COMS4045A/COMS7049A - Robotics - S1 - 2024

Lab 2 - Drone PID

Due: Thursday, 14 March 2024, 11:59 PM

✔ Done

PID Control

Write a ros node that uses PID control to get the drone to fly to coordinates supplied on the command line. To do this, you must get the coordinates of the drone using the gazebo state service, and supply control as Twist messages sent to the drone. The difference between your current position and your target position is the error that you will use for PID. Note that because you will be taking discrete samples, the integral of the error is just the accumulated sum, and the derivative of the error is just the difference between the current error and the previous error.

Note that a simple PID implementation which uses the error in the position variable would need to control for orientation, because if the drone rotates, moving along the x axis now moves relative to the drone's orientation rather than the world's orientation . There are two ways to do this:

1. Use a transformation matrix to transform from the drone's reference frame to the world frame (Difficult but general - we will cover how to do the coming weeks)

2. Use PID on the orientation to keep the drone facing the same direction (Much simpler, but only applicable to drones - you should do it this way unless you're feeling very adventurous)

Submit your files as a zip file if there is more than one file or just as a single file if not.

Submission status

Submission status	Submitted for grading
Grading status	Not graded
Time remaining	Assignment was submitted 1 day 6 hours early
Last modified	Wednesday, 13 March 2024, 5:11 PM
File submissions	PID.py 13 March 2024, 5:11 PM
Submission comments	▶ Comments (0)

Edit submission   Remove submission

You can still make changes to your submission.

You are logged in as Lisa Godwin (Log out)
Reset user tour on this page
COMS4045A-Rob4-S1-2024
Data retention summary
Get the mobile app