

## ECGR4161/5196, MEGR4127 – Introduction to Robotics

### Lab Assignment #6– Version 1.0 – Spring 2021

See Canvas for the due date/time

This lab assignment has one part and can be done in pairs. Submit on report/video per group.

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

Each group will take their fully assembled TI-RSLK MAX vehicle or “TI-BOT” as it will sometimes be referred to throughout the course, and follow a straight, then curved, then straight line (similar to the photo below). The downward facing IR sensors and wheel encoders can be used for this part of the lab. The vehicle should stop when it reaches the 10cm perpendicular line.

The specific instructions/requirements are:

1. You need to create a “course” which is a 20cm straight line (1.9 cm wide), followed by a curved line (appx 45 degree curve) followed by a 20 cm straight line. The end will have a 10cm perpendicular line. (I used 3 pieces of 8.5 x 11 paper)
2. The vehicle will be placed at the beginning of the straight line and travel following the line.
3. You may run at any speed.
4. The line must be followed with only 2cm variance from the center line.
5. The vehicle must stop at the perpendicular line.

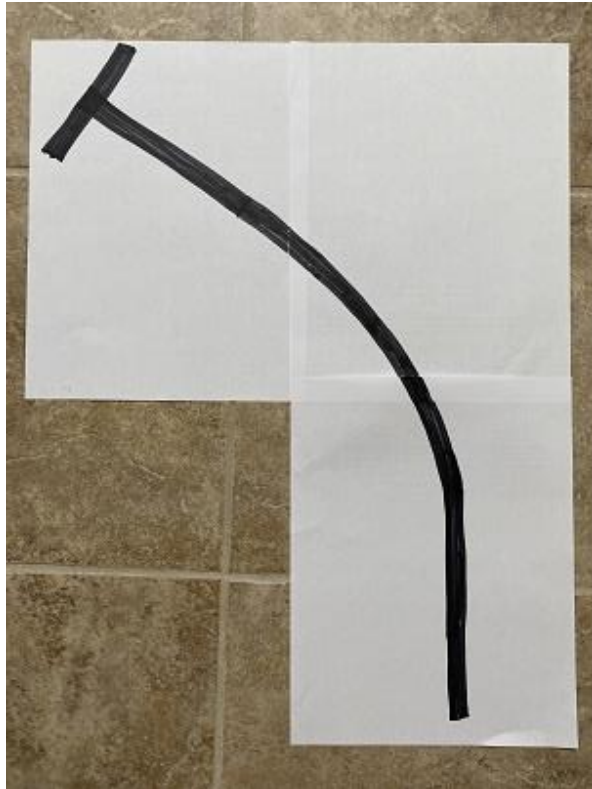


Figure 1: Make Course (Req 1)



Figure 2: Place robot at beginning (Req. 2)

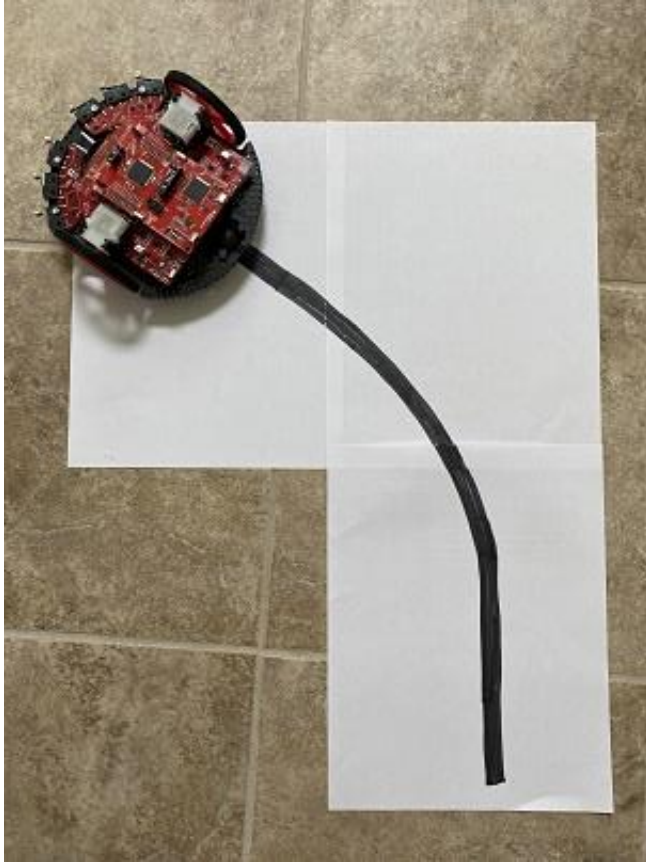


Figure 3: Robot should stop at perpendicular line (Req. 5)

**Lab Report - Submission Instructions:**

1. Upload a Video to your YouTube account (or other location with a URL). Video only the robot moving AND stopping (make it short)
2. Prepare a file, output to PDF that includes:
  - a. Your names
  - b. What the general objective the robot / apparatus is expected to perform
  - c. URL of the video
  - d. (in report or video) Commentary on the lab (lessons learned, problems encountered).
  - e. Include your code listing as text, courier font, 9 point. Fully document your code.
3. Upload the PDF to Canvas, Lab 6 submission