Journal Report 8
10/28/19-11/8/19
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Daily Log

Monday October 28

I created my presentation for Tuesday, and planned out what I was going to say.

Tuesday October 29

Researched more on OpenCV shape detection. Found the function approxPolyDP would be helpful to detect shapes in the edge detected image. Presented my project, and listened to other presentations.

Thursday October 31

Listened to the rest of the presentations. Tried to find ways to identify squares on the cube independently. This way, I can determine the color by averaging the colors of many random points in each square. Researched Hough transformations and how they work. They help isolate features of a particular shape within an image. They also tolerate gaps in the boundaries, and work well with outside image noise.

Wednesday November 6

Looked at old CV Lab with coin detection, and reviewed the method I used to highlight the outlines of the coins. Researched more about how Hough Transformations work and the math behind it.

Thursday November 7

Started coding the Hough Transformation using parts of the CV coin Lab. This time I have to detect squares for the stickers instead of circles for the coins. Researched different implementations of Hough Transformations to detect shapes.

Timeline

Date	Goal	Met
Today minus 2 weeks	Upload a sample image to program, and be able to get a picture of just the edges on the image. Possibly, zone out everything but the cube outline and the lines separating the squares.	Yes, can clearly see the edge detected image. Might edit to make it more clear if needed.
Today minus 1 weeks	Identify the colors of the centers of the squares in the visible edge detected image. Use this to determine the orientation of the cube in the image.	No, turned out to be harder than I expected. It's hard to determine the colors of center squares.
Today	Identify the coordinates of many points in the centers of the squares in the visible edge detected image.	No, it was hard to find coordinates of points in each of the squares just based on the edge detected image. Need to distinguish squares from each other.
Today plus 1 week	Finish implementing Hough Transform or Shape Detection on the edge detected image	
Today plus 2 weeks	Use this to find the coordinates of many points in each of the squares on the cube.	

Reflection

This week, we had presentations on our project proposals, which took up a good amount of time. From the feedback, I learned how to make an efficient SysLab presentation. For my project, I got a clearer idea of how I'm going to find the coordinates of points in each square on the cube. Before, I thought it would be easy just with the edge detected image, but now I realized that I have to be able to distinguish the squares from each other. Shape Detection or Hough Transformations will allow me to do this. I did more research on Hough Transformations, and decided that this is probably the way to go.