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**MEEM 4707: Autonomous system**

**Spring 2024**

**Lab – 3**

**By**

**Students Names**

**Example)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Logic Build** | **Coding** | **Report Writing** | **Total** |
| A | 40% | 50% | 60% | 150% |
| B | 60% | 50% | 40% | 150% |

# **Problem 1**

1. Set up a timing-based controller to draw a square of dimension 0.5 m, counterclockwise, once.
2. Set up a timing-based controller to draw a square of dimension 1 m, clockwise, once.

**Capture your trajectories in the real world and include them in your report. (You may not be able to follow the squares exactly, so you don't need to try to have exact square routes.)**

# **Problem 2.** In pre-lab, you have calculated tunning parameters. During the lab session, use the tuned parameters (𝑎1, 𝑎2, 𝑎3, 𝑎𝑛𝑑 𝑎4) **in Gazebo** to let the robot follow a 0.5-meter square counterclockwise once. **Capture your desired trajectory and the robot’s estimated (recorded) trajectory in Gazebo and include them in your report.**

# **Discussion from Lab3**

# Objective

# Explain your understanding of the lab assignments.

# Approach to achieve the Objective

# Explain what you planned to achieve the objective.

# Challenges faced and countermeasures taken

# What problems did you face?

# The difference in strategy: Pre-lab vs. Lab strategy

# Explain the modifications in your original plan.

# Observations and Learnings