IETE hack off

ARWrite – Air writing using object based motion following and Image Processing

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Goal: Make Education Easy All Over The world

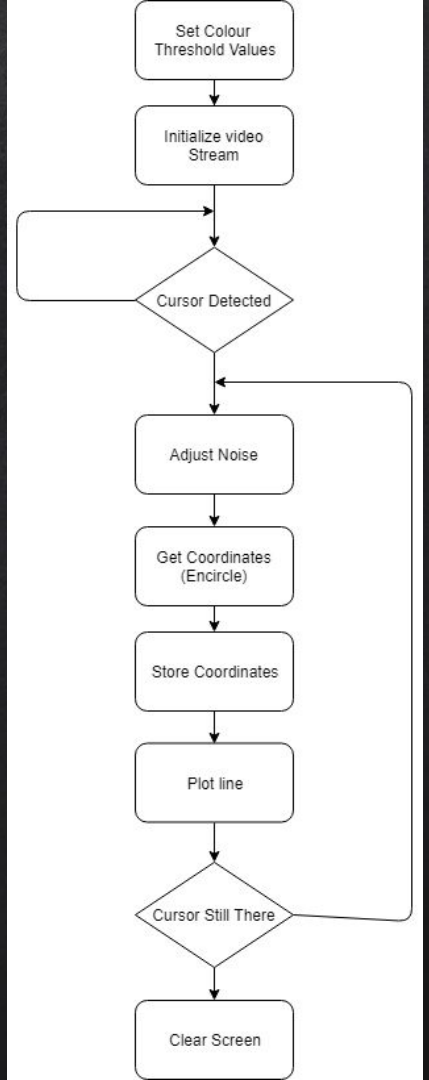
INTRODUCTION:-

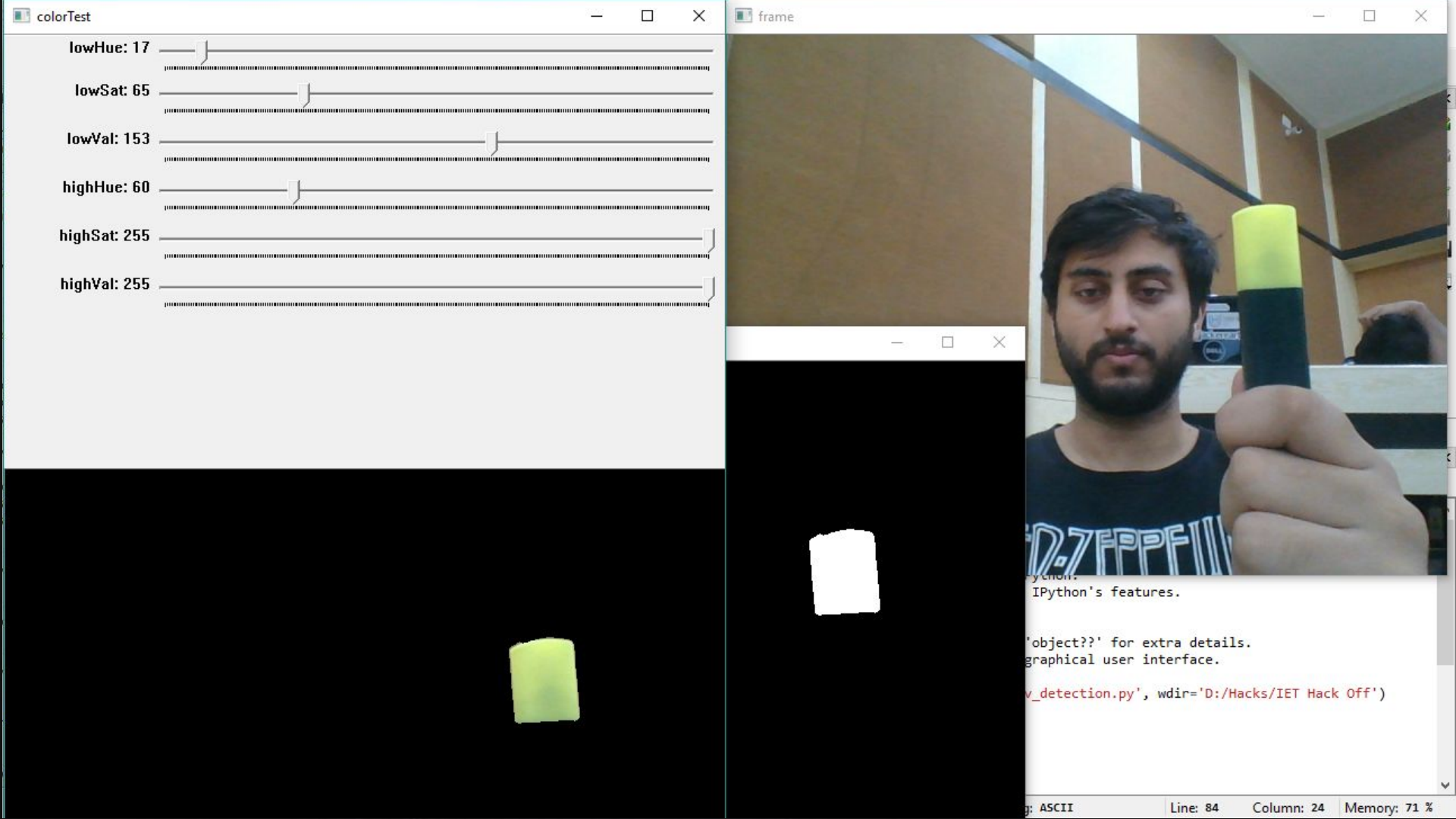
- Have you ever had a moment of inspiration but have nothing around you to write your idea down? Have you ever thought about making notes anywhere and anytime without a pen-paper and being able to project what you write to multiple screens for presentations?
- We had the exact same thoughts during our recently concluded semester exams, which would have helped improved our preparation considerably.
- Therefore we intend to create a solutions for the above by using a raspberry pi, a camera and python programming. It will help us quickly visualise what's in our heads. This concept could also be incorporated into our smart classes.

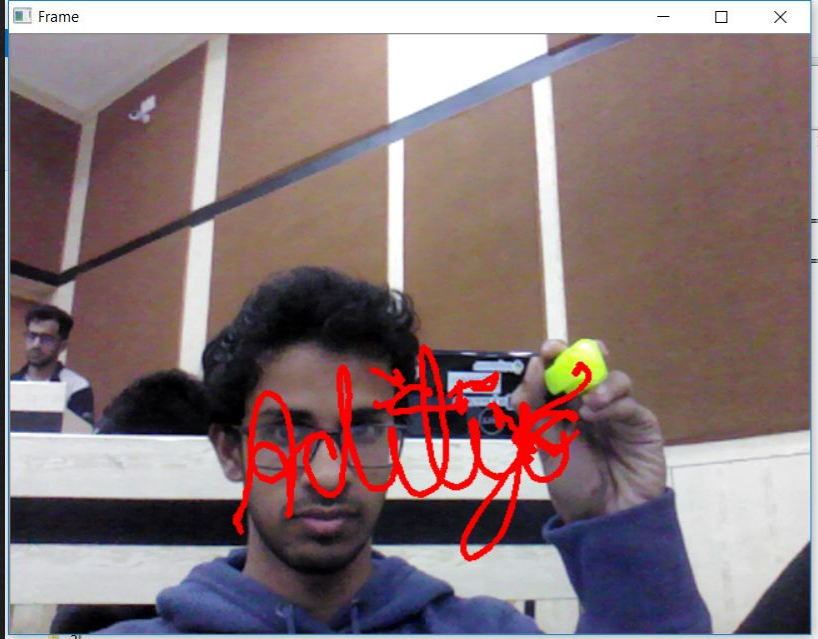
Proposed plan of action

- Emulate writing in the air with smart glasses.
- When you move your hand or pen, the camera will trace your movement and display whatever shape you create.
- To build our prototype, we will use a Raspberry Pi, possible mounting it on our heads as a cap since we can't access actual smart glasses and display it on a monitor.
- The movement will be recorded by using colour based object detection and tracking with OpenCV.

BLOCK Diagram




colorTest
lowHue: 17
lowSat: 65
lowVal: 153
highHue: 60
highSat: 255
highVal: 255
frame
IPython's features.
'object??' for extra details.
graphical user interface.
v_detection.py', wdir='D:/Hacks/IET Hack Off')
ASCII
Line: 84
Column: 24
Memory: 71 %



bit (AM

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Ln: 7 Col: 0

```
# resize the frame, blur it, and convert it to the HSV
# color space
imgHSV=cv2.cvtColor(frame,cv2.COLOR_BGR2HSV)
```

Network

4 items 1 item selected 3.23 K

Future enhancements:-

- We could improve this current technique by live streaming it through a pi cam and a raspberry pi or smart glasses to wirelessly and boardlessly project what we write straight onto your screens.
- This can also be streamed into mobile phones which we will be looking to explore in the future. This will change the way presentations are made and learning is done.
- We could also improve the versatility of the cursor/stylus to allow people to use even their fingers as a pen thus completely eliminating the need of paper,pens or even a physical screen.

Android App

We will also create an app which will eliminate the need of the Raspberry Pi. It will also make the setup cheaper.

THANKS!

Any questions?