Work Report Summary

Date Submitted: 9th December, 2019
Name: Aman Paleja
Subsystem: Coding

Robocon Progress:

- Libraries:
  - → Learned how to create libraries for Arduino.
  - → Used the RoboManipal libraries.
- Bot Navigation:
  - → Understood the physics behind the four wheel holonomic drive.
  - → Wrote program for movement of the bot.
  - → Tested the code for bot navigation and uploaded it to github.
- Wall Alignment:
  - → Wrote program for aligning the bot at a certain distance from the edge (wall) using two ultrasonic sensors.
  - → Tested the code for alignment of the bot and uploaded it to github.
- Bot Navigation with PS2:
  - → Used the Cytron_PS2_Shield library for writing program to control the movement of the bot with a PS2 controller.
  - → Tested the code for bot navigation using PS2 controller and uploaded it to github.
- Rotation about a point:
  - → Wrote program for rotation of the bot around a point.
  - → Two blocks of code were written for the same purpose (one uses all four wheels and the other uses two diagonally opposite wheels). Both blocks work in theory.
  - → Tested the code for rotation of the bot about a point. Both blocks worked successfully for a short period of time. Code has been uploaded to github.

Coursera:

- Completed two weeks of the “Mathematics for Machine Learning: Linear Algebra” course offered by the Imperial College London.
- Completed basics of python programming and three weeks of the “Python Data Structures” course offered by the University of Michigan.

Issues Faced

- While testing on the smaller version of the four wheel holonomic drive, drifting was encountered. The problem was overcome by adding weight to the bot so that the wheels could rotate properly.
- While testing the code for rotation about a point, the bot changed it’s direction and started on point rotation after pressing the button on the PS2 controller again and the issue is yet to be solved.