**Lab Report [Give your own title here]**

**Introduction**

This section provides an overview of the project goals, different types of tests and environments, issues, and research problems involved.

It also includes a small survey/literature review, so search for relevant research works in terms of papers, GitHub links, and other references (cite them as references in the report).

At the end of this section, there should be a paragraph explaining your **specific contribution** to this group project.

Finally, this section concludes with a short paragraph explaining how the rest of the report is organized.

**Methods**

This section explains the technical methods and algorithms used to complete the simulation and real lab experiments. It includes the theoretical principles explained using mathematical equations. It may also include control diagrams or the control flow of the methods, explaining how the loop was closed. Any form to present the algorithms as pseudo code, or code block is encouraged.

In short, this section contains all the theoretical and algorithmic details that will be used in the later sections of Simulation and Experiments.

**Results**

This section contains the results of the Simulation and Experiments, and therefore has two subsections. Each section elaborates on the results obtained on single robot and multi-robot navigation scenarios, and experiments respectively.

**Simulation**

Details of the simulation results go here, please refer to the types of results that you can possibly present from the “Experiments” subsection.

**Experiments**

Details of the experimental results go here. Specifically, you can include the following:

* **Snapshots of Experiment Videos**: Include key frames from your experiment videos that show important moments or milestones in your experiments.
* **Data Plots**: Include plots of robot position vs target position of markers (as ground truth). These plots are a way to quantify how well your algorithm controls the robot position trajectories in real-world experiments. You can also include error plots showing the difference between the actual and desired positions over time.
* **Discussion of Results**: Discuss the results shown in the plots and snapshots. Explain any discrepancies or interesting findings, and compare the experimental results with the simulation results.

**Discussion and Conclusion**

This section discusses the lessons learned, any knowhows you learned to make things work more easily, and what can be better improved for future work. Also, please conclude with a summary of the level of completion achieved in terms of the required tasks.