

Hand Tracking and Game Development

Abstract for PyCK Project

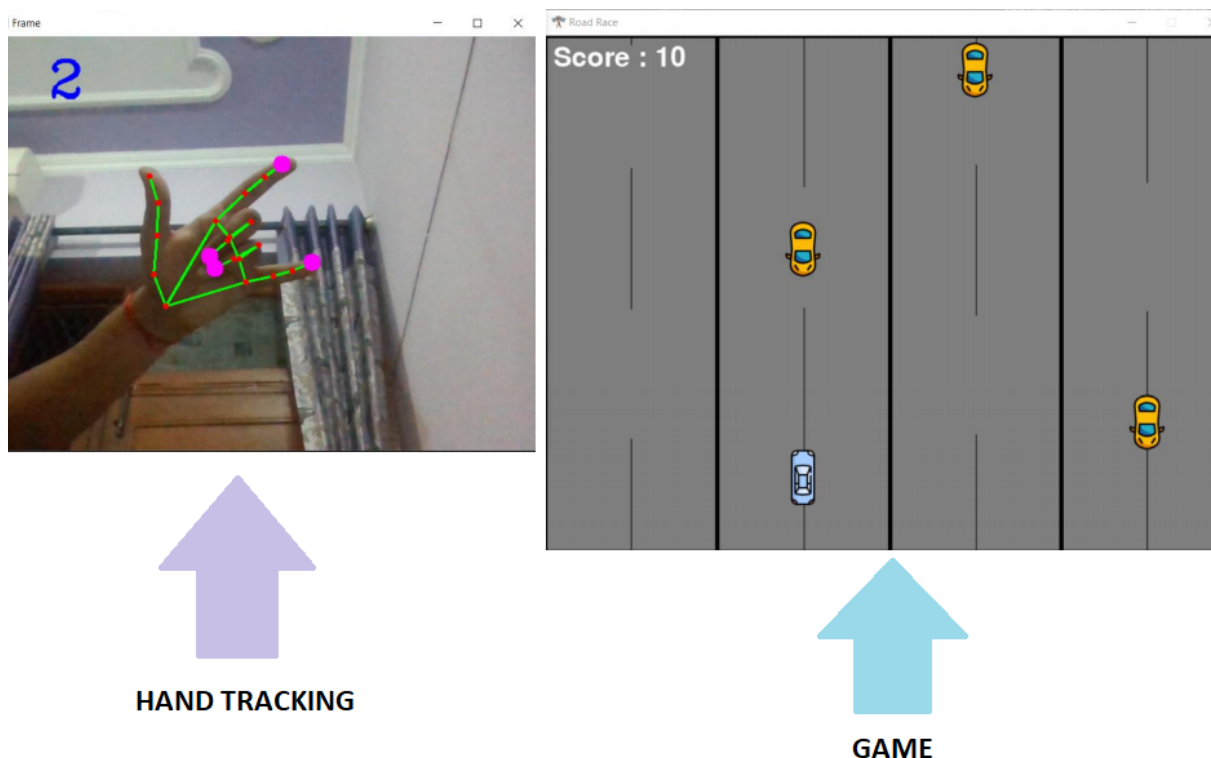
Introduction

We are planning to create a simple camera based application where the commands are given by our hand gestures. Basically we will use image processing features to give commands to play a simple game .

Libraries Used

For image processing we will be using OpenCV and MediaPipe Libraries and for game development we will be using the Pygame Library. We will also be using the random, math and sys modules in our program.

A Brief Overview



We first learned the basics of OpenCV and MediaPipe to connect a hand gesture to a specific command, followed by the creation of the gaming interface. The program allows the user to play the game either using the keypad or by hand gesture recognition. An estimated time of at least 2 weeks will be required.

Timeline

26th to 30th June - Learning to use the OpenCV & MediaPipe library and the basics concepts of Image Processing.

1st to 4th July - Writing the code for mapping hand gestures

5th to 9th July - Developing the Game

10th to 13th July - Combining the codes for hand tracking and game development. Enhancing the program, making sure we wrote the code in the most efficient/pythonic way possible. Testing the game and Debugging if required.

Motivation

This is the first project we are doing using Python. We both are interested in Image Processing and Game Development. Therefore we felt that it would be a good start for us to create a project requiring both these skills.

References

- PyCK Course Lectures and Notes
- ER101 Lectures and Notes based on image processing using OpenCV (Electronics and Robotics Club, IIT Bombay)
- Documentation of OpenCV, MediaPipe and Pygame
- Pygame Tutorial for Beginners - freeCodeCamp.org (YouTube)