

## Project Report: Voice Assistant (Simple Commands)

**Project Title:** Python Voice Assistant with Basic Task Automation

### Overview:

The aim of this project is to design and develop a Python-based voice assistant capable of recognizing voice commands and performing predefined tasks. The assistant responds to greetings, provides the current time and date, opens specific websites, and searches the web for user queries. It also integrates Wikipedia to fetch quick summaries for informational queries.

### Technologies Used:

**Programming Language:** Python

**Libraries:**

- **speech\_recognition** – for speech-to-text conversion
- **pyttsx3** – for text-to-speech output
- **datetime** – for time and date functionality
- **webbrowser** – to open websites and perform Google searches
- **wikipedia** – to fetch concise summaries from Wikipedia

### Concept:

The voice assistant listens for user input through the microphone, processes it into text, and performs an action based on recognized keywords or phrases. For example:

- Saying *"open google"* opens Google in a browser.
- Saying *"what's the time"* returns the current time.
- Saying *"search for cats"* performs a Google search for cats.
- Saying *"wikipedia python programming"* returns a short summary from Wikipedia.

### Project Features:

- **Voice Recognition:** Listens and processes commands in real time.
- **Predefined Responses:** Friendly greeting when prompted with "hello."
- **Time & Date Retrieval:** Speaks and prints the current time and date.
- **Web Navigation:** Opens popular websites like Google, YouTube, GitHub, or searches for any query online.
- **Wikipedia Search:** Provides a brief spoken summary from Wikipedia.
- **Error Handling:** Handles unrecognized speech or network errors gracefully.
- **Exit Command:** Ends the assistant with "exit" or "quit."

**Output Example:**

**User:** *"What's the time"*

**Assistant:** *"The time is 03:45 PM"* (spoken and printed)

**User:** *"Open YouTube"*

**Assistant:** *"Opening YouTube"* (and opens browser)

**User:** *"Wikipedia Albert Einstein"*

**Assistant:** *"Albert Einstein was a German-born theoretical physicist who developed the theory of relativity..."*

**Conclusion:**

This project demonstrates the integration of speech recognition, text-to-speech synthesis, and basic automation in Python. It is an introduction to building interactive assistants and provides a foundation for adding more advanced features like offline recognition, natural language processing, or smart device control.