AutoDrive Project Weekly Report - March 1st

1. Fails of the week

- None to report

2. Successes of the week

- Another leap in improving our algorithm through parallelizing the work of recording and processing the individual frames over separate process threads
- Running on separate threads allow the algorithm to capture multiple consecutive frames without reinitializing the buffer, effectively reduce the time it takes to record an image from the camera.
- A single thread running the algorithm now takes total of 0.06 second to process the captured frame and actuate the steering of the vehicle.
- Writing plans for user testing

3. Difficulties this week

- Now we introduce multi-threading in our algorithm, the frames per second is no longer a good metric to measure the efficiency of the algorithm, since the algorithm is no longer fully sequential and its fps will depend on how many threads we are arbitrary giving the algorithm to process the individual frame (certainly, this performance gain plateaus at a fixed number of threads)
- From now on, we should measure the algorithm through its processing delay (the time between the algorithm the capturing the image and processing it).
- Human factors user testing somewhat contrived for this project

4. Goals for next week

- To further improve our processing delay, we should now look at ways to speed up the inference of our neural network through using an ASIC chip designed specifically for running neural network.
- Setup the environment necessary to use the Movidius Compute Stick to speed up the inference of our neural network.
- Determine logistics of user testing — scheduling, participants, etc.