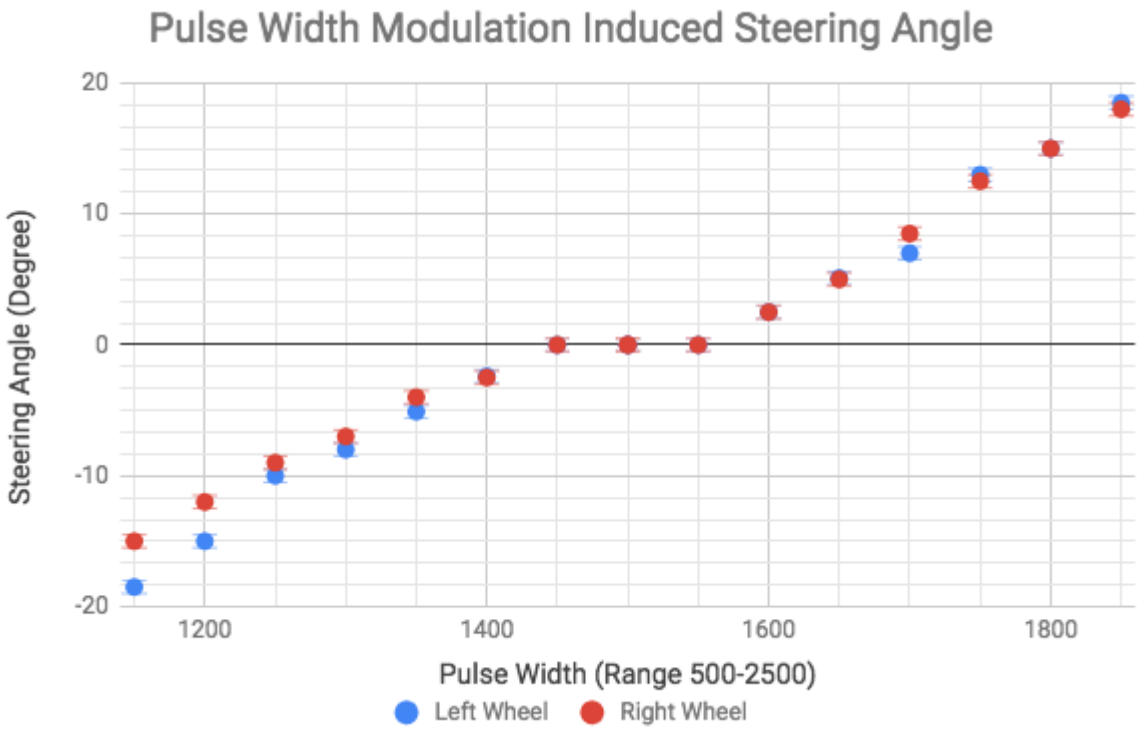
AutoDrive Project Weekly Report - November 9th

1. Fails of the week

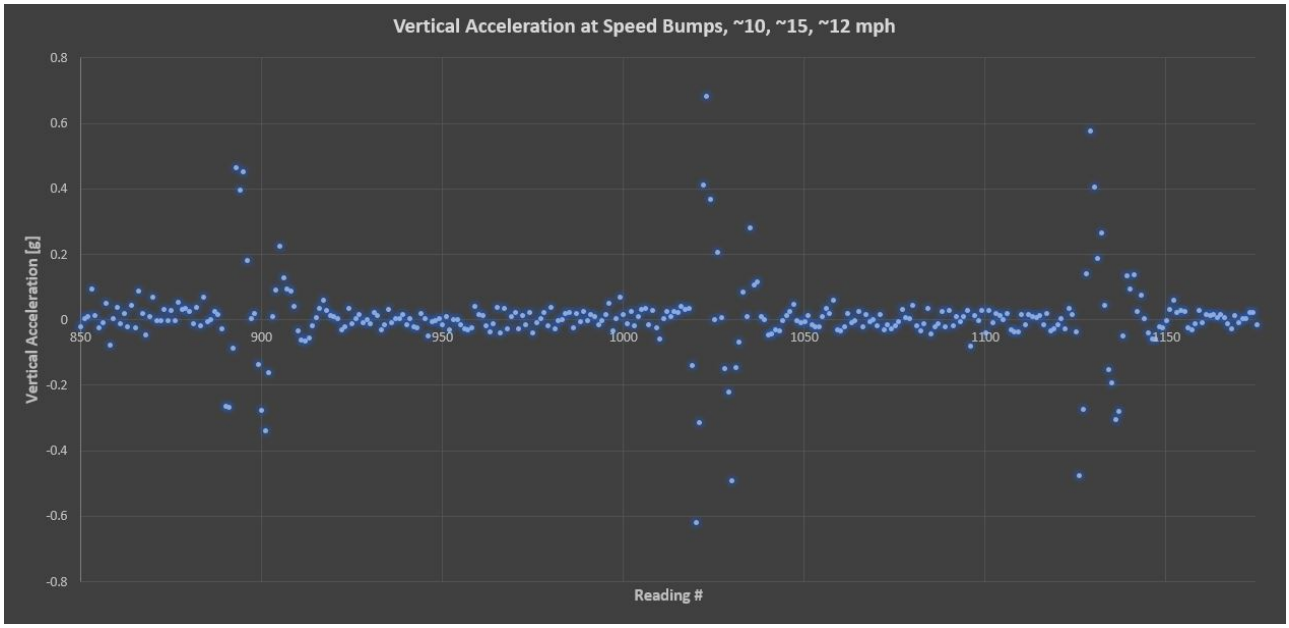
- More experimental design and instrumentation was required in advance of conducting the experiment on vertical acceleration — need a more robust accelerometer app and need to determine an acceptable rating scale for physical/psychological comfort.

2. Successes of the week

- Conducted an experiment to figure out the mapping relation between steering angle of the car and the pulse width signal needed to produce the turn



- Performed a proof-of-concept of the vertical acceleration experiment with a smartphone accelerometer:



3. Difficulties this week

- There are multiple sources of error in measurements taken in the experiment that needs to be accounted for: errors in measurement, interpretation and calibration (cannot guarantee to but the wheel back to the same neural position after inducing a turn),
- Experimental design difficulty: difficult to delicately control speed over speed bumps while also paying attention to surroundings (no off-road test track available, best can do is use active parking lot speed bumps)

4. Goals for next week

- Integration: implement the two APIs - Image API which processes raw sensor images and transform into model input, and Control API which takes the model output (an steering angle) and translates into Raspberry Pi command to steer the car prototype.
- The goal is to enable the model to control the physical car to perform basic movements like moving, stopping and turning
- Finalize experimental design and actually conduct vertical acceleration experiment