# coursework-PDE4431-Robot_manipulation
Coursework-2

Middlesex University Dubai

# PDE4431 – Robot Manipulator

## Coursework 2 (CW2)

Report Submitted by:

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Module taught by:

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| Professor Mr. Bittu Scaria & Professor Dr. Judhi Prasetyo |

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**Activity undertaken in the coursework:**

- Importing the Cad files into the Robodk environment and placing the robot in the reference frame.
- Keeping the robot in appropriate location and height.
- Creating proper target points.
- Creating python program for the process.
- Generating the RoboDK function into Epson RC codes.
- Running the task in the Epson RC with VT6 robot.
- Calculating the forward kinematics and DH parameters for the robot.
- Creating a python file to execute and review the target points.

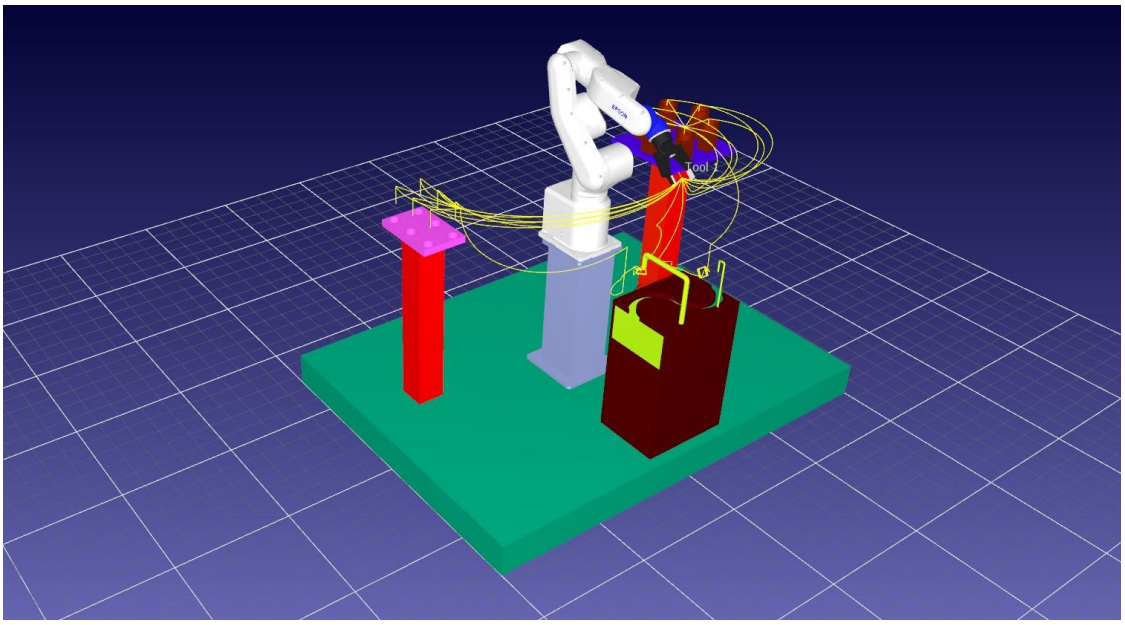
**DH parameter for the Robot:**

| Joints | Theta (deg) | d(mm) | a(mm) | Alpha (deg) |
|---|---|---|---|---|
| Joint1 | -90 | 412 | 100 | -90 |
| Joint2 | -90 | 0 | 420 | -90 |
| Joint3 | 0 | 0 | 0 | -90 |
| Joint4 | 90 | 400 | 0 | -90 |
| Joint5 | -90 | 0 | 0 | -90 |
| Joint6 | 0 | 80 | 0 | 0 |

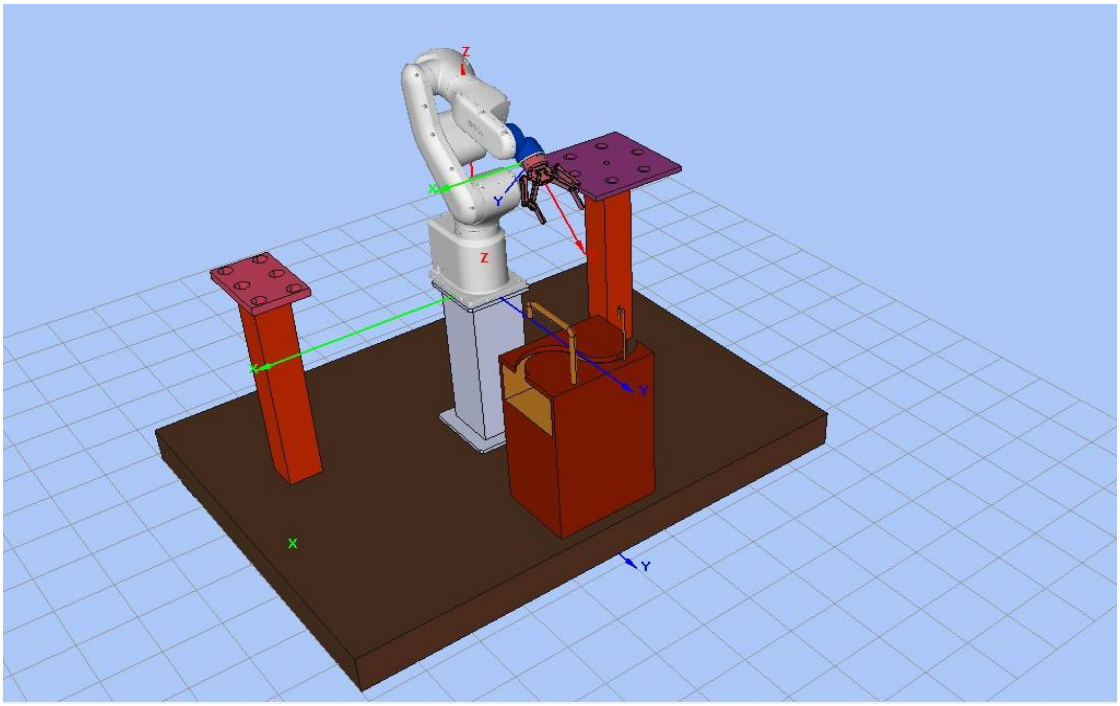
**Target point:**

| | X(mm) | Y(mm) | Z(mm) | U(deg) | V(deg) | w(deg) |
|---|---|---|---|---|---|---|
| Expected Value | 615 | -340 | 270 | 90 | 0 | -180 |
| Obtained Value | 501 | -415 | 306 | 35 | 58 | 150 |

**Screen Shot of RoboDk environment:**




**Screen Shot of EpsonRC environment:**




**Explanation Video link:** https://youtu.be/H-ZIBlhEMA8

**RoboDK Screen Recording:** https://youtu.be/DmaROOXROz8

**EpsonRc Screen Recording :** https://youtu.be/KtB8aWExPVQ

**3D working Simulation :** Inside the folder of the coursework – RoboDK → Full1_program_3d_animation