



Spring 2023

## MCT 344: Industrial Robotics

### Project Description

## Introduction

Each team should control the **ROBOTIS OPEN-MANIPULATOR** on GAZEBO simulator using ROS and Python. The team should place the robot along with the task object in the simulator and be able to predict the location of the robot, and move the robot to the object location, then pick up the object and place it somewhere else to do the task.

Rules:

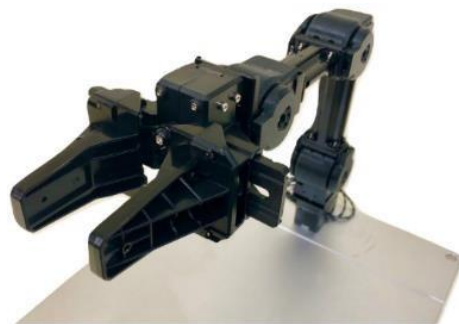
1. Milestones are delivered in groups of **2 INDIVIDUALS**
2. Deliveries are in PDF for each milestone and for final submission with links to uploaded videos on Google Drive or YouTube.
3. Plagiarism and code copying is **strictly prohibited**

The project will be divided to **3 milestones**:

### Milestone 1: (Formative)

The team should be able to calculate robot location using forward kinematics and compare their calculation to the ground truth location using RViz. **Milestone 2:**

**(Summative 15 %)**



The team should be able to move the robot to 3 randomly generated locations (generated in runtime) using inverse kinematics and checking if the robot was able to reach that location in RViz.

### Milestone 3: (Summative 15 %)

The team should be able to build an environment on **GAZEBO** with the robot, tables, and a task object, then pick and place the task object from one place to another place without collisions.