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AI Desktop Assistant Using Face Detection and Voice Recognition

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ABSTRACT: The Project aims to Develop a Personal-Assistant for Desktops and Laptops. The Assistant draws its Inspiration from Virtual Assistant like Cortana for Windows, and Siri for iOS. It has been designed to provide User-friendly Interface for carrying out a variety of tasks. User can Interact with the assistant through Voice Commands.
The Desktop Voice assistant who helps the end user to communicate with desktop computer with voice and it also responds to the voice commands of the user. Our Proposed System has capability to work with and without Internet Connectivity in Desktop Computer/ Laptop. Which takes the user Input through Voice and Process it and returns the output in various from like action to be performed or the Search result is dictated to the end user.

KEYWORDS: Personal Assistant, Windows systems, Voice assistant, Speech Recognition, Desktop Assistant.

I. INTRODUCTION

A voice assistant is a digital assistant that uses voice recognition, natural language processing and speech synthesis to provide aid to users through desktop and voice recognition. Voice assistants are built on artificial intelligence (AI), machine learning and voice recognition technology. As the end user interacts with the digital assistant, the AI programming uses sophisticated algorithms to learn from data input and better itself at predicting the user's needs. Some assistants are built with more advanced cognitive computing technologies which will allow a digital assistant to understand and carry out multi-step requests with numerous interactions and perform more tasks Digital assistants can be contrasted with another application of consumer-facing AI called smart advisors. Smart advisor programs are knowledge-oriented, while digital assistants are task oriented, although some perform both roles. Popular voice assistants currently include Apple's Siri, Amazon's Alexa, Google Now, Google Assistant and Microsoft's Cortana.

The User Can ask their questions, Control Devices and media playback via voice, and manage other basic tasks such as email, to-do lists, and calendars with verbal (spoken) commands. In the Modern Era of fast moving technology we can do things which we never thought we could do before but, to achieve and accomplish these thoughts there is a need for a platform which can automate all our tasks with ease and comfort. Thus we humans developed applications like Desktop Voice Assistant having the ability to interact with the surroundings just by one of the materialistic form of human inter action i.e; HUMAN VOICE. e. The Application is being designed in such a way that all the services provided by the internet or without internet are accessible by the end user on the user's voice commands.

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II. METHODOLOGY

1We'll be using the pyttsx3 package which is a text-to-speech library for Python. The basic reason why we use this is because it works offline. Another basic requirement of this project will be Python's Speech Recognition library.

The overall system design consists of following phases:
(a) Data collection in the form of user's voice
(b) Voice analysis and conversion to text
(c) Data storage and processing
(d) Generating the task to be done from the processed text output

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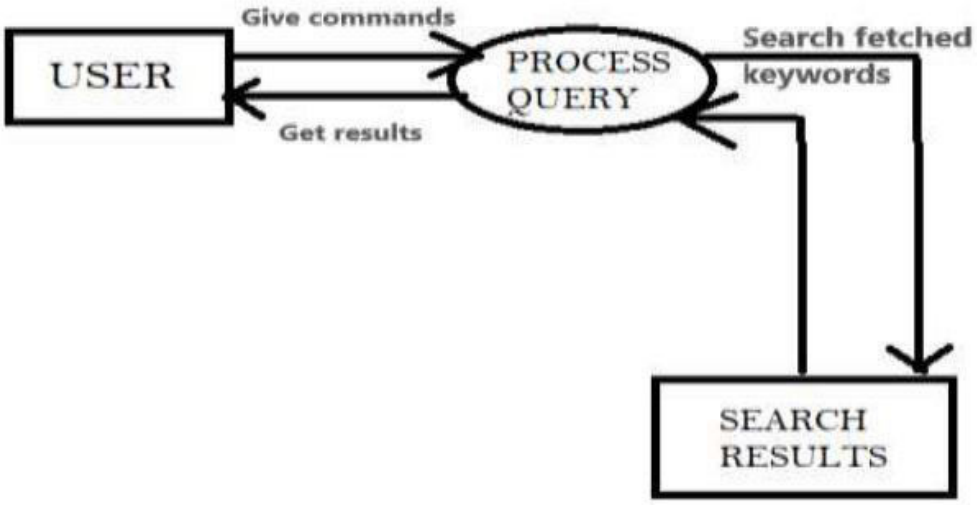

The proposed system will have the following functionality:

(a) The system will keep listening for commands and the time for listening is variable which can be changed according to user requirements.

(b) If the system is not able to gather information from the user input it will keep asking again to repeat till the desired no. of times.

(c) The system can have both male and female voices according to user requirements.

(d) Features supported in the current version include playing music, emails, texts, search on Wikipedia, or opening system installed applications, opening anything on the web browser, etc.

(e)The system will keep listening for commands and the time for listening is variable which can be changed according to user requirements.

(f) If the system is not able to gather information from the user input it will keep asking again to repeat till the desired no. of times.

(g) The system can have both male and female voices according to user requirements

IMPORTED MODULES

A. PYTTSX3

The pyttsx3 is an offline module that is used for text to speech conversion in Python and it is supported by both Python 2 & 3. The run and wait functionality is also in this module only. It determines how much time the system will wait for another input or in other words the time interval between inputs.

This is a free module available in the python community which can be installed using the pip command just like other modules.

B. DATETIME

The Date Time module is imported to support the functionality of the date and time. For example, the user wants to know the current date and time or the user wants to schedule a task at a certain time. In short this module supports classes to manipulate date and time and perform operations according to it only. This is an essential module, especially in tasks where we want to keep a track of time. This module is very small in size and helps to control the size of our program. If the modules are too large or heavy then the system will lag and give slow responses.

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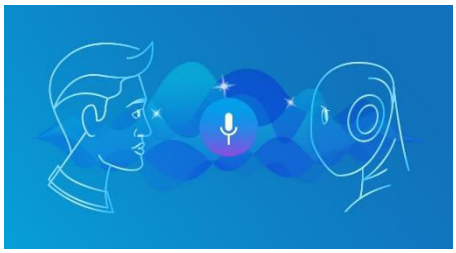
C. WEBBROWSER

This module allows the system to display web-based information to users. For example, the user wants to open any website and he gives input as “Open Google”. The input is processed using the web browser module and the user gets a browser with google opened in it. The browser which will be used is the default set web browser.



D. WIKIPEDIA

Wikipedia is a library in python which it possible for the virtual assistant to process the queries regarding Wikipedia and display the results to users. This is an online library and needs an internet connection to fetch the results.

The no. of lines that the user wants to get as a result can be set manually.

E. OS MODULE

OS Module provides an operating system dependent functionalities. If we want to perform operations on files like reading, writing, or manipulate paths, all these types of functionalities are available in an OS module. All the operations available raise an error “OSError” in case of any error like invalid names, paths, or arguments which may be incorrect or correct but just no accepted by the operating system.

F. SMTPLIB

Python has this module for in the standard library for working with emails & email servers. The SMTPLIB defines an object known as “SMTP client session object” which is used to send mails by the user. There are 3 steps involved - initialize, sendmail(), quit. When the optional parameters which are host and port, are provided connect method is called with these arguments during the first step which is initialization

G. WOLFRAM ALPHA

Wolfram alpha — Wolfram Alpha is an API which can compute expert-level answers using Wolfram’s algorithms, knowledge base and AI technology. It is made possible by the Wolfram Language

III. ALGORITHMS

Voice Recognition:

Python Speech Recognition Module This algorithmic program are the modules or the

packages for the recognizing the voice.

1. “sudo pip install SpeechRecognition” PyAudio(For Linux Users)

2. “sudo apt-get install python-pyaudionpython3-pyaudion”PyAudio(For Windows User)

3. “ pip install pyaudio”

Face Detection:

Haar Cascade Algorithm For Face discovery we use Haar Cascade calculation which

includes in the accompanying advances:

1. In the Haar Cascade estimation relies upon Course classifiers which contain Haar features

which are in Haar record helps for the acknowledgment of face.

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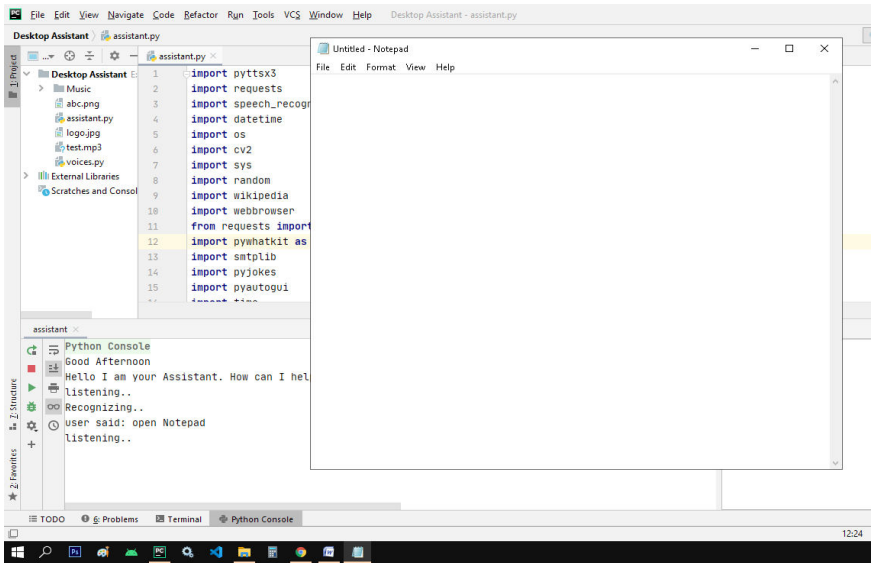
2. The course classifiers are the blend of a lot of frail classifiers used to make a solid classifier.

3. This mix frames a square shape which comprises of highly contrasting recognizable proof lines on the face or the picture.

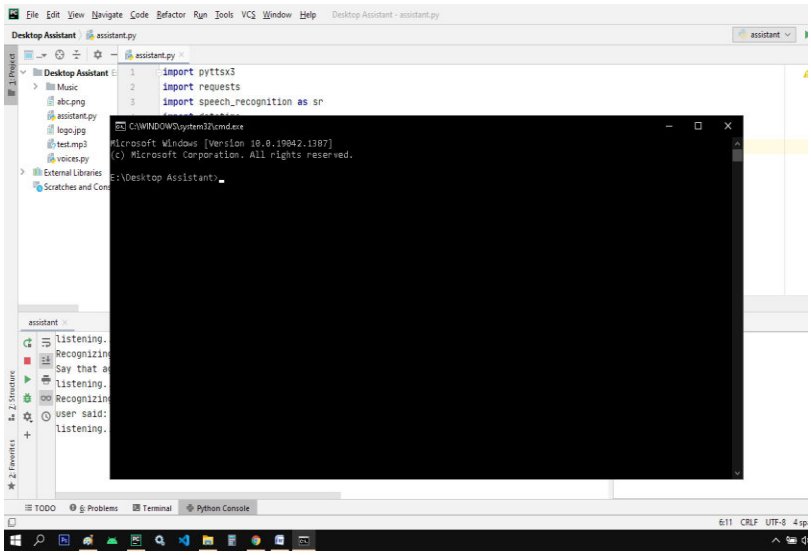
4. By utilizing Cascade Classifiers it additionally distinguishes grin, eyes regardless of countenances.

IV. RESULTS

1. Opening Notepad



2. Opening Command Prompt



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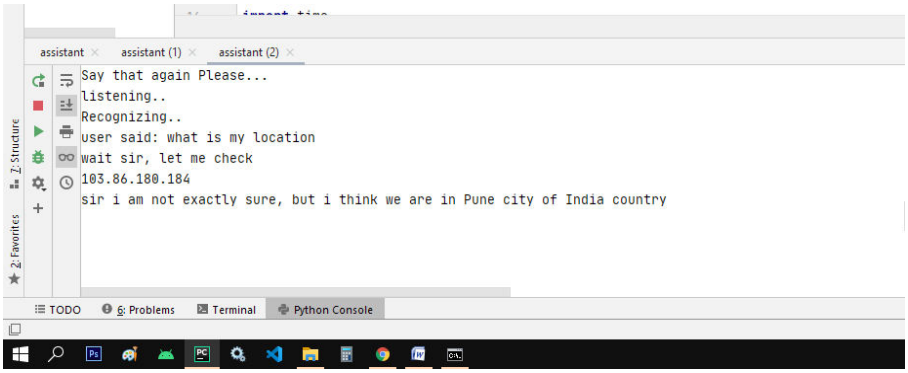
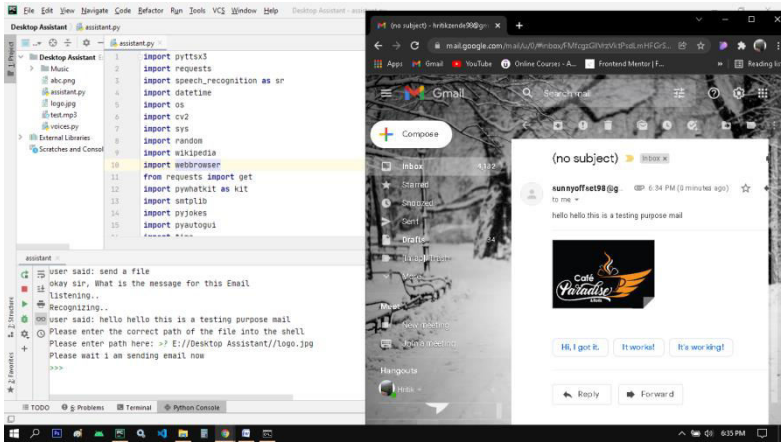
3. Live Location



4. Ip Address

5. Email with Attached file



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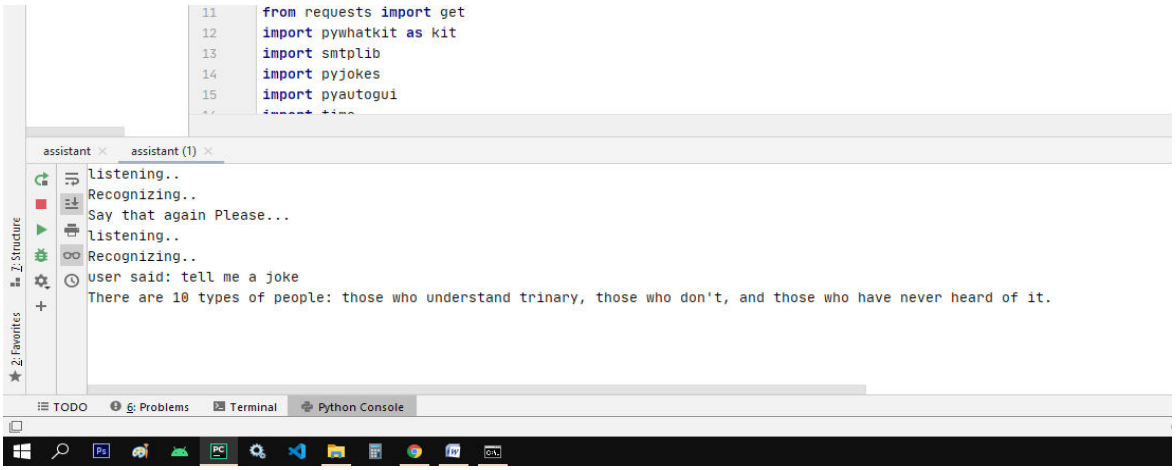
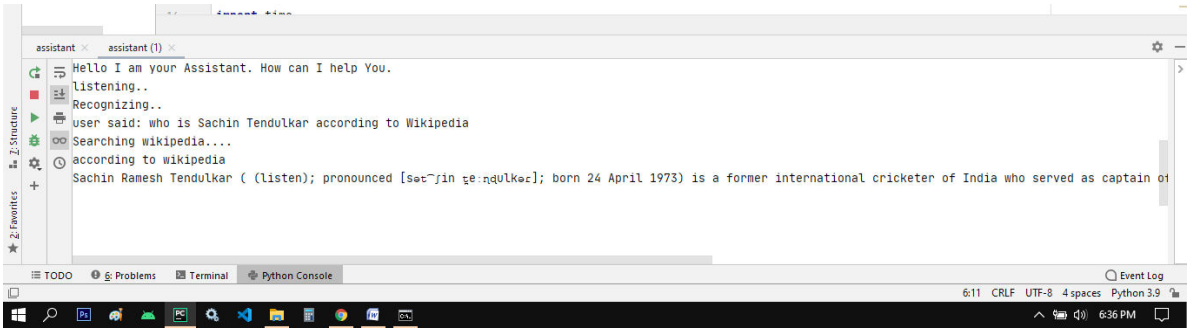
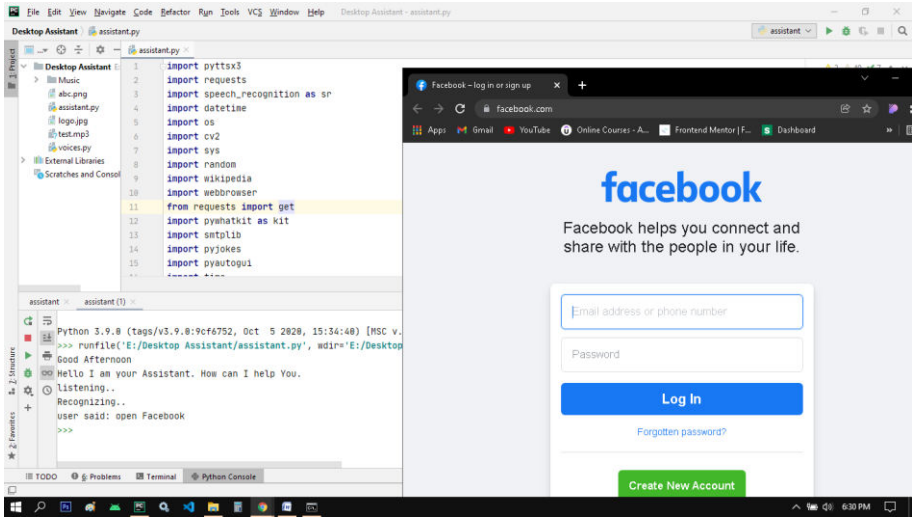
6. Random Joke



7.Wikipedia



8. Opening Facebook



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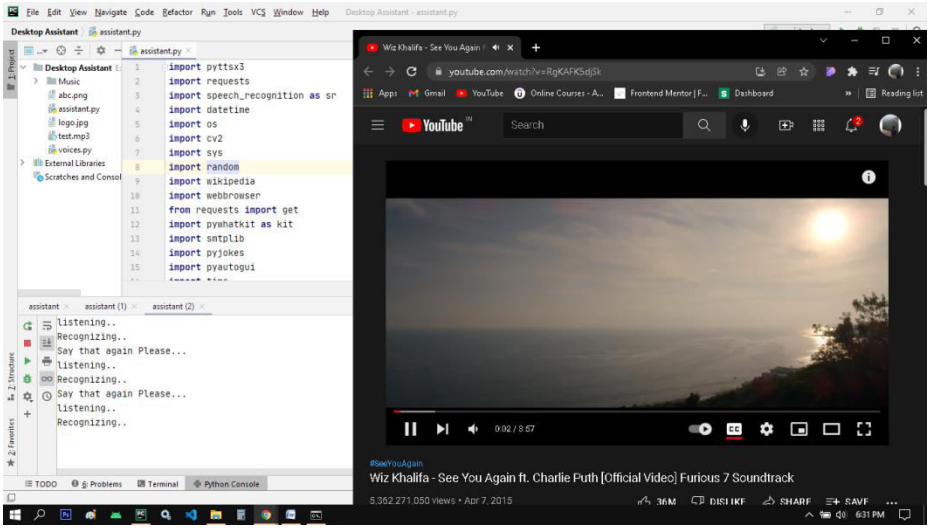
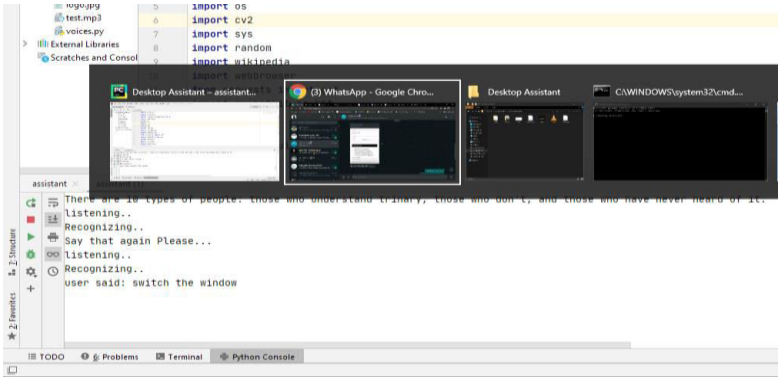
9. Playing Songs on Youtube



10. Switching Tabs/Window



V. CONCLUSION

In this paper we have discussed about Personal Desktop Assistant for Windows Using Python. Desktop assistant makes life easier to humans. Assistant is the flexibility to contract for just the services they need. As like Alexa, Cortana, Siri, Google assistant we also make virtual assistant using python for all windows versions. We use Artificial Intelligence technology for thisproject. Virtual Desktop Personal Assistants areeffectiveway tomanage or organize your schedule. Virtual Desktop assistants are also reliable than Human Personal Assistant because, virtual Assistants are more portable, loyal and available to use anytime. Our virtual assistant will be intimate you with suggestions and taking instructions, and will know more about you. We can expectthis device to be permanent..

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