Lab Report 6

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February 26th, 2021

Summary: Hours Spent: 14.5

Week 7:

Saturday: (4.5 hrs) I collaborated with Zachary Hinnen in efforts to solve the IMU which he was struggling with as well. Due to this my IMU has finally started working. There is a problem where my robot is initially facing 180 degrees with my calculations instead of 0 like my original solution. This may cause for difficulty in translating my solution when I reach that state.

Monday: (3 hrs) I have changed my IMU function to where instead of it publishing an entire Odometry call with 40+ values, it published 1 float value that is the calculated IMU found. This is done through the same calculations as getting odom values, just I do not publish an actual odometry function. I also fixed an issue with my position sensors where I did not know why it was stopping me short.

Tuesday: (2 hrs) I have looked into camera, but I am having difficulty with knowledge of what to pass, instead of being stuck I have decided to start making my robot do everything that it needs to without the camera yet.

Wednesday: (3 hrs) Today I have not worked 4 straight hours but a combination of separate times to add up to this. I have been playing with the way the files work, it is one large while loop that all is connected to a timestep, and because we need to use the callback each loop in order to get new values it makes implementing things much different than my Webots implementation. I have implemented a very large function that has my robot rotate in 360 degrees and then stop, then it starts traveling 10 inches into the next square where it stops and rotates again. It is not working flawlessly but it is really fun doing this! I wrote a separate function that changes my key direction (0, 90, 180, 270).

Thursday: (1 hr) So my robot was able to do its rotations on a whole side! When it hit the wall, it turned and then worked for only the first square of that side. I am going to try and fix this problem.

Friday: (1 hr) My fix for the problem I was having ended up making my robot spin in an infinite loop on the first square. So, I took a step back in terms of progress but this is so I can take 2 steps forward! I learned the root of my problem is that my robot changes the speeds when it hits a specific angle so that it moves forward. But my velocity callback only gets passed every other loop iteration, so it spins past the accepted window and then changes.

Next Week:

My IMU is complete! I need my camera to work in order to see the distances from each pillar. That is only necessary for understanding which square I am in. So that isn't something I need to do before implementing ways for my robot to move through the map. I enjoyed working on this movement problem this week. I want to have it to where my robot can go through every square and rotate 360 degrees before I attempt more of my camera. This will be very difficult as it took some new techniques to make my robot do what it does now. I need to take some time for other classes but after that I hope to have my robot moving the full map without camera implemented yet.