Technical Project

This document contains the instructions to develop the final technical project for the Robotics Lab class. The goal of the technical project is to test your **individual** knowledge acquired throughout the Robotics Lab course. The student is requested to develop the project on a case study of your choice and prepare and upload in MS teams a power point presentation (about 10 slides) to be discussed during the exam. A personal GitHub repository link pointing to the developed code must be shared with the instructor via MS teams. Use Gazebo to simulate an autonomous, cooperative, multi-robot system for a case study of your choice. The following requirements must be satisfied for the project work to be approved by the instructor.

- Develop and setup a custom world representative of your application (define walls, obstacles, objects, tags)
- At least two different robot types must be used (e.g. an industrial manipulator and a differential drive mobile robot of your choice) that cooperate to accomplish a task
- Equip the robot with particular end-effectors and/or onboard sensors (camera, lidar, etc.) required to accomplish the envisioned tasks

Define the system architecture (number of nodes, topics/service/actions, launch and configuration files, etc.) Project must be presented via a power point presentation having the following structure

1. Problem description
2. Simulation setup (world, robots, sensors, controllers)
3. System architecture (nodes and their interconnections, use of external libraries, etc.)
4. Results (including a video)

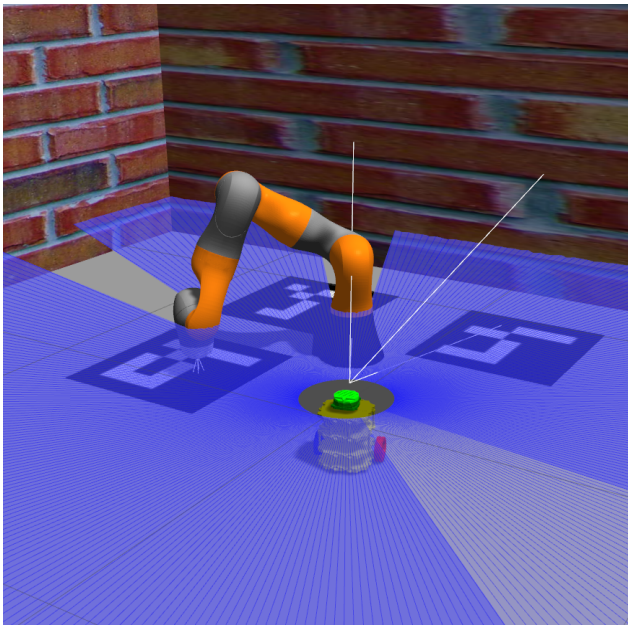

Figure 1: Example multi-robot scenario for the technical project of the Robotics Lab course