Virtual Mouse and Voice Assistant

Ayush Warang , Akshay Godhale , Vedant Kajrekar, Prof. Rohit Barve
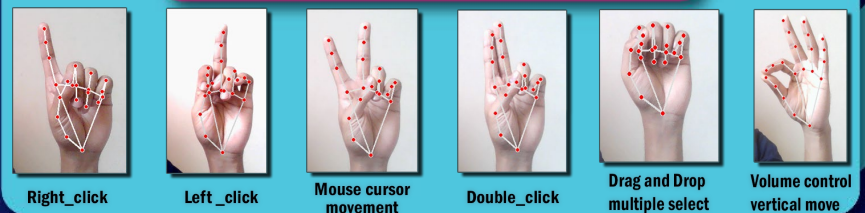BE - INFT (B) Group- ITB09

ABSTRACT

- The "Virtual Mouse and Voice Assistant" project introduces an innovative cursor control system that utilizes a webcam to capture human movements and a voice assistant for efficient system control.
- Advanced libraries like MediaPipe, OpenCV, and machine learning techniques in Python are employed to empower users in navigating their computer cursor through hand motions, enabling various actions such as left-clicking, dragging, item selection, volume adjustment, and brightness control.
- Hand gestures and voice commands are seamlessly integrated to execute a variety of input/output operations, enhancing human-computer interaction.
- Cutting-edge machine learning and computer vision methods are utilized to ensure precise control without the need for additional hardware.

PROBLEM STATEMENTS

The project aims to enhance accessibility by integrating low-cost hardware and advanced technologies like MediaPipe, OpenCV, and voice recognition to enable intuitive control of computers through hand gestures and voice commands
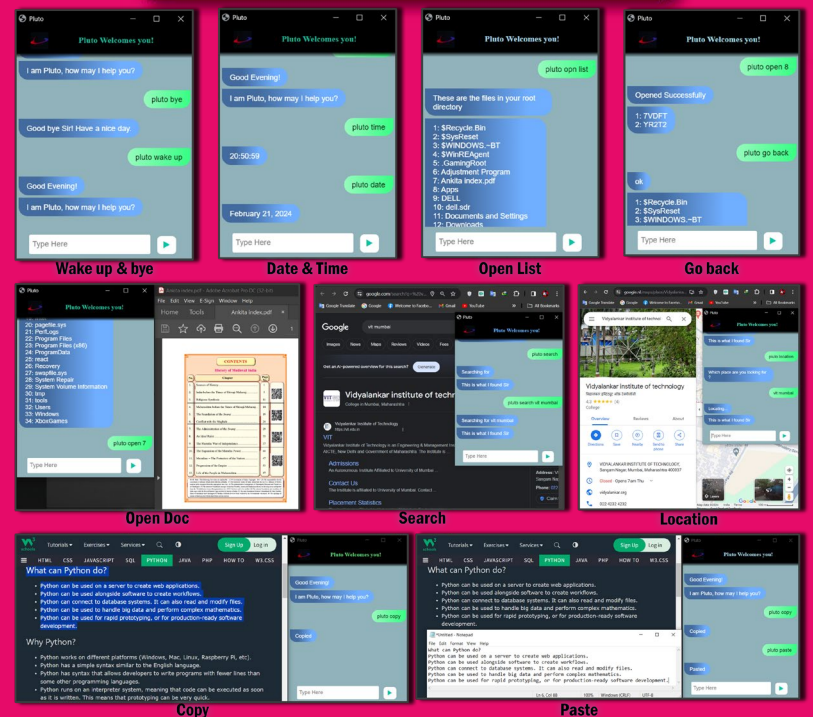
MOUSE FUNCTIONS

Right_click | Left_click | Mouse cursor movement | Double_click | Drag and Drop multiple select | Volume control vertical move

METHODOLOGY

Steps include :
A. Video Stream for Hand
B. Hand Detection
C. Hand Gesture
D. Controlling Pointer Position
E. Controlling Mouse Functions with Gestures

OUTPUT

Wake up & bye | Date & Time | Open List | Go back

Open Doc | Search | Location

Copy | Paste

WORK FLOW

Voice Input
Speech Recognition
Text to speech module
Python backend
API Calls
Content Extracton
System calls
Voice output
pyttsx3

Performing action and reply
Opening files insystem
Date and time
search in google
Copy / paste
open Gesture recoginition
Find Location
Sapi5

CONCLUSION

Hand gesture recognition and voice assistant systems are pivotal for enhancing human-machine interaction. Utilizing frameworks like MediaPipe, based on machine learning, facilitates efficient development of such applications.