Introduction to Robotics

Manipulation and Programming

Unit 2: Kinematics

PYTHON LAB PROJECT: ARTICULATED MANIPULATOR MODELING

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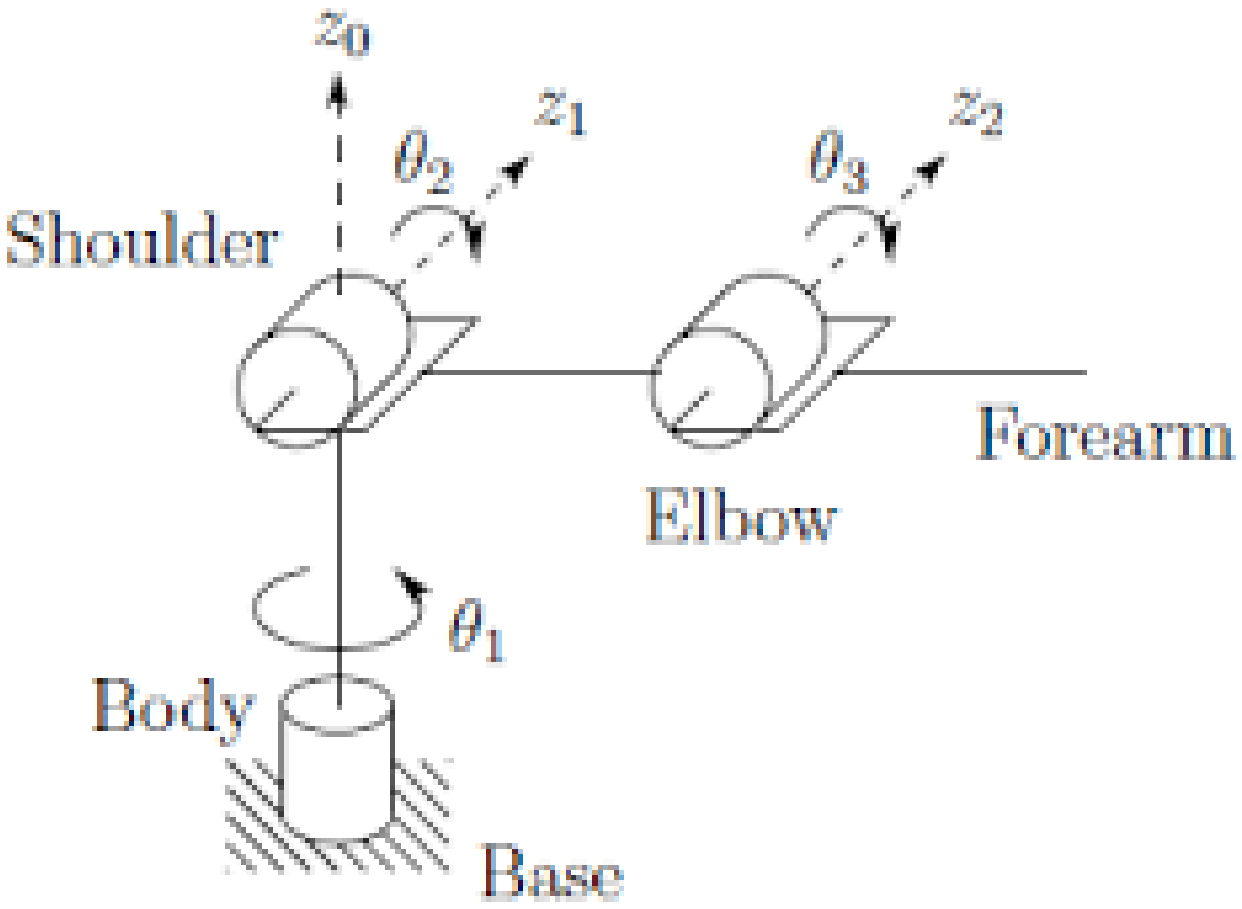
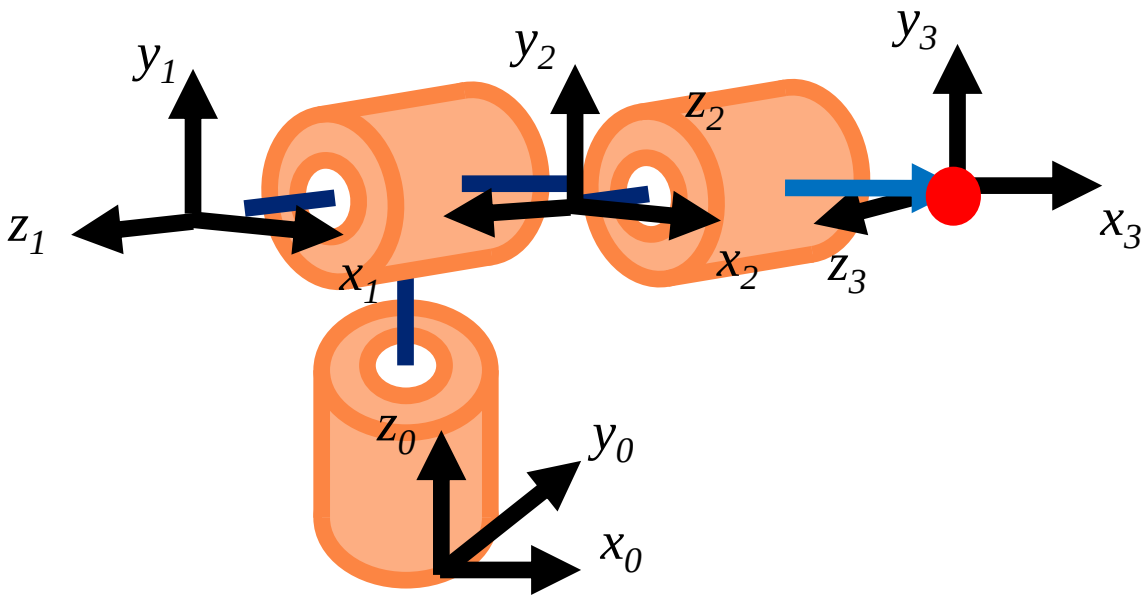

z_0
z_1
θ_2
Shoulder
z_2
θ_3
Forearm
Elbow
θ_1
Body
Base

Kinematics Diagram



Problem:

1) Model the Articulated Manipulator using Kinematics Diagram
2) Write a python program to demonstrate how a vector v = [1, 0, 0] will be rotated after the following rotations:
   - Your Python code calculating the complete rotation matrix from frame 0 to frame 3 for an Articulated manipulator, with the three angles being 15 degrees, 30 degrees, and 60 degrees