SYNOPSIS

PERSONAL VOICE ASSISTANT IN PYTHON

CLASS & GROUP: - PH – 505A

1ST SEMESTER

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ABSTRACT: -

Voice assistant are software agents that can interpret human speech and respond via synthesized voices. Apple's Siri, Amazon's Alexa and Google assistant are the most popular voice assistants which are embedded in smartphones or dedicated home speakers. Users can ask their voice assistant basic questions like (Time and Date etc.), play music, open various applications installed in our system, opens our favorite websites, send, or receive E-mails, perform Wikipedia search, play videos on YouTube, opens Web browser just by using our verbal commands.

INTRODUCTION: -

- Voice assistant using python is inspired by Apple's Siri, Amazon's Alexa, and Google assistant.
- It is made using python with the help of various python modules and libraries.
- It uses voice recognition library to take command from user and then executes it.
- It uses pyttsx3 library to convert text to speech.
- It also uses various other python libraries like datetime (To tell current time and date), Wikipedia (To perform Wikipedia search), Web browser (To open Google, YouTube etc).

HOW DOES A PERSONAL VOICE ASSISTANT WORKS?

- User asks a personal voice assistant to perform a task.
- The natural language audio signal is converted into digital data that can be analyzed by the software.
- Compared with a database of the software using an innovative algorithm to find a suitable answer.
- This database is located on distributed servers in cloud networks. For this reason, it must have a reliable Internet connection.

FUNCTIONS: -

- Answers basic informational queries (What time or date it is?).
- Plays any video on YouTube by using our voice command.
- Opens our favorite website using our voice command.
- Opens various applications which are installed in our device.
- Plays music, opens web browser, and searches Wikipedia.
- Sends and receives E-mails using our voice command.

TECHNOLOGY USED: -

- **PYTHON:** This mini project on voice assistant is built using Python. Python is an interpreted, high level and general-purpose programming language. It has a rich support for various libraries and modules. Various python libraries and modules which are used in this mini project are as follows:
- **Pyttsx3**
- **Speech Recognition**
- **Wikipedia**
- **Datetime, Web browser, OS, smtplib** etc.

LIBRARIES AND MODULES USED: -

- **Speech Recognition**: This library is used for performing speech recognition, with support for several engines and APIs, online and offline.
- **PyAudio:** PyAudio provides python binding for PortAudio , the cross-platform audio I/O library. With PyAudio , you can easily use python to play and record audio on a variety of platforms.
- **Pyttsx3:**
- A python library which will help us to convert text to speech. In short, it is a text-to-speech library.
- It works offline, and it is compatible with Python 2 as well the Python 3.
- **Smtplib:**
- Simple Mail Transfer Protocol (SMTP) is a protocol that allows us to send emails and to route emails between mail servers. An instance method called **Sendmail** is present in the SMTP module. This instance method allows us to send an email. It takes 3 parameters:

- **The sender:** Email address of the sender.
- **The receiver:** Email of the receiver.
- **The *message:*** A string message which needs to be sent to one or more than one recipient.

- **Wikipedia:** Wikipedia is a Python library that makes it easy to access and parse data from Wikipedia.
- **Datetime:** Datetime module supplies classes to work with date and time. These classes provide a number of functions to deal with dates, times, and time intervals.
- **OS** The os module in python provides functions for interacting with the operating system. os comes under Python's standard utility modules. This module provides a portable way of using operating system dependent functionality.

ADVANTAGES: -

- **Convenience**: user have a wealth of knowledge at their fingertips and perform various time-consuming activities in minutes.
- **Accessible and inclusive:** Voice assistance can break down barriers for people disabilities and especially for those with visual impairments.
- **Enjoyment:** People particularly younger people genuinely enjoy speaking to voice assistant showing that a human to machine bond can be created through voice.

DISADVANTAGES: -

- **Comprehension difficulties**: voice assistant is improving everyday but they struggle to understand questions where there is background noise, if it is a complicated query or when people have an unusual accent.
- **Ethical and privacy concern:** having always listening voice assistant embedded into your surrounding raises questions about privacy and ethical applications of these voice assistant.
- **Conversational Skills:** The human level conversational abilities are still some way off for voice assistant.

CONCLUSION: -

Voice Controlled Personal Assistant System will use the Natural language processing and can be integrated with artificial intelligence techniques to achieve a smart assistant that can control the computer and applications and even solve user queries using web searches. It can be designed to minimize the human efforts to interact with many other subsystems, which would otherwise have to be performed manually. By achieving this, the system will make human life comfortable.