Robai Cyton Gamma 1500: 7 Degrees of Freedom Serial Linkage Robotic Arm
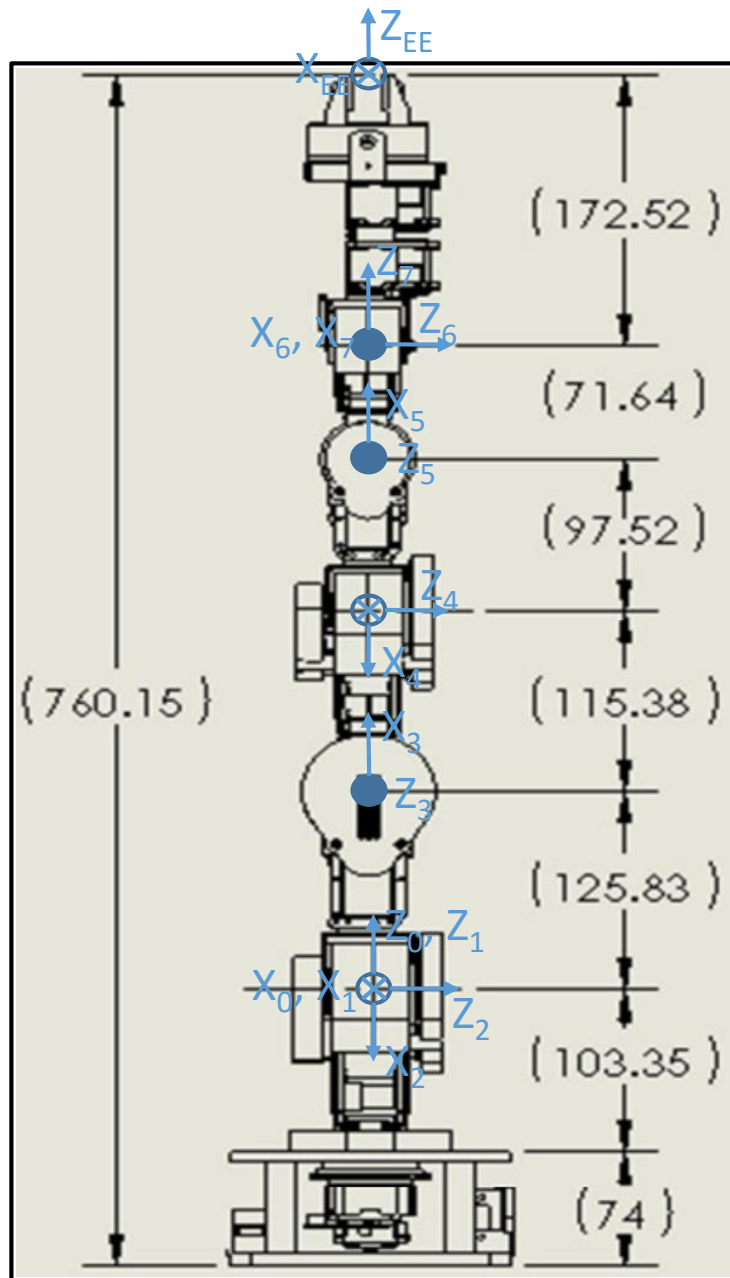
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DH Table

i	α_{i-1}	a_{i-1}	θ_i	d_i
1	0°	0	θ_1	0
2	90°	0	$\theta_2 - 90°$	0
3	90°	-125.83	$\theta_3 + 180°$	0
4	90°	115.83	$\theta_4 + 180°$	0
5	90°	-97.52	$\theta_5 + 180°$	0
6	90°	71.64	$\theta_6 + 90°$	0
7	90°	0	0°	0
EE	0°	0	180°	175.52

Forward Kinematics

$${}^0_1T = \begin{bmatrix} c_1 & -s_1 & 0 & 0 \\ s_1 & c_1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^1_2T = \begin{bmatrix} s_2 & c_2 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ -c_2 & s_2 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^2_3T = \begin{bmatrix} -c_3 & s_3 & 0 & -125.83 \\ 0 & 0 & -1 & 0 \\ -s_3 & -c_3 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^3_4T = \begin{bmatrix} -c_4 & s_4 & 0 & 115.83 \\ 0 & 0 & -1 & 0 \\ -s_4 & -c_4 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^4_5T = \begin{bmatrix} -c_5 & s_5 & 0 & -97.52 \\ 0 & 0 & -1 & 0 \\ -s_5 & -c_5 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^5_6T = \begin{bmatrix} -s_6 & -c_6 & 0 & 71.64 \\ 0 & 0 & -1 & 0 \\ c_6 & -s_6 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^6_7T = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^7_{EE}T = \begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 175.52 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$${}^0_{EE}T = {}^0_1T * {}^1_2T * {}^2_3T * {}^3_4T * {}^4_5T * {}^5_6T * {}^6_7T * {}^7_{EE}T$$