ME 449 Mobile Manipulation Capstone

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Overview:

The goal of this project is to control the youBot, to grasp a cube by a 5R robot arm, at the given start location, achieve a reasonable odometry for the mobile base, carry the cube to the desired location, and place it down in correct orientation. And lastly, visualize the whole motion in Coppelia-Sim software.

Main Segments:

1. Planning a trajectory for the end-effector of the youBot mobile manipulator.
2. Generate the kinematics model of the youBot, consisting of the mobile base with 4 me Canum wheels and the robot arm with 5 joints.
3. Feedback and feedforward control to drive the robot to follow the desired trajectory.
4. Implementing Euler integration.