HandController WebCam

Gesture-Based Hands-Free Game Control via Webcam

Introduction

HandController WebCam is a Python-based project that enables hands-free game control using real-time hand gesture recognition.
It leverages **MediaPipe** for hand tracking, **OpenCV** for video capture, and simulates keyboard inputs to play games like **Subway Surfers**.

Features

- Control games with simple hand gestures.
- Swipe left/right → move in-game character.
- Move hand upward → jump.
- Move hand downward → slide. Provides a natural and interactive gaming experience.

Technical Workflow

- Webcam captures video frames in real-time.
- MediaPipe detects and tracks hand landmarks.
- Gesture logic interprets hand movement (swipe/jump/slide).
- Simulated keyboard inputs trigger corresponding in-game actions.

Requirements

- Python 3.x
- OpenCV (cv2)
- MediaPipe
- pynput (for keyboard simulation)

Usage Guide

- Ensure your webcam is connected and positioned properly.
- Run the Python script.
- Perform gestures in front of the webcam:
    - Swipe left/right → move character.
    - Hand up → jump.
    - Hand down → slide.
- Observe real-time response in the game.

Workflow

Webcam → OpenCV → MediaPipe Hand Tracking → Gesture Recognition Logic → Keyboard Simulation → Game Control