**Friday, January 12th, 2024**

Yesterday, I revised and practiced my presentation. Today, before the presentation, I put a few finishing touches on it and ran through it in my head before it was my turn to present. I also did some research on how I will be implementing the reinforcement learning on the real car. I started with the OpenAI Gym API. An Environment in Gym must define four functions:

1. Step(): Updates the environment, returns observation and reward. Since I’m running this on a real car, not a simulation, I have no control over “stepping through” time increments reliably. Instead, I will be sampling observations and rewards at a consistent framerate.
2. Reset(): Resets the environment to some initial state. Returns the observation and reward at that initial state. This is probably the most difficult part: I will need to figure out how to return the car to some known position on the track after I know it’s exited the track. So, I will first need to determine a criteria to know that the car has left the track, and then be able to return it to the starting line no matter where it is.
3. Render(): Obviously, this is meant for simulations. I can use it to provide debugging output.
4. Close(): Again, this is mostly important for simulations relying on an external executable to run the simulation. In the car, I will use this function to close handles on the camera, LiDAR, and other peripheral devices.

Ryan presented and I wrote feedback for him on a sheet of paper. Since his was the first presentation, Dr. Gabor’s critique lasted until the end of the period. I will be presenting next class.

**Wednesday, January 17th, 2024**

I presented my presentation. The feedback I received said that while my presentation was extremely informative, I could have done a better job of making eye contact with the audience instead of looking at my computer. People liked that I had a table of contents, although some people found the video I embedded distracting. I also need to make sure that I clearly explain the problem, as it may be obvious to me, but that’s only because I’ve been researching the topic for months. The audience at TJ Star will be less technically oriented than today’s audience, so I will need to account for that when working on my TJ Star presentation.

I also watched Ajit’s presentation. His fencing demonstration tied in nicely with what he was presenting on his slides. I liked how he provided some personal background about his experience with fencing.

**Thursday, January 18th, 2024**

Krishnan set up the router, so it should have access to the Internet now. I will test it out tomorrow if school isn’t cancelled due to the snow.