ECGR4161/5196, MEGR4127 – Introduction to Robotics
Lab Assignment #5– Version 1.0 – Summer 2020

See Canvas for the due date/time

This lab assignment has one part and will be done individually. Note that, even though two students may work together, they must submit their own video and report.

Submission type: Video and lab report (Must include your name and all video requirements mentioned below)

The main objective of this lab is to have your vehicle drive a single square which is 0.5 meters on each side (four straights and four 90 degree CCW turns). Then, from that position, travel an equilateral triangle with 0.5m sides and three appropriate CCW turns. These two shapes must be seamless – they are not two separate downloads of code. Videotape your robot traveling these two shapes. MARK THE STARTING PLACE on your surface (center the robot on that mark), so I can see how well you travel the distance.

As described in class, you can solve this with increasing amount of points earned:

A. Take the provided code, get it to compile and robot to run a square only (minimal points)
B. Run a square and triangle, but code does not adjust motor speed to make straight lines and does not measure both encoders
C. Run a square and triangle, but code does not adjust motor speed to make straight lines
D. Run a square and triangle, and code adjusts motor speed to make straight lines
E. Run a square and triangle, but code does not adjust motor speed to make straight lines, and code structure is optimal

Lab Report - Submission Instructions:

1. Upload a Video to your YouTube account (or other location with a URL). Video only the robot moving (make it short)
2. Prepare a file, output to PDF that includes:
    a. Your name
    b. Your "partner's" name (if applicable)
    c. What the general objective the robot / apparatus is expected to perform
    d. What functionality (A to E above) you were able to complete
    e. URL of the video
    f. (in report or video) Commentary on the lab (lessons learned, problems encountered).
    g. NEW: include your code listing as text, courier font, 9 point.
3. Upload the PDF to Canvas, Lab 5 submission