Individual Lab Report #04

Progress Review #3

March 30th, 2020

Alex Withers

Pit Navigator

Team G: The Pit Crew: Awadhut Thube, Justin Morris, Alex Withers

Individual Progress

Pit Navigator

Simulator Update

For the Pit Navigator project, I have adopted the WeBots simulator from HASH Robotics for use to test our software. The simulator can communicate with ROS, has a dedicated discord server, and decent tutorials online. I continued editing the world model; removing the old pit, replacing the Kingsbowl pit with the Lacus Mortis pit, moving the rocks outside onto the surface of the moon, adding shadows, and adding a texture to the Lacus Mortis model.
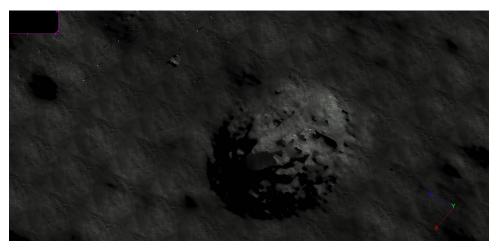

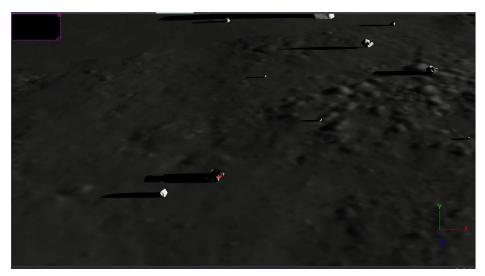Figure 1: Lacus Mortis pit is in Simulation

Figure 2: Shadows of objects ion Simulation

Challenges

Pit Navigator

Simulation

While editing the simulation world is a moderate challenge, the largest challenge has been with getting the code to be mobile. Figuring out what is and isn't part of the sim has been difficult and managing to add it to GitHub with installation instructions was an undertaking in itself. There are still submodules that make it difficult to clone, set up and push the code.

COVID-19

COVID19 has been a major disruption in lives that are not mine. Turns out I was already practicing social distancing, and the typical struggles are non-existent for me. What has been troubling has been making sure the rover and equipment is at one of the apartments, and the sim needed to be moved off of the MRSD computer #3. While the sim code has been successfully moved to my home computer, the lack of a graphics card in use for the VM software makes each time step render very slowly, less than 0.01x real-time. I will be looking into SSH into the computers in the lab to run the sim more quickly.

Teamwork

Pit Navigator

Individual	Main	Sub	Description
Alex W.	Simulation	Building Blue	Fleshing out the simulation visuals and adding some parts to blue.
Awadhut T.	Finish Brinksmanship Stereo cloud	Set up TX2	Finishing the pipeline for stereo matching and brinksmanship code, setting up the TX2.
Justin M.	Build Blue	Order parts	Building Blue 2 and ordering the parts to build blue 2.

Plans

Pit Navigator

Simulation

I will make sure the sim is easier to build on each computer as I keep needing to switch the computer it resides on for some reason or another. I will figure out how much needs to get done to run the local navigation planner and build a world map for the simulation.

Test Plan

I will create the test plan for the April 3rd brinksmanship test with guidance from Red. It will be largely data gathering so that we have rosbags to test on for developing stopping procedures.