Robotics II
Final Project

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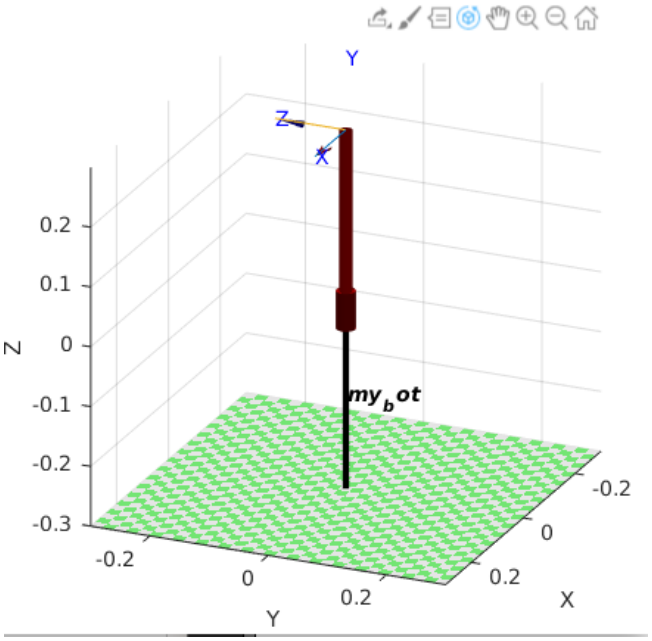
Contents

1 Denavit-Hartenberg

	α	a	d	θ
link 1	$\pi/2$	0	$L_1 = 0.3$	q_1
link 2	0	$L_2 = 0.3$	$-d_2 = -0.09$	q_2
link 3	0	$L_3 = 0.2$	0	q_3

Frame 1



Frame 2

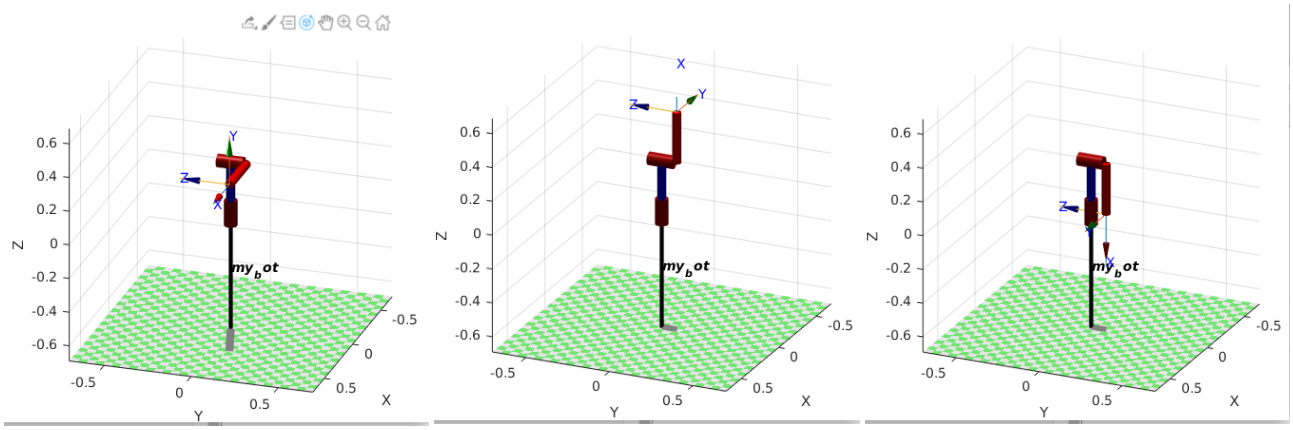


Figure 1: (a) $q_2 = 0$; (b) $q_2 = 90$ deg; (c) $q_2 = -90$ deg

Frame 3

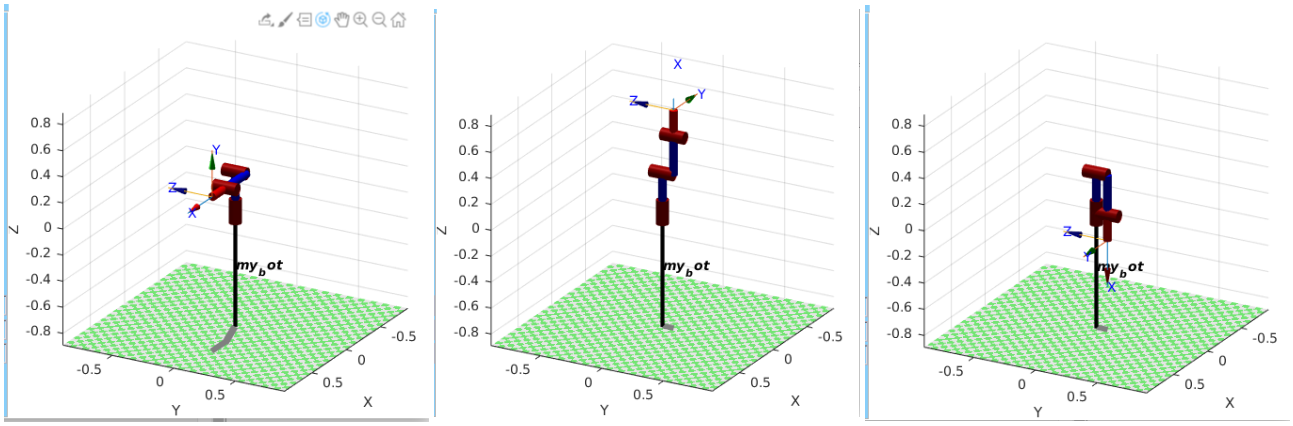


Figure 2: (a) $q_2 = 0$, $q_3 = 0$; (b) $q_2 = 90$ deg, $q_3 = 0$; (c) $q_2 = $-90 deg, $q_3 = 0$

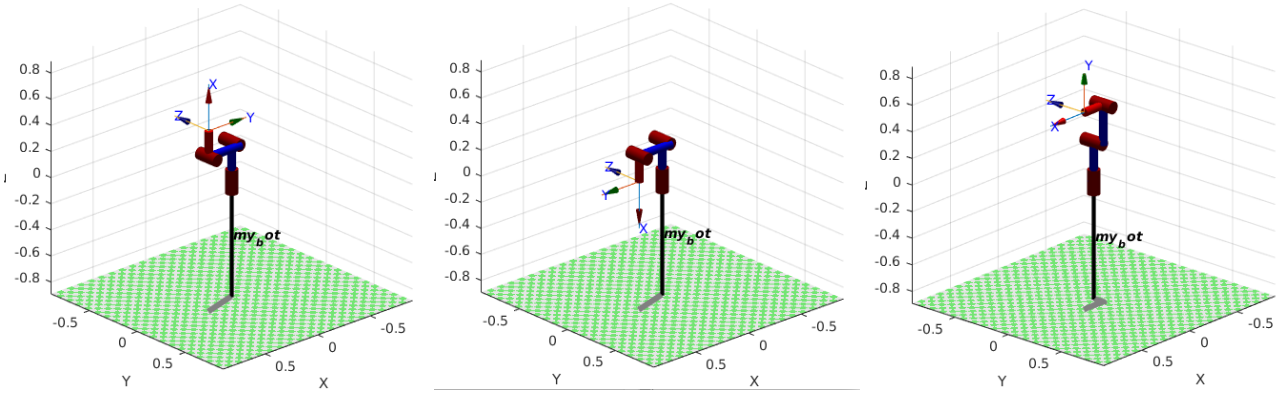


Figure 3: (a) $q_2 = 0$, $q_3 = 90$ deg; (b) $q_2 = 0$ deg, $q_3 = $-90 deg; (c) $q_2 = 90$ deg, $q_3 = $-90 deg

2 Centers of Mass

$$r_{c1} = \begin{pmatrix} 0 \\ -0.15 \\ 0 \end{pmatrix} = \begin{pmatrix} 0 \\ -a \\ 0 \end{pmatrix}$$

$$r_{c2} = \begin{pmatrix} -0.15 \\ 0 \\ -0.06 \end{pmatrix} = \begin{pmatrix} -b \\ 0 \\ -c \end{pmatrix}$$

$$r_{c3} = \begin{pmatrix} -0.10 \\ 0 \\ 0 \end{pmatrix} = \begin{pmatrix} -d \\ 0 \\ 0 \end{pmatrix}$$

$$a = 0.15; \qquad b = 0.15; \qquad c = 0.06; \qquad d = 0.10$$