## ECE1898 Proposal – Automated Regression Testing for a Vehicle Controller

The goal of the study/project is to be able to quickly and efficiently test firmware changes that have been made to a vehicle controller by developing an auytomated regression testing platform. The platform will allow the user to be able to write tests and run them automatically without user interaction once started. The test platform will run through the different cases and generate a pass/fail report indicating which tests passed and which tests failed. I intend to provide an update or meet with Dr. Dickerson bi-weekly or at whatever time interval he sees fit to discuss the status of the project and the progress that has been made.

## Scope

The automation testing platform will have the following features:

* Be able to read and send CAN messages to the ECU being tested
* Be able to write new tests and have an output of what tests have failed and what have passed
* Be able to simulate analog sensor inputs to the ECU
* Be able to control these simulated analog inputs with the software
* Be able to run all the tests without user intervention once started

## Milestones(to be reached at the end of listed week)

* 2nd week: Send and receive CAN messages with a python script(using the PCAN)
* 4th week: Testing/Pytest infrastructure basics developed
* 6th week: Core Pytest infrastructure developed
* 8th week: Communication with testing hardware
* 10th week: Testing hardware able to simulate sensor inputs on the ECU
* 12th week: Develop test cases
* 14th week: Full system test
* 16th week: Working demo of full system on a test bench