

Andrew Tarnoff

Mobile Robot Programming Problem Set #5

CODE LINK:

https://github.com/art81/EECS373/tree/master/MobileRobotics/mobile_PS4_traj_gen_PS5_steering/PS5_changes/mobot_pub_des_state2/src

Open Loop Control:

This technique for getting the robot to go where you want it is generally horrible... Even when commanding simple changes in position such as independently changing X or Y the robot still does not move in a straight line and veers off course. In order to get the robot to get to the destination location I had to guess and check what coordinates to command because the robot did not move anywhere close to the actual values I was commanding.

Linear Control:

For this method of control it was much easier to get the robot to go to its desired location and the coords that I commanded made sense with the map itself. This is unlike open loop control where getting the robot to the destination consisted of a path of coordinates that did not make much sense in reference to the map. If you watched closely during movement, the robot quickly corrected for times when it started facing slightly off path and got to the goal relatively quickly. Below is a plot I generated while running the programs to display the linear control working. I also found that raising the values of K_PHI and K_DISP generally made the robot converge to the desired path faster and you saw less deviations, however, at a certain point when these values got too high the robot did not follow the path well at all.



