ENPM - 661

PLANNING FOR AUTONOMOUS ROBOTS

Project - 4

Implementation of Motion Planning on Baxter

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Steps:

1) The given V-Rep scene is loaded in the V-Rep environment.

2) Since the cylinder needs to be picked from one table and placed on the center (Mill position) on the other table on the left side of the Baxter robot, we give command to the left arm of the robot keeping the right arm idle.

3) The “Lua” script of the left arm joints is modified according to the requirement to carry out the expected pick and place of the given cylinder.

4) The forward kinematics method is adopted in order to obtain the joint angle of the left arm of Baxter to move in the desired manner to carry out the pick and place operation.

5) The following operations are carried out from start till end of operation:

-- Moving the arm from start(default initial) position to the spot above the cylinder horizontally.

-- Reaching the position of the cylinder on the table.

--Closing the gripper to pick the cylinder

--Moving back to the point above the cylinder’s original position.

--Moving to the point above the Mill position.

--Reaching the Mill position point

--Opening the Gripper to drop/place the Cylinder on the Mill position.

--Moving the arm back to the position above the Mill

--Moving the arm to initial(default) start position.

Conclusion:

1) The above steps are implemented, and the process is simulated

2) The simulation is recorded as video and attached along with this report file.

Note : The submitted video shows the simulation of Baxter robot performing pick and place of the cylinder from one table to the center of the other table in Left View, Top View and the Right View of the robot.