IPS Academy, Indore
Institute of Engineering and Science

(A UGC Autonomous Institute)

Department of Artificial Intelligence & Machine Learning

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Virtual Voice Assistant

Guided By:
Ms. Vasudha Sharma

Submitted To:
Ms. Vasudha Sharma

Submitted By:
Mahima Panwar(0808al211027)

Introduction

Virtual assistants are Artificial Intelligent based programs. They are a smart computer program that understands human natural language through voice commands and performs tasks for the user.

What does a virtual assistant do?

1. It listens for your command.

2. It responds to your command with either a success or failure response.

Idea of Project

- A virtual assistant to automate you daily, mundane tasks.
- It can play YouTube videos/music, send emails, Wikipedia results and also do a simple google search using your voice command.
- It is completely coded on Python using libraries like speech recognition, pyttsx3 etc.
- It primary works on the python text-to-speech platform.
- This is a lightweight program which works on lower memory compared to its counterparts.
- It can work on low configured devices.

Basic Concepts Used

The working of Virtual Assistant uses following principles:

- Natural Language Processing.
  - To Understand user's speech input.
- Automatic Speech Recognition.
  - To understand command according to user's input
- Artificial Intelligence.
  - To learn things from user and to store all information about behavior and relations of user
- Inter Process Communication.
  - To get important information from other software applications

Working

Any Virtual Assistant basically consists of three layers.

1. Speech to text
2. Text Analyzing
3. Interpret commands

Working- Three Layers

1. Speech to text:

- A Piece of software used that converts audio to text.
- It doesn't understand just anything you might say.

2. Text Analyzing:

- Converted text is just letters for computer.
- A piece of software converts text to something that is understandable for computer.
- Computer understands the command, so Virtual Assistant like siri convert this to computer command.
- VPAs maps the words to functions and parameters to create a command that computer can understand.

Working- Three Layers

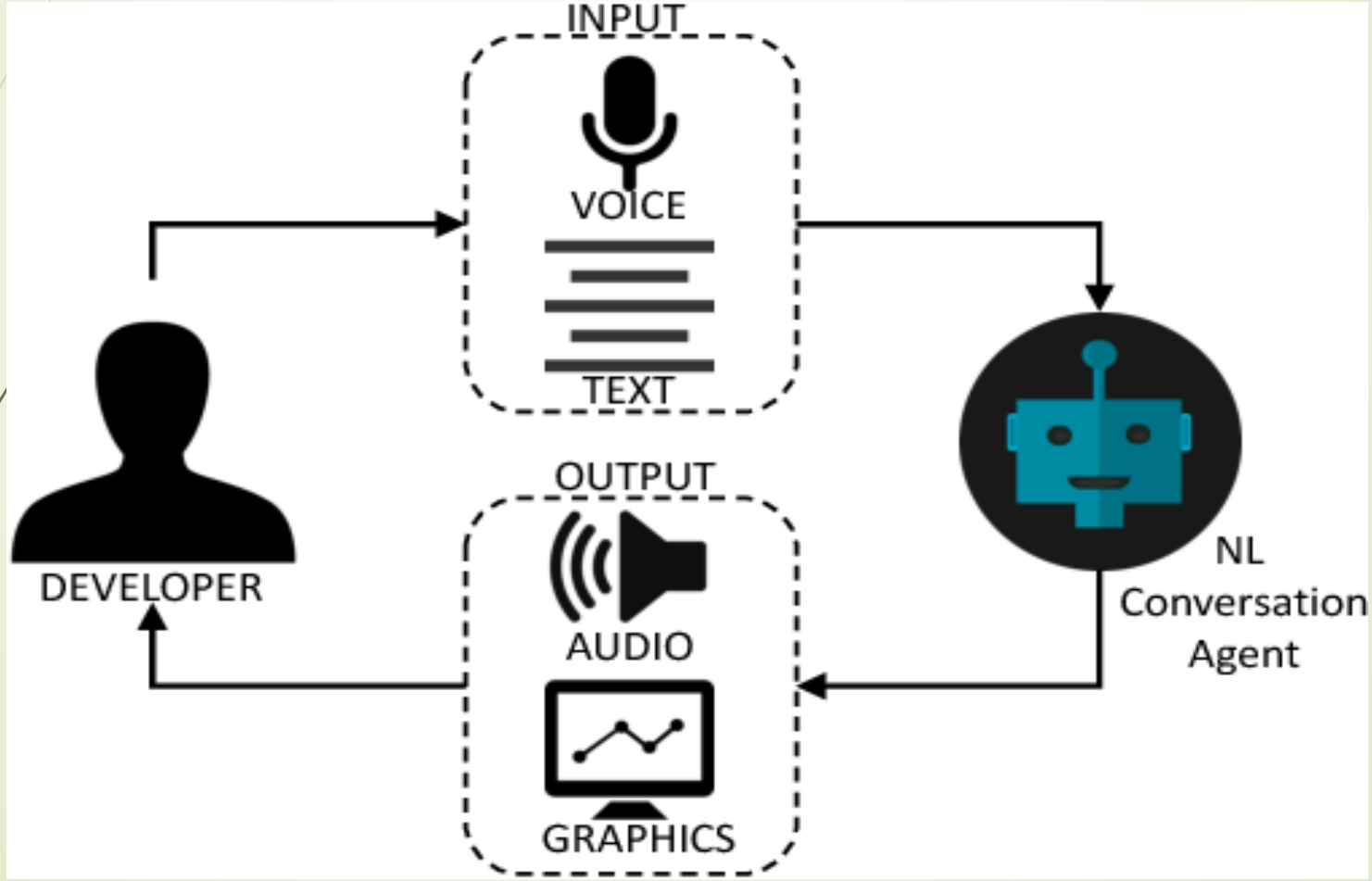
3. Interpret commands:

- In this layer, that mapped computer command, go to server through internet.
- Simultaneously, your speech evaluated locally.
- A local recognizer communicate with server to judge whether command will best handle locally or not.

Example:

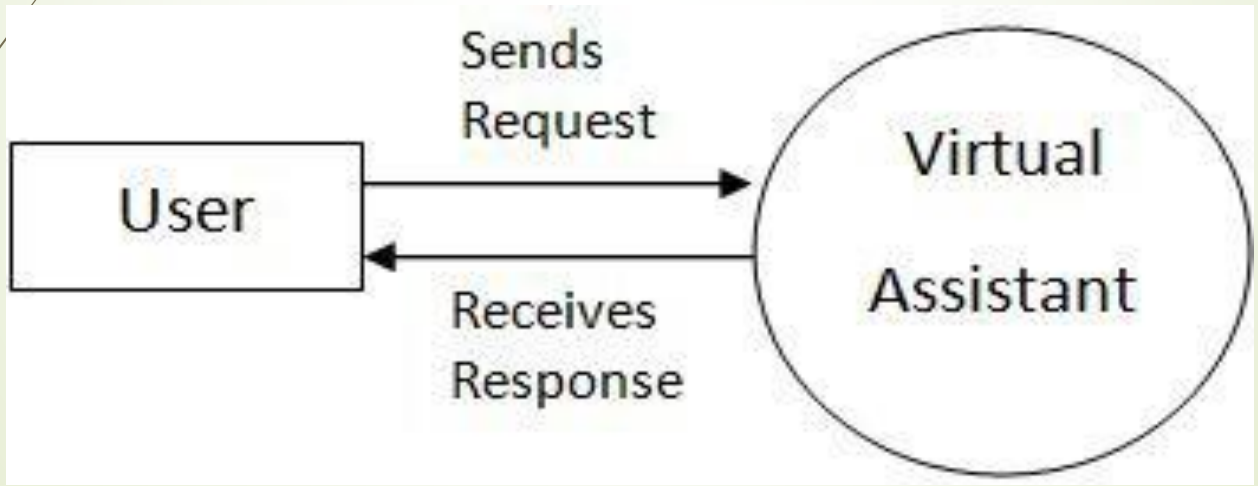
Play Music, Restaurant reservation, Movie Rating

Methodology



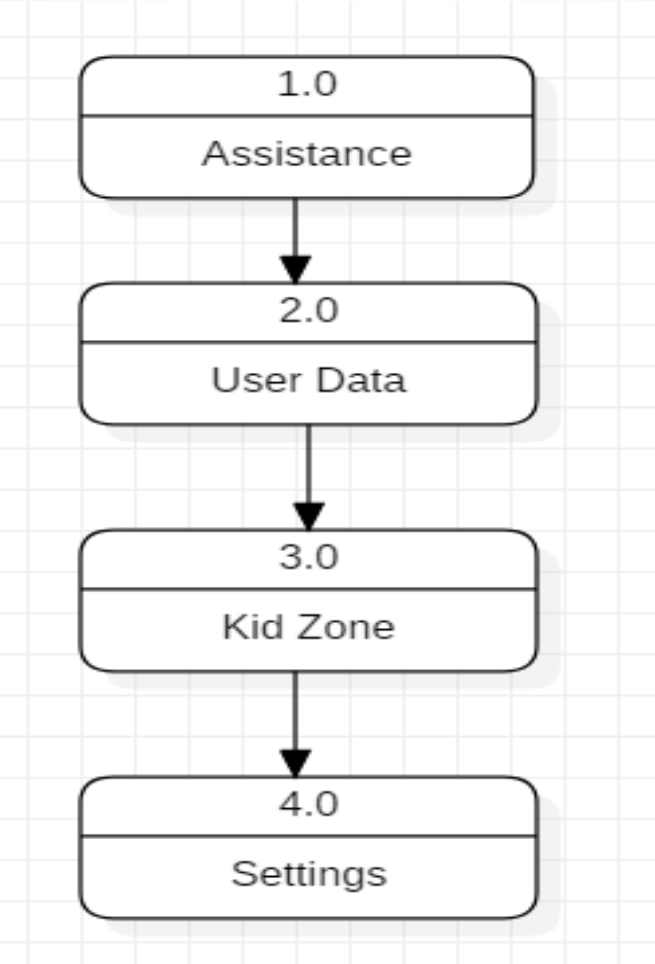
DATA FLOW DIAGRAM

- DFD Level 0 (Context Level Diagram)



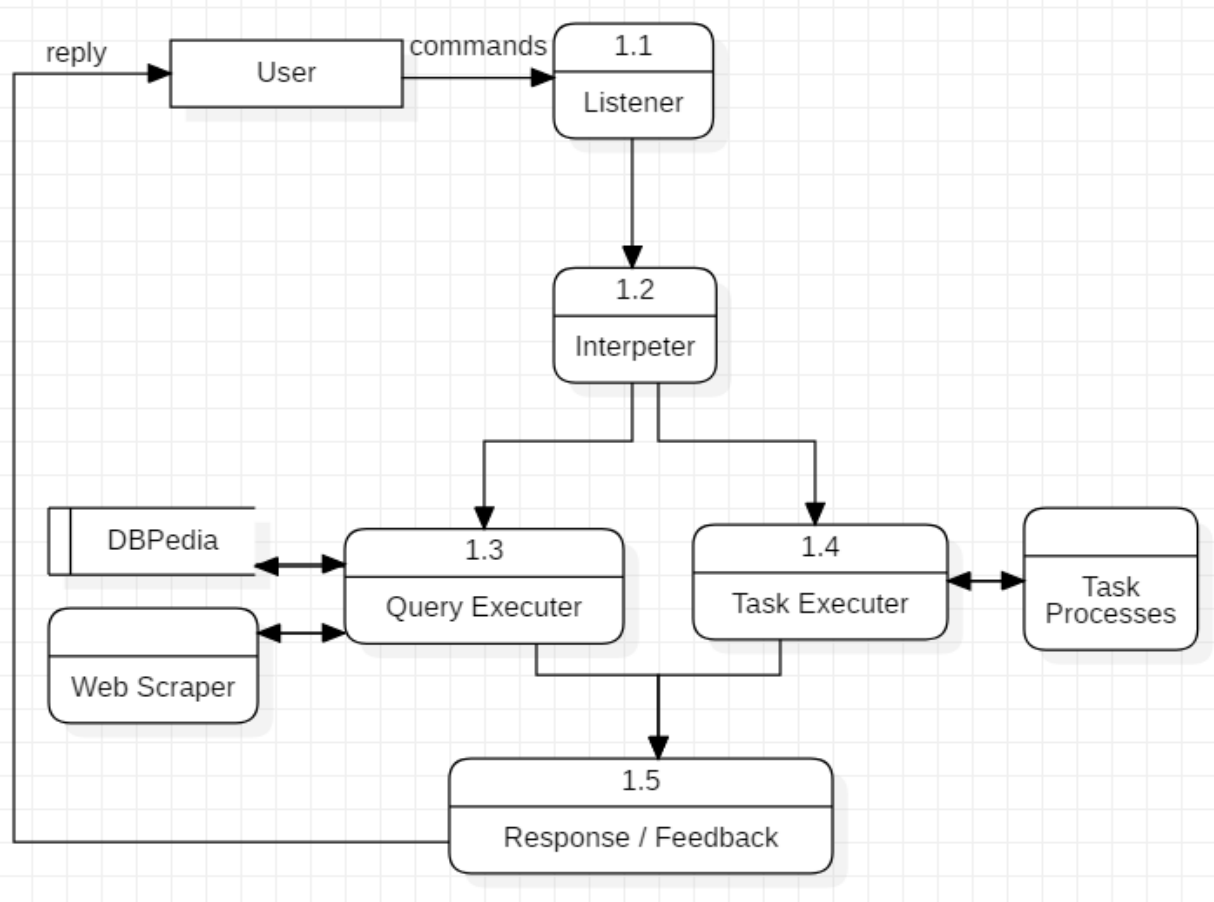
DATA FLOW DIAGRAM

- DFD Level 1



DATA FLOW DIAGRAM

- DFD Level 2



Applications

It can play YouTube videos.

It can play music.

It can do Google searches.

It can curate Wikipedia results.

It can also do courteous tasks like greeting you and telling you the time.

It can also tell you jokes.

Technology Used

PYTHON

Conclusion

- "Virtual Assistant Using Python" we discussed the design and implementation of Digital Assistance. The project is built using open source software modules with PyCharm community backing which can accommodate any updates shortly. The modular nature of this project makes it more flexible and easy to add additional features without disturbing current system functionalities.


Thank You!