Journal Report 11
11/26/19-12/5/19
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Daily Log

Tuesday November 26

I started working on image rectification, and created the first version of the Readme file for my Git repo. With the transformation matrices, OpenCV handles most of the work, so I had to read through the OpenCV documentation and make sure I was correctly calling the function. I also accidentally deleted the Unity project, so I had to find out how to add a file from an earlier commit back to the repo.

Monday December 2

I spent most of class fixing the Readme for the Git repo based on the issue. I also worked a bit more on rectification.

Tuesday December 3

I finished the rectification, and started working ahead on using the blockmatcher to finally compute disparities and get the point cloud working. I read about the different algorithms offered by OpenCV and the benefits of each. I also finished adding a section to the readme that I forgot to earlier.

Thursday December 5

After some further research, I settled on the Semi Global Block Matcher (SGBM). Compared to a standard Block Matcher (BM), the SGBM is slower, but provides better accuracy for the generated point cloud. I worked on inputting the test images correctly and pre-processing them for block matching.

Timeline

Date	Goal	Met
Week of 11/21	Fix OpenCV library linking and get chessboard detection working	Yes, the OpenCV libraries are properly linked and chessboard detection works
Week of 11/28	Calculate transformation matrices from chessboard corner detection for rectification	
Week of 12/5	Continued from previous week	Yes, I was able to successfully complete all calibration steps, and I worked ahead on block matching
Week of 12/12	Finish block matching and point cloud generation	
Week of 12/19	Finish any necessary parts for the winter goal	

Reflection

I made very good progress again this week and managed to even work ahead slightly. I might be able to finish my winter goal slightly ahead of schedule, and I left the last week before break free in case of any issues coming up that might take a while to fix. If I have extra time, I'll work on cleaning up the code and compiling it to a DLL so it can be used with Unity. After winter break, I can start working on using the stereovision algorithm with the self-driving cars.

Winter Goal

My goal is to have working point cloud generation, and to be able to store these distances at different pixel locations.