VOICE ASSISTANT PROJECT REPORT

Project Title:

Voice Assistant for PC using C++ and Python Integration

Objective:

To design a voice-controlled assistant that responds to spoken commands and performs desktop-level tasks like opening websites, playing music, and taking notes using a hybrid C++ and Python system.

Technologies Used:

- C++
- Python 3.x
- speechrecognition (Python)
- pyaudio (Python)
- espeak (Text-to-speech)
- Command line tools (start, notepad, vlc)

Project Description:

This project is a voice-enabled command-line assistant built using C++ for main logic and Python for capturing speech via a microphone. Upon receiving a command, it parses the input and performs the corresponding task, speaking the response back to the user.

It supports commands such as:

- Greeting the user
- Opening websites
- Searching Google
- Opening and Asking ChatGPT
- Opening whatsapp and sending text messages to specific peron
- Taking notes

- Telling time

- Exiting with a goodbye voice

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Features:

- Console-based voice assistant

- Modular code with C++ classes and system integration

- Real-time voice capture and interpretation

- Integrates with external web services (Google, ChatGPT)

- Voice-controlled note-taking

- Hands-free time reporting

- Easily extensible with new commands

Limitations:

- Relies on system-level tools like espeak, which may require PATH configuration

- Accuracy depends on microphone quality and ambient noise

- ChatGPT interaction opens a browser, no direct API call

- No GUI interface currently

Conclusion:

The Voice Assistant project demonstrates practical use of C++, Python integration, and speech APIs. It combines file handling, real-time system control, and modular design for a functional command-line assistant. This makes it a strong candidate for system design or resume-based mini-projects.

Future Scope:

- Create GUI with Qt or Electron

- Add email, calendar, alarm, and file manager controls

- Replace espeak with pyttsx3 for cross-platform TTS