

Daily Log

Monday October 7

Researched more into Traxxas 2056 turning servo and found more about it's pulse width range and we are considering modifying our existing code or hard code the pulse widths by writing 1s and 0s for a certain amount of time. We also wired up the breadboard with longer wires and removed the radio cover on the car to make the servo easier to work with.

Wednesday October 9

Worked on getting wheels to turn left or right. We were able to get the wheels to rotate from left to right and back again, but today we worked isolating pure left or right motion. We deduced that the change in values passed to ChangeDutyCycle may be affecting how responsive the servo is. We also accidentally found out how to center the wheels.

Friday October 11

Continued working on getting wheels to turn left and right. We defined 9 functions, each with one of 3 different start states and end states: left, mid, and right. For example, we had functions such as left to center, center to right, and left to right. We had to use this methodology because of how the ChangeDutyCycle function responded to being incremented. Through trial and error, we found that looping to a value of 30 was full left and looping to a value of 0 was full right. Also tried to get Raspberry Pi to connect to the internet for the last half hour, but John B. says that he might have a solution for us next class.

Timeline

Date	Goal	Met
Today minus 2 weeks	Find/Place an order for a Raspberry Pi and have the Lidar data visualized	Yes, we have acquired a Pi, but we still have not confirmed our data visualization is accurate (seems reflected)
Today minus 1 week	Hook up the Pi to the Rustler, and write a program to steer the car from the Pi.	Yes, we have a system that is much better than before but testing is still required
Today	Have the car move on its own via the pi interfacing with the esc	No, we have not started
Today plus 1 week	Create a way for the Lidar to provide data to the Pi and have the car gather data by itself	No, we have not started
Today plus 2 weeks	Build a program where we throw a object in front of the car and avoids the obstacle	No, we have not started

Reflection

We now have a way of predictably controlling our car. This is great, but we have commands that can only be called after other specific commands. For example, we cannot simply tell it to turn right if the wheels are centered to begin with, as they will go off of center and turn left before they turn right. We will probably have to do some more coding to make sure that the car can automatically take care of these cases and we won't have to worry about these scenarios ourselves.

The next steps are to further test our turning code, and then find a way to control the ESC the same way we control the steering. If we have those two steps done, our main challenge would be getting Lidar data to the pi. If we are able to get the raw lidar data to the Pi, the simple hard-coded obstacle avoidance proof-of-concept algorithm should not be hard to create.