

## Daily Log

### Monday September 23

We decided to find a way to control the car without human input, so we gathered supplies to control the Traxxas using a micro controller. Got a Raspberry Pi 3 from Syslab, an HDMI cable, and started looking for a monitor with HDMI.

### Wednesday September 25

John B. found us a HDMI monitor in the Syslab. We started to download NOOBS on my computer and copied the files to the Pi's SD card. NOOBS is an installation image for Raspberry Pi. We then booted up the Pi and installed Raspbian OS. When we were calibrating the Traxxas, we found a dead zone near the center of the turning servos. This, coupled with our high back-end torque may explain why the car cannot accelerate fast in a straight line.

### Friday September 27

Wrote a program in python on the Raspberry Pi to make an LED turn on and off in defined intervals. We used Thonny as our Python IDE to write the program and familiarized ourselves with Raspbian. The code is finished, and in theory should work, but we spent the rest of the block gathering supplies for our test program, so we do not know for sure. We got a breadboard along with some wires with square ends (so they would fit in the Pi) from the electronics lab director, Mr. Bell. We also went outside to gather Lidar data, but we have not processed it yet.

## Timeline

Date	Goal	Met
Today minus 2 weeks	Download dependencies and setup a GitHub repository and acquire a remote-control car	Yes, got permission from Kusko, and have a repo on both Tony's computer and my computer
Today minus 1 week	Create "road" patterns for car to follow and have Lidar code compiled and running	Yes, Tony started making the rules set that the car would follow, and we both got the sdk demos to compile and run
Today	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 plus 1 week	Hook up the Pi to the Rustler, and write a program to steer the car from the Pi.	No, but we have started writing programs with python
Today plus 2 weeks	Acquire materials to create road courses (colored tape, space if we are using outdoors/poster board)	No, we have created a ruleset, but have yet to implement it.

## Reflection

We have our Raspberry Pi set up and running with our own python script. We will finish our LED Demo as a baby step/proof of concept, before we hook up the Pi to the Traxxas ESC and turning servo. If the Pi has the ability to run multiple programs at once, or set up localhost servers, we may be able to use the existing ultra\_simple demo to interface with a potential exported neural net running on python.

While we may have gotten a way to write to the Traxxas from the Pi, we still do not have a way to read the inputs from the Traxxas without losing input to the car. We may have to take some wires and make them fork off in parallel to connect them to the Pi and to the Traxxas at the same time. I don't think that forking it in that way should change the signal, as I'm fairly certain that the signal is defined by voltage, and forking in parallel should not affect that.