A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is a light green color. They are positioned diagonally, with the blue one in front of the green one.

Air Strokes Project - using OpenCV

By: Khyati Parashar



Problem Statement

This can be used by teachers for effective online teaching, as at times a teacher has no direct access to any black/white board for explaining things.

This can come in handy in such situations. As drawing in air gives you more control over the movements as compared to using mouse/graphics pad for drawing/writing.



Project Description

Given the real time webcam data, this air canvas-like python application uses OpenCV library to track an object-of-interest and allows the user to draw by moving the object.



Requirements

Software requirements : Python 3.7

OpenCV library

Any editor that supports python

Hardware requirements : Webcam for live video streaming

Laptop/PC to code



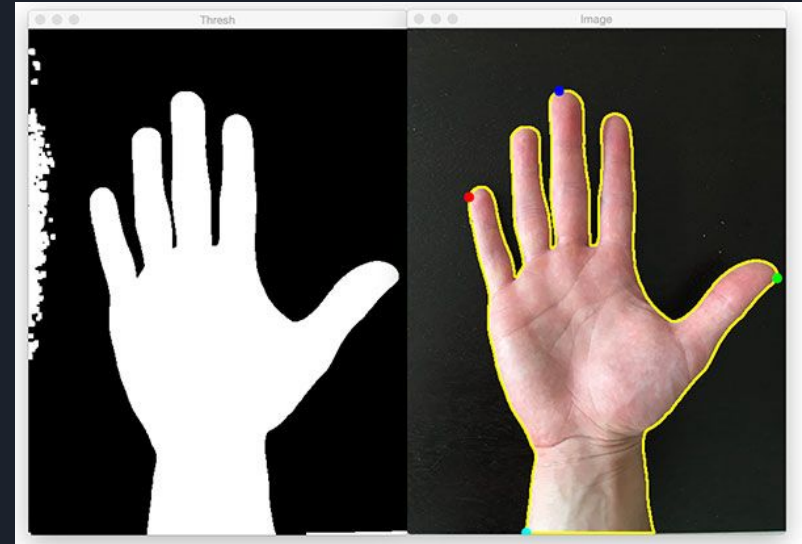
A Quick Intro To Video Tracking

Video Tracking :-

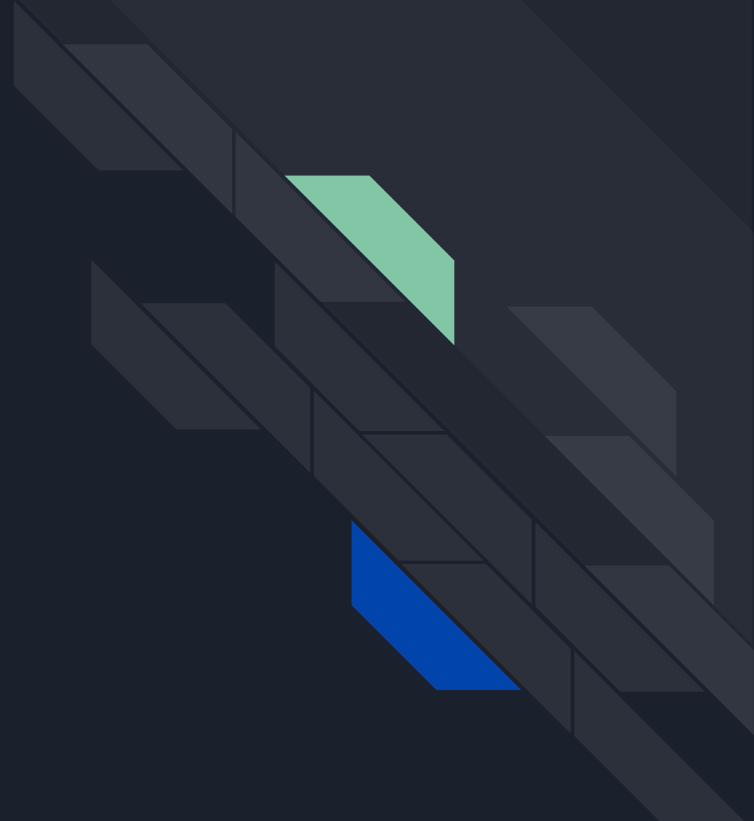
Video tracking is the process of locating a moving object (or multiple objects) over time using a camera. It has a variety of uses, some of which are: human-computer interaction, security and surveillance, video communication, augmented reality, traffic control, medical imaging and video editing.

What Are Contours?

Contours can be explained simply as a curve joining all the continuous points (along the boundary), having same color or intensity. The contours are a useful tool for shape analysis and object detection and recognition. In OpenCV, finding contours is like finding white object from black background.



**Contour
Features That
Can Be Used In
This Project.**



Minimum Enclosing Circle

We find the circumcircle of an object using the function `cv2.minEnclosingCircle()`. It is a circle which completely covers the object with minimum area.

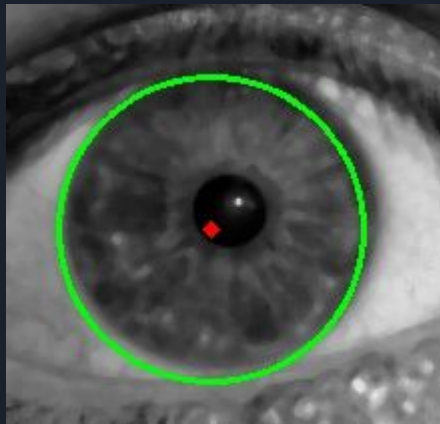


Circle

cv2.circle()

cv2.circle() method is used to draw a circle on any image.

Syntax: cv2.circle(image, center_coordinates, radius, color, thickness)





Steps Involved In The Making

Step 1: Import the necessary libraries and initialize variables that are used.

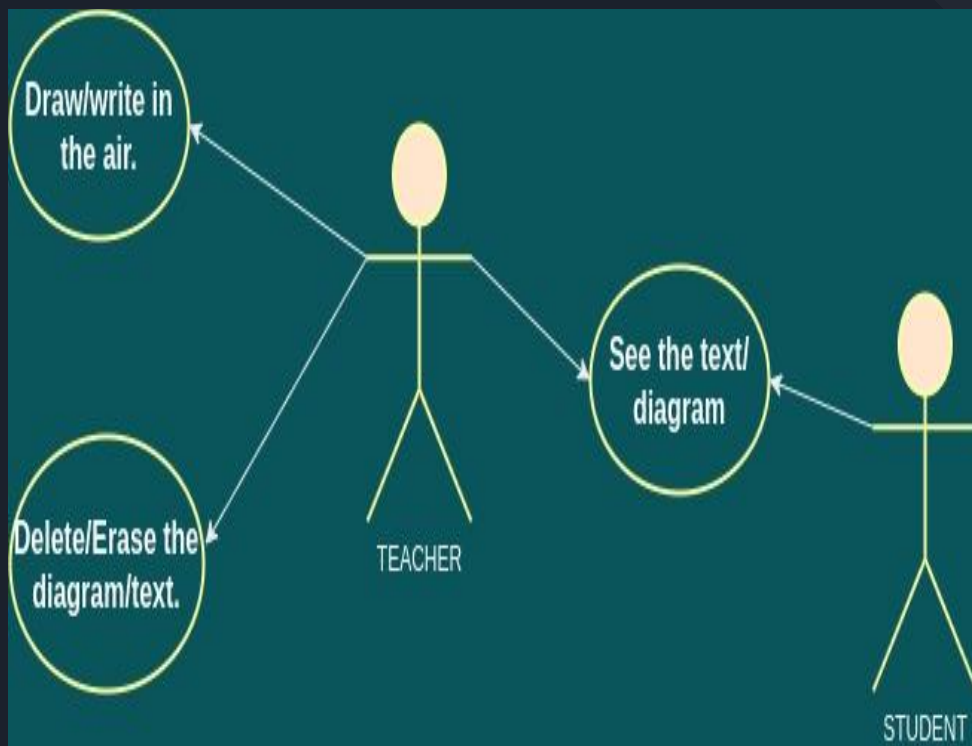
Step 2: Setup The Paint Interface.

Step 3: Start Reading The Video (Frame by Frame).

Step 4: Find The Contour-Of-Interest.

Step 5: Start Drawing And Store The Drawings.

Step 6: Show The Drawings On The Screen.





Pros and Cons

❖ Pros:

- Cost effective
- Easy to use

❖ Cons

- Object of interest has to be within the specified color range
- That specified color should not be present elsewhere in the background

THANK YOU

