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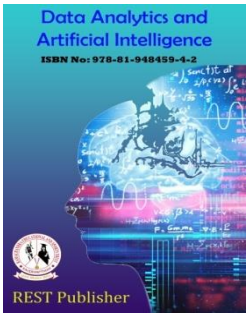

Personal Computer Virtual Voice Assistant

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Abstract: *Information and communication technologies have a long history but constantly evolving. Because of the rapid progress of technology, everyone now has a personal AI assistant. On our smartphones, most of us have it in the form of Siri, Bixby, or Google Assistant. Voice-based personal assistants are becoming increasingly popular, making our lives easier. This paper-based intelligent voice assistant can manage and update information, such as emails, calendar events, files, and to-do lists. An attempt was made to develop an "intelligent personal voice assistant using Python" to help with voice-activated device control, information extraction, and desktop job execution.*

Keywords: *Artificial intelligence, Speech recognition, and Personal Voice Agents.*

1. INTRODUCTION

Human interaction is speedily being supplanted by. One of the primary reasons for this shift is performance. instead of progress, technology has undergone a major transformation. In today's world, we tend to use technologies like machine learning and Neural Networks to show our machines to try and do their jobs on their own or to assume like folks. With the assistance of virtual assistants, we tend to could currently communicate with our machines in modern times. corporations like Google, Apple, Microsoft, et al. have virtual assistants like Google currently, Siri, and Alexa that enable users to work their machines simply by talking to them. These kinds of virtual assistant's square measure useful to the aged, the visually and physically challenged, children. interacting with machines isn't longer a challenge. Even blind persons United Nations agency square measure unable to visualize the pc will communicate with it simply through their voice. The mentioned square measure a number of the basic tasks that almost all virtual assistants will help with:

- Search on Wikipedia
- Stream two-eared Beats
- Open Any Website
- Random parole Generator etc.

Our voice assistant may be a desktop-based application created with Python modules and libraries. This assistant is just a basic version that may do all of the duties listed higher than, however current technology, whereas spectacular, still must be combined with Machine Learning and also the net of Things (IoT) for bigger results. The understanding and death penalty commands square measure still to achieve a brand new level just like the virtual assistant of an iron man named Jarvis. Although this can be a piece of fiction, it's attainable to attain with virtual assistants. All you have to try and do is provide the assistant a command, and the assistant looks out for the remainder. there'll be no need to be compelled to write in-depth codes to execute a task with voice-activated virtual assistants; the system will copulate for the US. reckoning on the application, the machine can operate in one of all 3 modes: supervised, unsupervised, or reinforcement learning. All of this can be possible as a result of machine learning

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2. LITERATURE SURVEY

Assisting people with the use of personal assistants or virtual assistants has become increasingly important in modern life. organizations and individuals alike take advantage of the latest technology, since it allows them to carry out their duties in a more efficient manner. It is based on a desktop application and includes a virtual assistant that understands what the user inputs, analyzes it, and then plays tasks accordingly this system allows users to save a significant amount of time.

3. EXISTING SYSTEM

In the existing system, the audio command is taken as input through the microphone of the device. The next task of the voice assistant will be to analyze audio commands and give appropriate output to the user. the working process of the existing system is first of all the audio command taken from the user through the inbuild/external microphone and with the help of speech recognition the central processor gets the information and makes the operation according to the input.

4. PROPOSED SYSTEM

A speech recognition library with numerous built-in functions is used in the proposed concept for successfully implementing a personal voice assistant. These features allow the assistant to comprehend user commands and respond verbally. The user receives a reply message., with a function for text-to speech. The underlying algorithm converts the user's spoken commands into text when the assistant receives them. The wizard also carries out the corresponding actions in accordance with the keywords (user-specified commands) contained in the text. This is made possible by the various libraries' functions. The Assistant can also use some APIs to perform all of its functions. Computations and news extraction from web sources were finished utilizing these APIs.Through the API, requests can be sent, and outputs will be returned.APIs like WOLFRAMALPHA can be used to perform a variety of tasks, including calculations and brief web searches. Additionally, not all APIs are capable of text-to-JSON conversion for web data retrieval. To parse his JSON data from a website into a string format, I use the JSON library. You can send messages as input to a function for additional purposes by extracting messages from web sources. There are also libraries for various technologies, such as Random and numerous others.I implemented OS-related functions like system shutdown and reboot using the OS library. pyautogui is a library that can do things like take screenshots. A library called psutil is used for things like checking the battery status.

5. SYSTEM REQUIREMENTS

We usually required the following hardware specifications to run the virtual assistant: 8GB of RAM, an Intel Core i5 processor, and a high-performance microphone. In terms of software, the voice assistant required Python 3.11(Python is an interpreted high-level general-purpose programming language.) and as well as Pycharm 2021.1(PyCharm is the most popular IDE for Python and It includes great features such as excellent code completion and inspection with an advanced debugger and support for web programming and various frameworks and Powershell 7.3.2. The virtual voice assistant requires the following hardware and software to function.

6. KEYWORDS AND DEFINITIONS

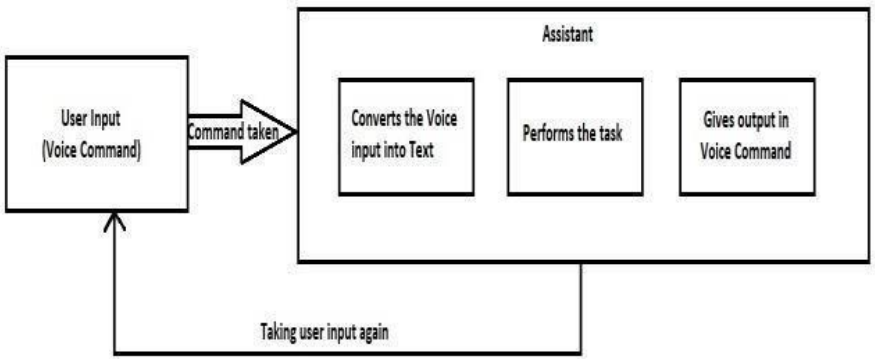

FIGURE 1.

System Architecture: 1) Speech recognition- Speech recognition is the ability of a machine to grasp human speech. to make code that will be wont to run machines on command, we tend to ASR (automatic speech recognition) investment the Python Google Speech API in our project. putting in the Pyaudio Python module is important to recognize voice directions. mistreatment of the pip install Plaudit command, Pyaudio could also be put in.

2)Wolfram Alpha: mistreatment of Wolfram's algorithms, content, and AI technologies, it computes expert-level responses to any command.
3) gTTS- Google's text-to-speech code converts your voice commands like queries into text. gTTS transforms the response from the look-up operation that you simply give to retrieve an Associate in Nursing to the question or command into an audio format. The Google Translate API is interfaced with via this package.
4) JavaScript Object Notation for JSON. JSON may be a compact information storage and transmission format. once information is transferred from a server to an online page, JSON is employed. JSON is simple and "self describing".
5) To show the date and time, the Datetime-Datetime package is used. Python is already enclosed with this Date Time module.
6) we've used the Wikipedia module in our project to induce additional data from Wikipedia or to try and do a Wikipedia search as a result of, as we tend to all recognize, Wikipedia may be a nice and massive supply of data, a bit like Geeks for Geeks or the other sources. Use pip install Wikipedia to put in this Wikipedia module. 7) OS: Python's OS module includes tools for interfacing with the OS. OS is enclosed within the basic utility modules for Python. Utilizing operational system-dependent practicality is created potential by this module. 8) Port Audio may be a cross-platform C++ library that integrates with audio drivers. PyAudio may be a set of Python bindings for Port Audio.
9) Pyjokes—Pyjokes may be a program wont to collect jokes online. Pyjokes are enclosed in our project since it includes jokes. It's quite fascinating. Pyjokes is the one-line joke that adds interest to our project.
10) Smtlib- A Python package known as Smtplib, or the straightforward mail transfer protocol library, is employed to send emails mistreatment the straightforward Mail Transfer Protocol (SMTP). there's no got to install the smtplib as a result it's a constitutional module in Python. It removes all of SMTP's quality through abstraction. It offers SMTP shopper implementation for the straightforward Mail Transfer Protocol.
11) net browser—for conducting net searches. Python natively embodies this module.

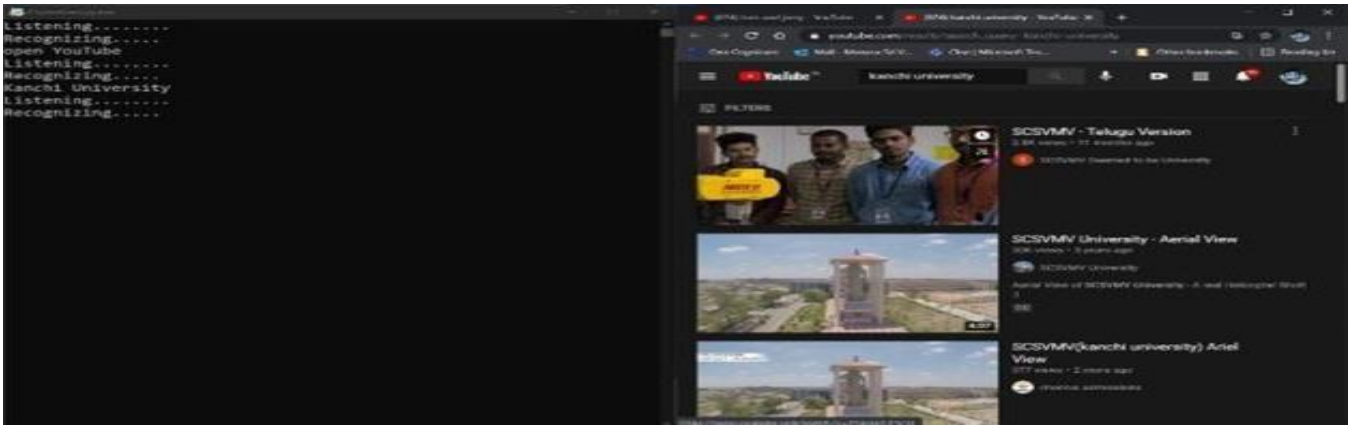

FIGURE 2. The above image represents the assistant search result on browsers.

12) Requests - The Python Requests module allows you to send protocol requests. you'll be able to use it to send GET and POST queries. It hides the difficulties of submitting requests behind a stunning, simple API

7. RESULT AND ANALYSIS

Initially, frequently enable pyttsx3, a possible Python text-to-speech library, support our programming system language. It works offline and is compatible with Python 2 and Python 3, in contrast to other libraries. The Speech Programming Interface, sometimes known as SAPI, is an API created by Microsoft for using speech synthesis and recognition in Windows applications. The Speak function is then outlined so that the software can speak the output. Then we design a mechanism to take voice commands via the system microphone. Then describe the main function where all program functions are listed. The input procedure is carried out as required in our system. For instance

A. ***Network Question:***

Network Question: -Asking queries could be a necessary part of human life Even for developers functioning on Windows area units dynamically. we tend to activate our voice assistant, which searches online, which is a very important part of the lives of net users. It supports made from search engines and displays like Google, Bing, and Yahoo by scraping search results.

B. ***Access to YouTube***

Video remains the most supply of diversion and one of the highest priorities for virtual assistants. it's equally necessary for entertaining and academic reasons. as a result of most teaching and analysis on trendy YouTube. This helps create the method additional sensible. The four walls of the room.

C. ***Weather Reports***

An important task of virtual assistants remains to get climatic conditions for a given location in real time. It helps users to line their progress. It solves this drawback of victimization python.

D. ***Getting Pictures***

Users will load pictures directly from the program. Image sourced from all net code received from Google pictures. These are units formatted in step with use and succinctly displayed within the program

E. ***Dictionary***

The meaning of wordbook one amongst the net is to seek out the means of words and their usage in our everyday life. rather than looking for clumsy books, our users will merely use a voice assistant to look for them and instantly perceive their means.

F. ***Medical Details***

One of the necessary issues that our package solves Users will raise regarding medicines or symptoms. the primary can tell you all the main points regarding the drug, like the contraindication trade or business name, dosage, administration, warnings and precautions, storage conditions, etc. On the opposite hand, the symptom operation permits you to inquire regarding your symptoms whereas taking it. List the assorted diseases and their medication that will be affected. this is often a facility for those that area unit busy with their life and check out to ascertain a doctor in realtime and thus realize the simplest result on the net for causes

E. ***Set A Reminder***

One of the functions of the voice assistant is to line reminders for the user. This feature isn't completely different. Users will set reminders to be notified of a task at a particular time. This helps users particularly developers will simply arrange their time and resources. All the user needs to do is enter the settings reminder within the assistant.

F. ***Send Messages***

In cooperation, the mailing emphasizes that it facilitates the occupation of the mailing, that in any case would need to be completed by the gap in the relevant email address. Here you do not need to hunt for another card any longer - one amongst the necessary tasks of your daily duties. The shopper will send messages to the concept collector.

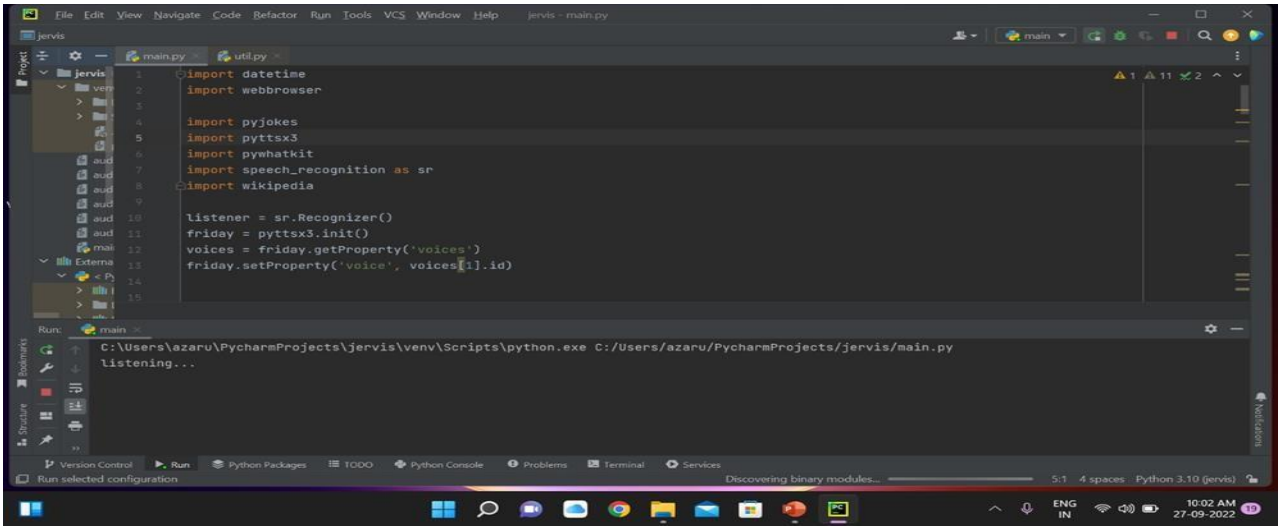

FIGURE 3.

8. CONCLUSION

In this paper, we've described a voice assistant created with Python. This assistant currently works as an Associate in Nursing application-based employee and carries out routine duties including checking the weather, streaming music, searching Wikipedia, opening desktop programs, etc. This system's usability is limited to operating only on an application-based basis. The upcoming versions of this assistant may contain machine learning, which can produce better recommendations for IoT to control nearby devices similar to what Amazon's Alexa will do

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