Alphabet Ball Detection using OpenCV Sai Kiran Reddy Mekala

Step1: Get frames from the Video and obtain parameters like fps(Frames Per Second), Duration of Video, Total No.of Frames.

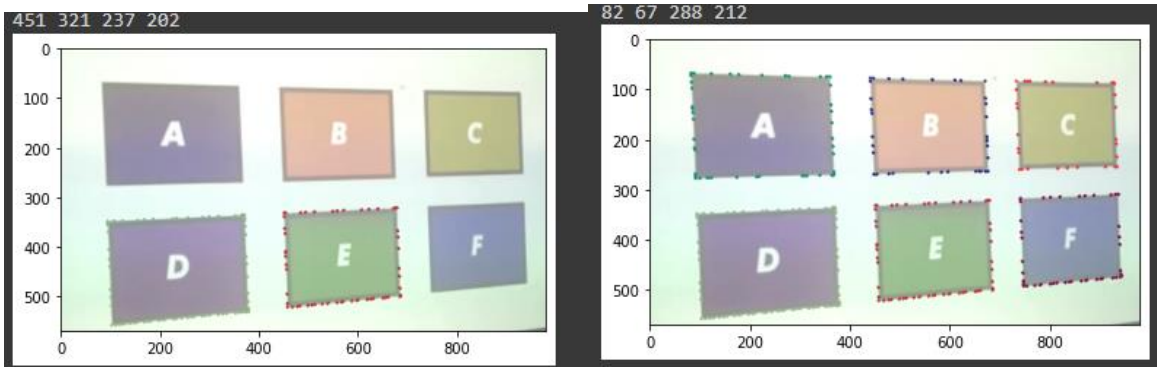
Step2:Calculate the Bounding Boxes for the alphabet boxes using findContours function.

As the boxes are Rectangular in shape, I used SOBEL-X and SOBEL-Y (horizontal and vertical filters) to determine the edges.

Use different colors to mark the contours we can identify the alphabets.

Drawback: I have noted the bounding boxes manually, but we use AI alphabet detection model by passing the cropped image of the bounding boxes.

Note these values in a dictionary



Bounding boxes for “E”,”A” values as x,y,w,h respectively.

Step 3: Calculate the differences between adjacent frames so we can know the ball movement.

a. Use threshold between 130-250 to remove the shadow of the ball.(Found after trail and error)

b. Use Dilation to improve the ball radius as it get distorted because of projector lights.

c. Use find contours and use constraint ContourArea that helps detecting ball leaving unuseful things.

d. Note down the dimensions along with the frame number.

Step4: Check if the ball Lies inside the Bounding area of alphabet.

Step 5: Print the output.