
CSCE574 – Robotics Spring 2014 – Project 5

Assigned: April 10

Due: April 24

Late submission can be accepted without penalty under these conditions: (1) Demo completed by 12:30pm on ~~May~~ April 30. (2) Dropbox and hard copy submitted 24 hours before demo.

The purpose of this final assignment to give you some experience interacting with images captured by the TurtleBot, and to provide an opportunity to tie together everything you've learned about these robots through the semester.

Task

For this project you should program the robot to follow a “race course” marked out for it with blue masking tape on the floor. You may create any programs and other elements in your ROS package that you decide are necessary to achieve this goal. Details appear below.

- All of the “safety” requirements from Project 4 still apply: The robot should stop right away if its bump, wheel drop, cliff, or overcurrent sensors are triggered, and restart shortly after this condition ends. You may include your WiFi signal strength monitoring if you wish, but this is not necessary.
- When the safety rules are met, the robot should drive along the tape line as accurately as possible. You can assume that the robot will start atop the line, but not that the line will be in view at the start.
- The line may bend at any time either left or right, but not by more than 45 degrees at a time. The line will stay at least two feet away from any obstacles.
- The line may intersect itself, but only at right angles. When this happens, the robot should continue straight through the intersection, rather than following the left or right branches.
- The line may form a loop, or it may have two endpoints. If the robot reaches the end of the line, it should turn around and begin following the line in the other direction.

CSCE574 – Project 5 Cover Sheet

Name(s): _____

Safety (20):

- Stops immediately on any unsafe sensor reading.
- Restarts shortly after problem is resolved.

Course following (70):

- Locates line at start-up.
- Follows line.
- Makes corrections to remain atop line.
- Makes left turns.
- Makes right turns.
- Crosses intersections.
- Turns around at end of line.

Documentation (10):

- Report describes the programs in enough detail to understand how and why they work.

Other comments:

Total:
