AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING
MECHATRONICS ENGINEERING DEPARTMENT

Spring 2023

MCT 344: Industrial Robotics

Project Milestone 1 Description:

1. Each team decides a set of 4 reasonable joints angles (You must move ALL joints)

2. Move the robot according to these joint angles using a ROS node that publishes on joint command topics

3. Calculate DH parameters and get the forward kinematics matrix to the base of end effector and plug it into code

4. According to the chosen angles, calculate the end effector position

5. Publish position of end effector to a std_msgs/Float32MultiArray, data: [x y z roll pitch yaw]

HINT: you will need to look-up how to convert rotation matrix (3,3) to Euler rotation angles (roll, pitch, yaw)

REQUIRED TO SUBMIT (all in a combined single PDF file per team, only one person uploads here):

1. Screenshots of clean and commented written codes of the ROS node(s)
2. Screenshots for the outputs with terminal appearing at all commands.
a. screenshot for the robot moved inside gazebo after running your node
b. screenshot for the published topic of the robot location after forward kinematics calculation using `rostopic list` and `rostopic echo <topic_name>`
3. A video link for the project Implementation must be uploaded with a clear explanation of all the steps.