PERSONAL VOICE ASSISTANT IN PYTHON

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CLASS :- 505A

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Abstract

- Voice assistant is a software agent that can interpret human speech and respond via 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 favourite websites, send or receive E-mails, perform Wikipedia search , play videos on YouTube, opens Web browser just by using our verbal commands.

Introduction

A virtual assistant is **a technology based on artificial intelligence.** The software uses a device's microphone to receive voice requests while the voice output takes place at the speaker. But the most exciting thing happens between these two actions.

It is a combination of several different technologies: voice recognition, voice analysis and language processing.

It is completely developed using one of the most powerful language python.

How does a personal assistant work?

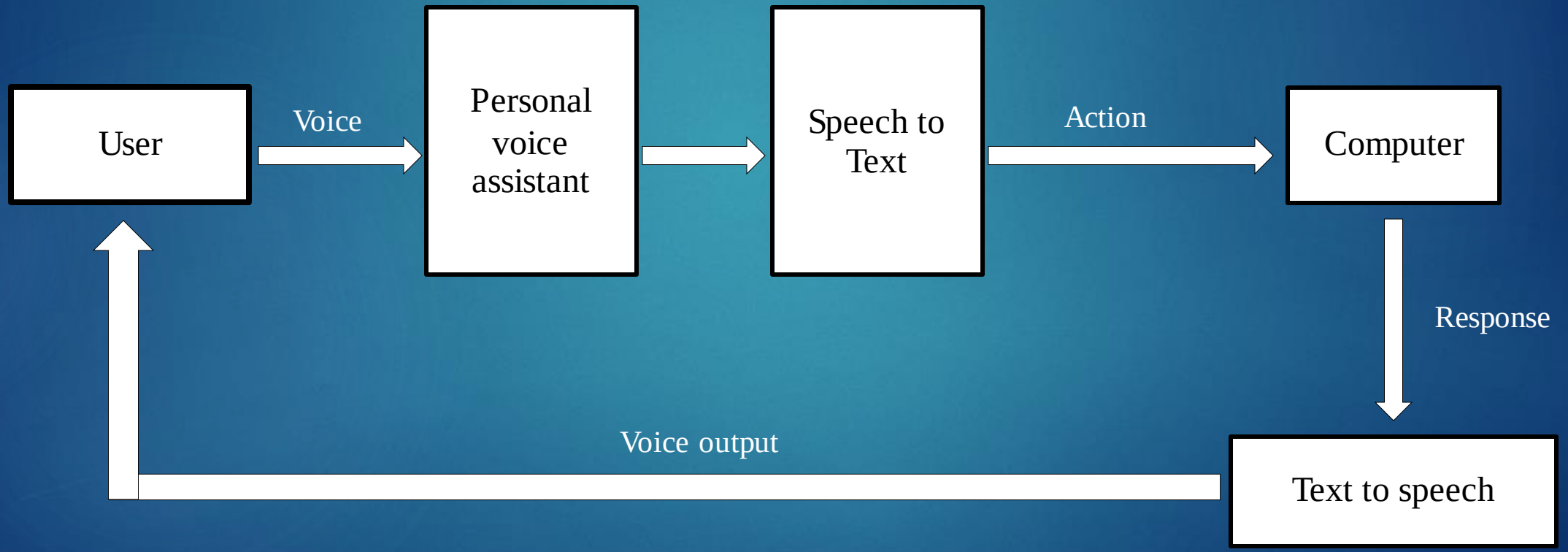
User asks a personal assistant to perform a task.

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.

Dataflow Diagrams



Functions

- Answers basic informational queries (What time or date it is ?).
- Plays any video on YouTube by using our voice command.
- Opens our favourite 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.

MODULES

- Speech recognition
- Process and system utilities (psutil)
- PlaySound
- SMTP Protocol client (smtplib)
- Google Text To Speech (gtts)

Requirements

- **Software requirements**
  - Pycharm IDE/visual studio code
  - Inno Setup Compiler
  - Pyinstaller
  - Python 3.8.2 and its Sub modules

- **Hardware requirements**
  - Intel core i3
  - 4gb RAM
  - 30 Gb Hard drive space

Advantages

- **Convenience**: user have a wealth of knowledge at their finger tips and perform various time consuming activities in minutes.
- **Accessible and inclusive** : Voice assistance can breakdown 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 are 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

THANK YOU