Hand Tracking Module & its Applications

A better module for smooth implementation.

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Overview

The Hand Tracking Module is easy to be integrated within any project. It is based on Python 3.9 and 3.8 and supports python 3.9 and above. The module uses extensive libraries such as newly launched OpenCV 4.6 for best results and Mediapipe 0.8 to track hand movements and points more specifically. The applications which include volume control, gesture control and mouse pointer control uses libraries Pycaw, camelot, autopy, etc.

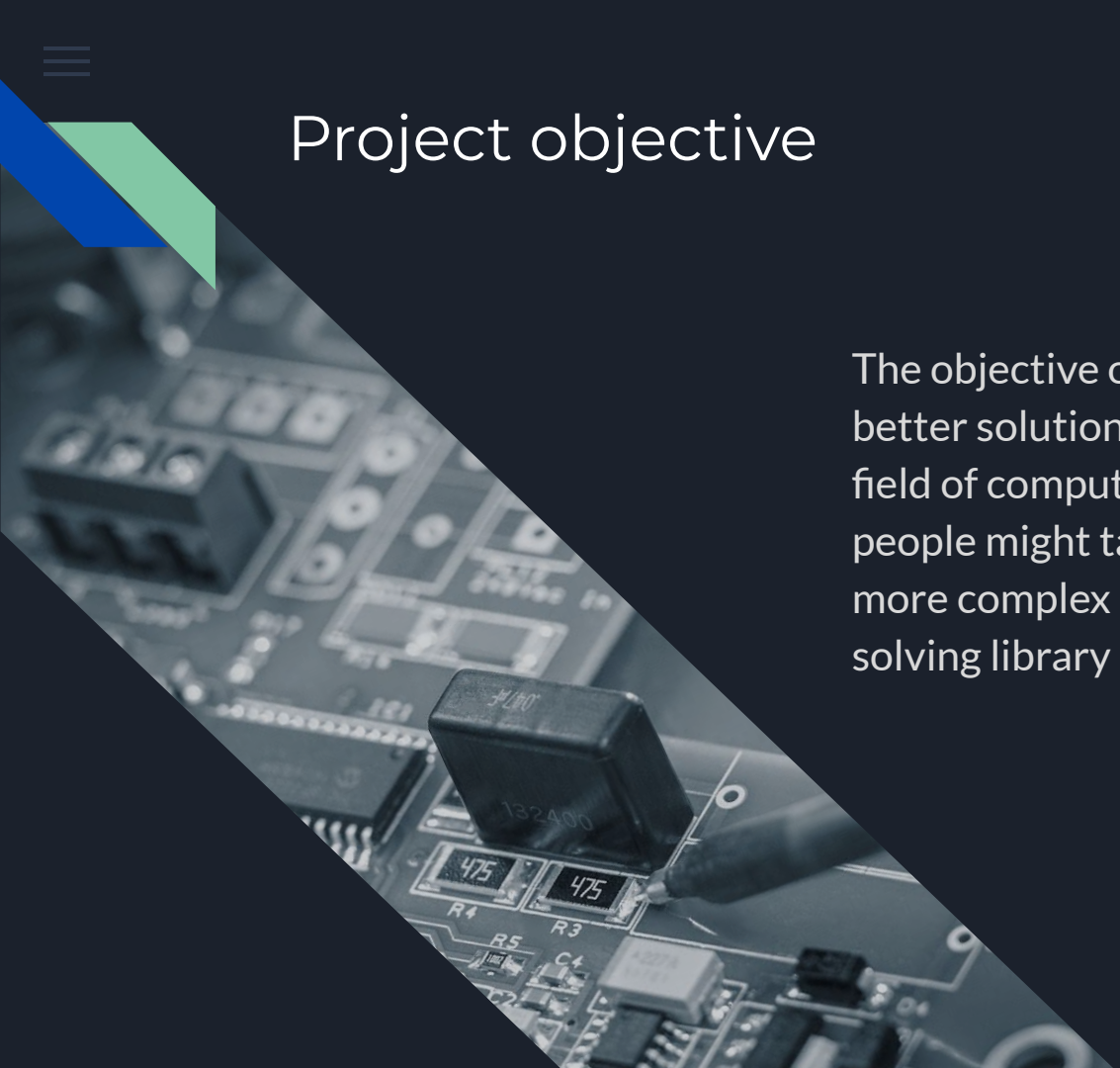
Contents

Understanding the problems

01 With more new libraries and more new dependencies, the methods keep changing .

02 Update in language versions causes huge havocs within the libraries and therefore some methods have to be changed by the creators, for someone rather beginner, it’s quite difficult to get around that

Project objective



The objective of this project is to provide a better solution and support to beginners in the field of computer vision. If the entry is smooth, people might take effort to learn and solve more complex issues further , rather than just solving library or dependencies issues.

Target audience

Our target audiences are beginners who have just started and want to start and they can just go to out github profile and clone the project to get started as soon as possible .

The scope of this project is to serve a larger audience through its applications starters later on.

The Module

The Hand Tracking Module

The module is based on python 3.9 and 3.8 and uses libraries numpy, Mediapipe 0.8 and Latest OpenCV 4.6.

It tracks palm and produces Hand Mark Model using ML pipeline consisting of multiple models working together. There are total 20 distinctive points to using which we track palms.

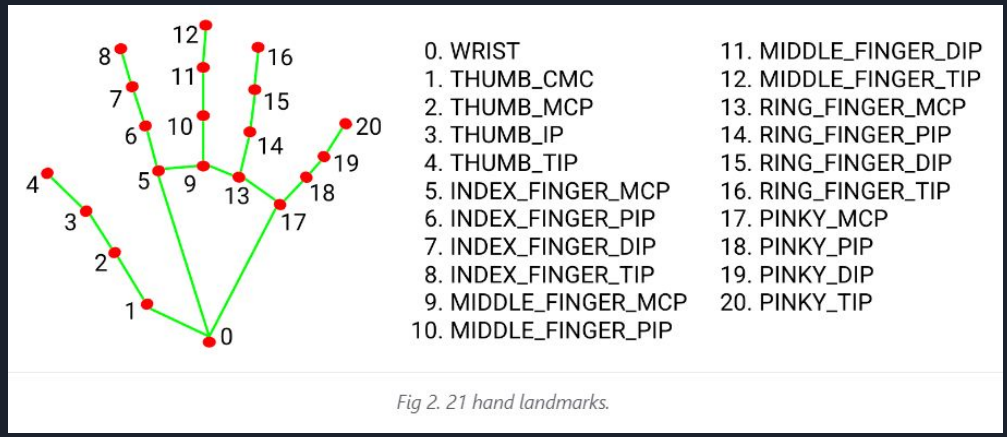
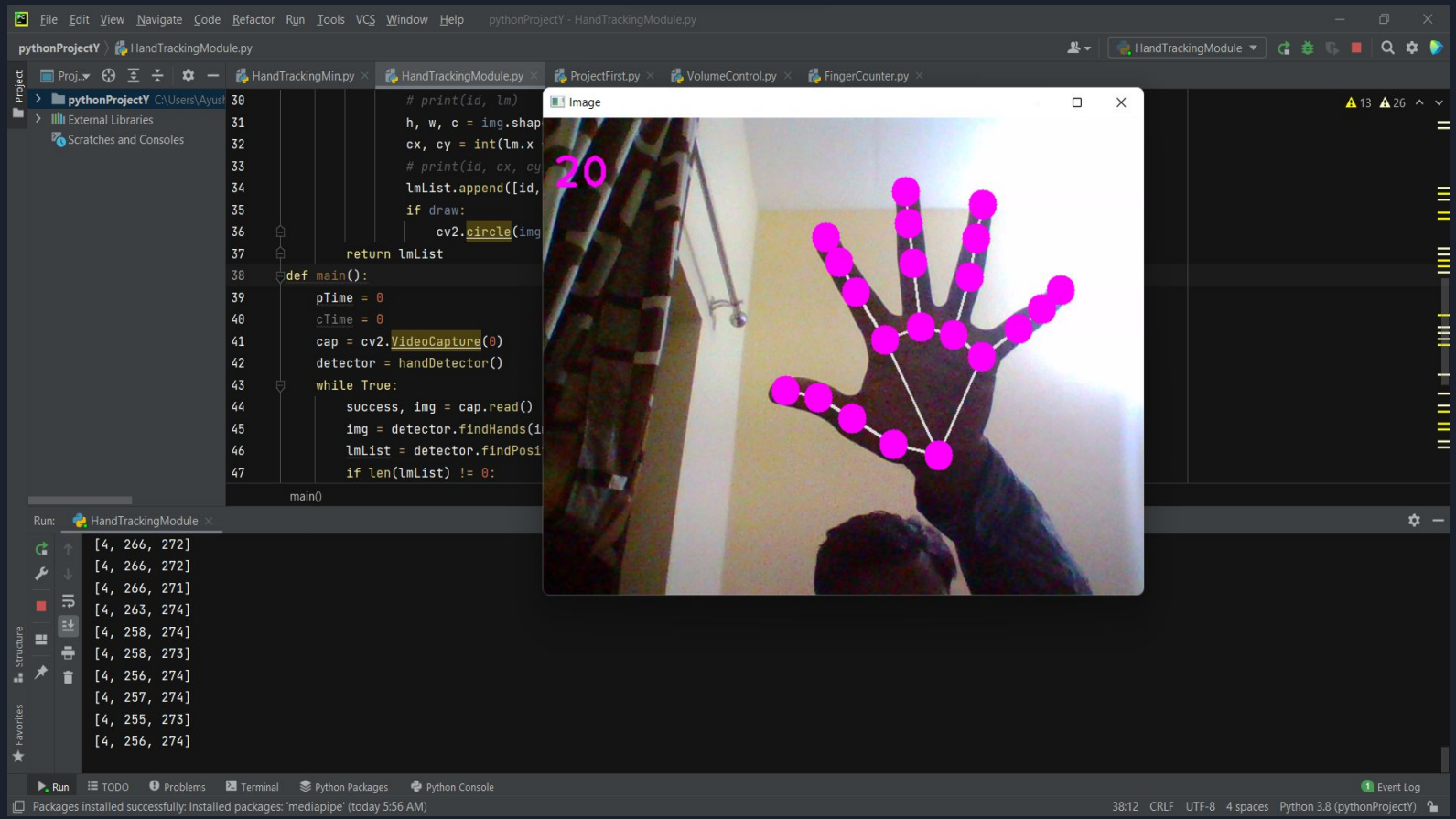


Fig 2. 21 hand landmarks.

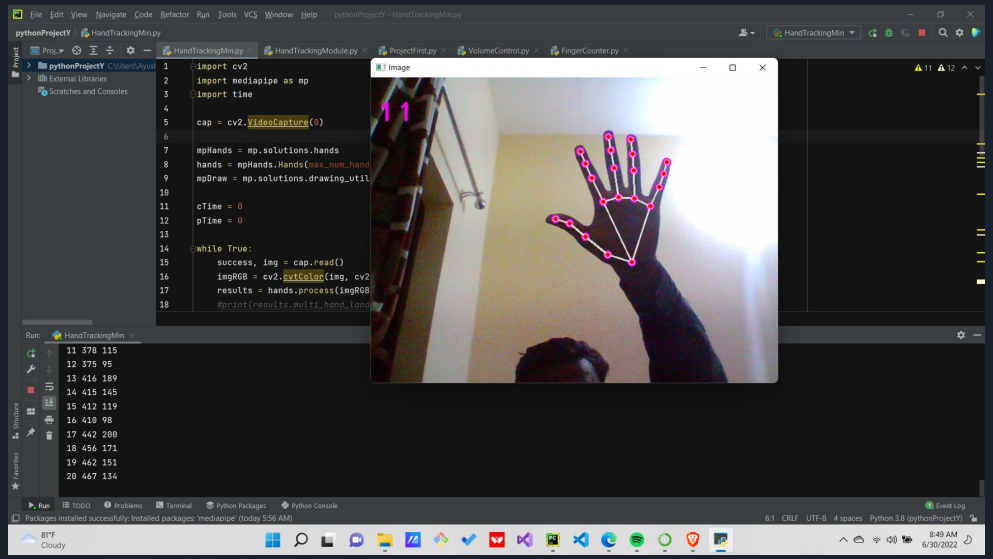


Hand Tracking Module

Application 1

Basic Palm Detection

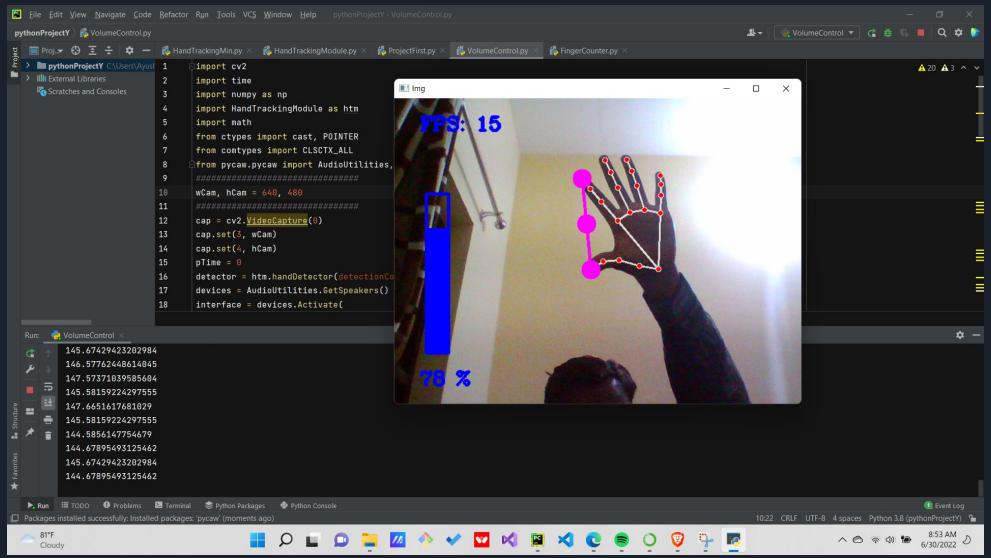
This is the basic first hand tracking application which simply implements Hand Tracking Module.



Application 2

Volume Control

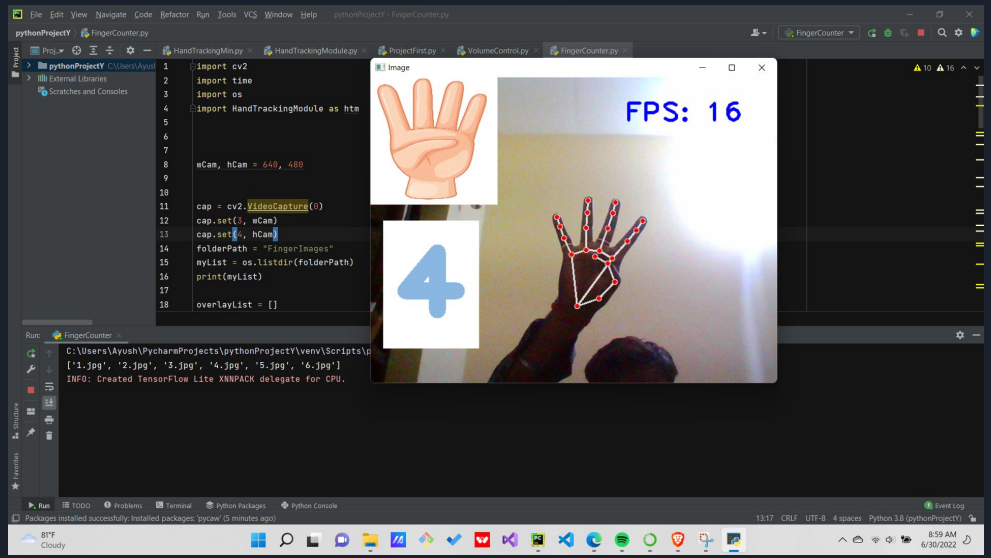
This is the volume controlling project using gestures. It uses hand tracking module as well as Pycaw which is a volume control library.



Application 3

Finger Counter

This is the Finger Counter project using gestures. It uses hand tracking module and finds out number of fingers. It can be very extensive./



Thank you!