PS8: Steering with Combined AMCL and Odometry

Kristina Collins, kvc2@case.edu

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1 Introduction

This assignment presents an example of linear feedback control in the mobot example system, where AMCL is used to compensate for noisy odometry feedback. The robot navigates from the entrance of the lab to the end of the Glennan hallway (to the freight elevator) and back.

2 Amendments to Existing Code

This assignment used an edited version of the code from **pub_des_state_path_client.cpp** in the package **mobot_pub_des_state**, with navigation points at:

1. the end of the hallway (0, -32, 0);
2. the door of the freight elevator (-1.5, -32, 0);
3. the end of the hallway again (0, -32, 0); and
4. the origin (0, 0, 0).

The node **lin_steering_wrt_amcl** from the package **lin_steering** is used without changes.

3 Demonstration Steps

The project can be run with a single terminal command, **roslaunch kvc2_amcl_steering ps8_demo.launch**, which encompasses the commands listed in the assignment.

4 Notes and Evaluation

4.1 Wheel of Morality

The robot bobs and weaves a bit, but AMCL keeps it from going through the walls for the most part. I'm not sure how close the artificially drifty odometry topic is to real odometry. It'll be interesting to see how Jinx fares IRL.

4.2 Soundtrack

The soundtrack for this lab video is the theme song from that cultural high point, Nickelodeon's "My Life as a Teenage Robot."