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**MEEM 4707: Autonomous system**

**Spring, 2024**

**Lab - 8**

**By**

**Student Name**

# **Problem 1.** In this lab, we will use a P or PI controller to run the robot.

# Please describe the P and I functions controlling the robot to the desired position.

# In Gazebo, reach the point (1, 0.5) in the middle of the map using the P or PI controller in your code. Submit the video and the P and I parameters you implemented. NOTE: If you run “prelab8.py”, it will generate “pidcont.py” automatically. Use these two codes to work in this lab. However, you need to tune your parameters in the “pidcont.py” file.

**Problem 2.** Read the “prelab8.py" code script and summarize your understanding.

1. What do "xc, yc, and tc" mean in the code?
2. What do “rx and ry” mean in the code?
3. Describe the meanings of "S and d" in the code.
4. Provide the variable name and command line in the code that defines the distance from the current robot position to the goal position.
5. Explain how this code can be integrated with the path planning code you implemented using the potential field method.