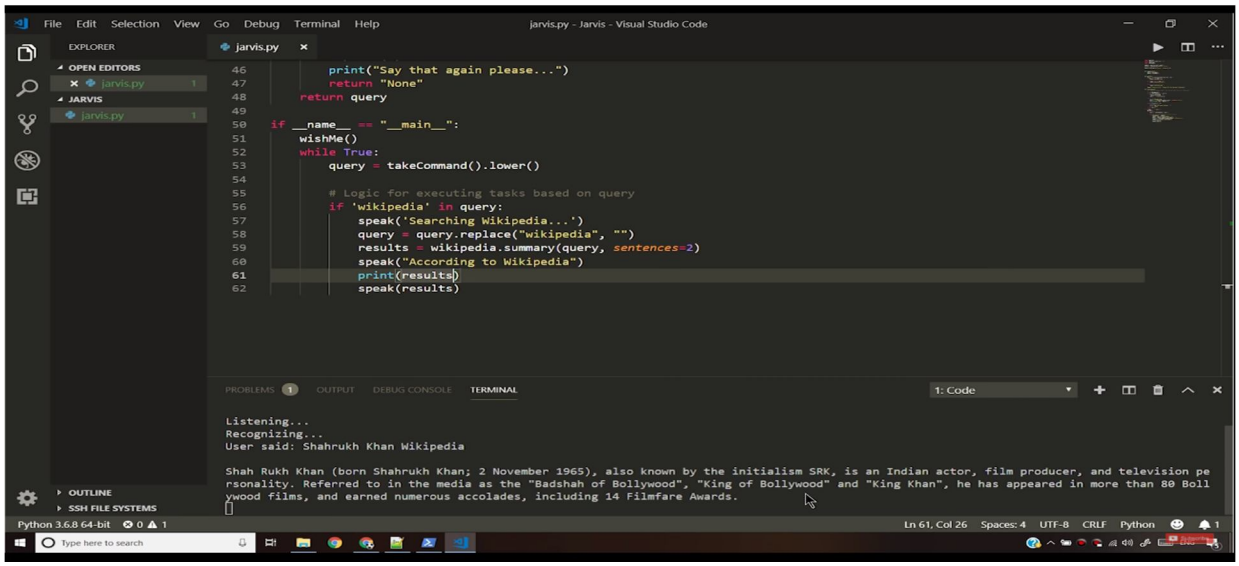


FIG 4.3

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V. DISCUSSION

In the communication between human and machine arrangement was done through analog signal that is remodeled by speech signal to digital wave. This technology is massively used, it has limitless uses and permit machines to reply appropriately and steadily to user voices, cojointly offers helpful and appreciated facilities. Speech Recognition System (SRS) is rising more and more and has indefinite applications. The analysis has disclosed the outline of the procedure; it is a straightforward model.

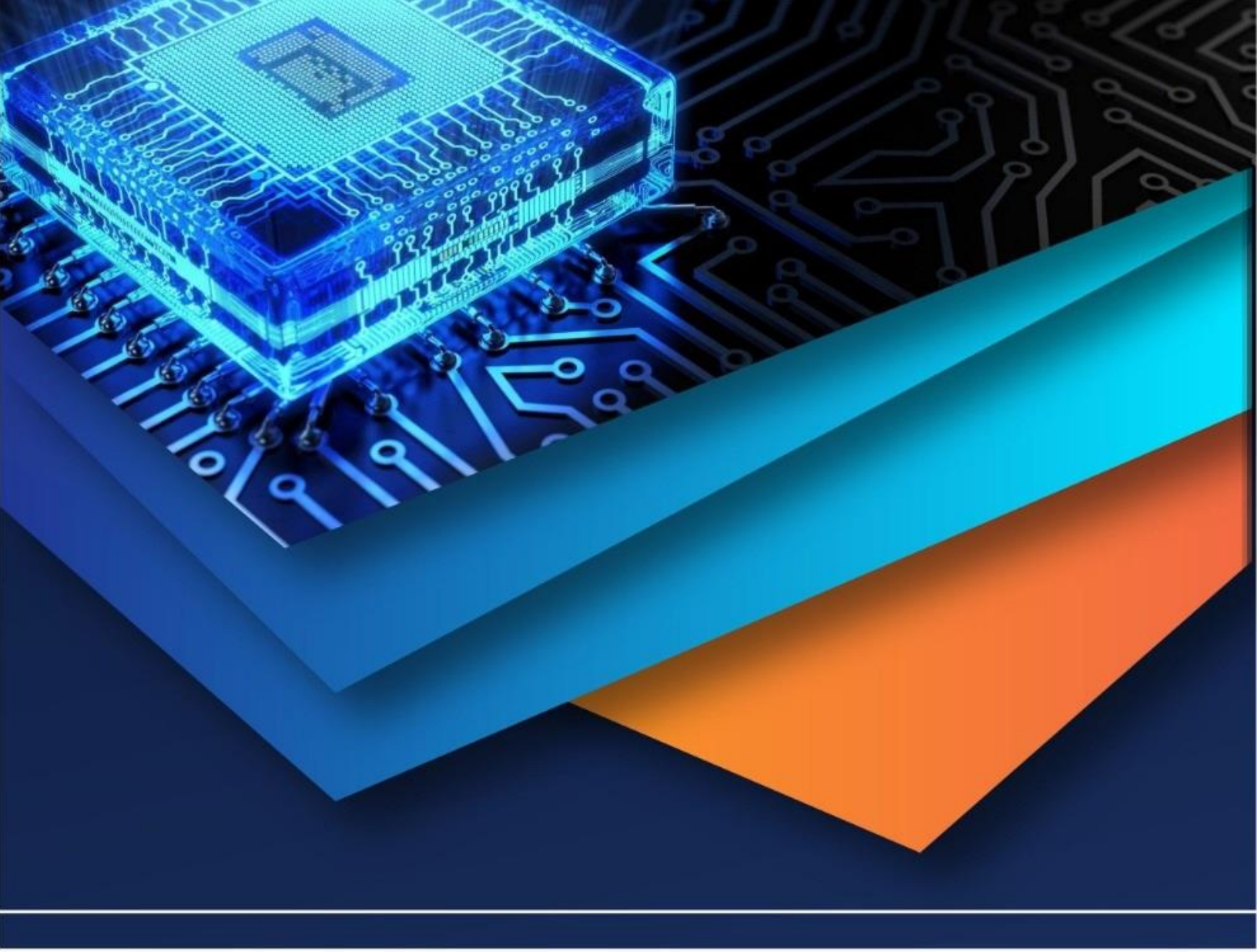
In coming days our planned system is applied in multilingual application in order that someone will use the application in their own language without any trouble. additionally, our planned system is organized with the IoT. In future our planned system will be able interpret the text description in a much better way. The Image recognition is used with way more details regarding the image took through the camera. Enhancement to the present system is done by adding the option of currency recognition.

VI. CONCLUSION

In this paper we've got mentioned regarding Personal Virtual Assistant for Windows Using Python. Virtual assistant makes life easier to humans. Virtual assistant is that the flexibility to contract for simply the services they have. The functionality of the system is limited to working on application based only. This project are facilitate visually impaired and physically challenge people. Instead, we will see a fragmented marketplace emerge. It will be a market where you are might into using default AI providers depending on the hardware purchase. The results show that these techniques could use effectively for voice recognition purposes. We have added more features like it will listen to the users' voice only and will not be activated from environment noise. The modular nature of this project makes it easy to understand and more flexible. We are able to add more features in the program without disturbing the functionalities. All the packages needed in python programming language has been installed and the code was implemented using VS Code Integrated Development Environment (IDE). The python version used for this project was 3.x and the data of different noises also taken from the environment.

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