Journal Report 2

9/9/19-9/16/19
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Daily Log

Monday September 9

I worked on hyperparameter tuning for the threshold value for the binary threshold. The scoreboard was blending in with the color of the actual basketball court, so the rectangle was not identifiable. I tried to work with different threshold values and blur values, but there was not much difference.

Wednesday September 11

Because contour approximation was not working well, I researched on other ways I could find the scoreboard. I decided on using a tracker and for a human to select the scoreboard the first time it appears. I wanted the tracker to track the scoreboard, and see when it goes away. I played with the code and tested out different sizes of boxes for the scoreboard. I finished coding the tracker, but there were still some adjustments needed because when the scoreboard went away from the screen, the bounding box would still stay on the screen.

Friday September 13

I continued my work in using a tracker to identify the scoreboard. To eliminate the problem where the bounding box stayed on the screen when the scoreboard was not on the screen, I stored the original frame where the scoreboard was first identified and each time the bounding box's center was more than 10 pixels off of the previous frame's bounding box's center, I instantiated a new tracker that only had the original frame in it.

Timeline

Date	Goal	Met
Sept 9	Download all needed software and get test video	Yes. Downloaded OpenCV and Darknet. Started on finding scoreboard
Sept 16	Identify the scoreboard to find when live play is in session	Yes. My program can identify the scoreboard when it is on the screen and can notice when it leaves the screen.
Sept 23	Test YOLOv3 on Python environment and fix install if not correct	
Sept 30	Apply YOLOv3's pre-trained sports-ball neural network on my video	

Reflection

When I initially searched the internet, contour approximation looked like the best idea to track a rectangle. But when I implemented it on my video, the scoreboard was not distinct to the court or fans in the stands. That is why I switched to tracking. Although the first use of tracking is not to identify whether an object is visible or not, I was able to use a MOSSE tracker and some more conditions to determine whether the scoreboard was on the screen or not.