The DH parameters:

Link	r_i	α_i	d_i	θ_i
1	0	$\frac{-\pi}{2}$	3	θ_1
2	5.75	0	0	$\theta_2 - \frac{\pi}{2}$
3	7.375	0	0	$\theta_3 + \frac{\pi}{2}$
4	0	$-\frac{\pi}{2}$	0	$\theta_4 - \frac{\pi}{2}$
5	0	0	4.125	θ_5

$$Trans(d_n) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & d_n \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$Rot(\theta_n) = \begin{bmatrix} C_1 & -S_1 & S_1 & 0 \\ S_1 & C_1 & -C_1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$Trans(r_n) = \begin{bmatrix} 1 & 0 & 0 & r_n \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$Rot(\alpha_n) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & C_\alpha & -S_\alpha & 0 \\ 0 & S_\alpha & C_\alpha & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$T_n = \begin{bmatrix} C_\theta & -S_\theta * C_\alpha & S_\theta * S_\alpha & r_n * C_\theta \\ S_\theta & C_\theta * C_\alpha & -C_\theta * S_\alpha & r_n * S_\theta \\ 0 & sin_\alpha & cos_\alpha & d_n \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

Above matrix is a 4-by-4 homogeneous transformation matrix using the Denavit-Hartenberg convention. Robot Arm kinematics are derived using the kinematics chain multiplication

$$A_0^5 = A_0^1 * A_1^2 * A_2^3 * A_3^4 * A_4^5$$

Likewise, each gripper points are transformed into the world frame by using kinematic chain multiplication.

Figure 1 Animation of the robot arm.

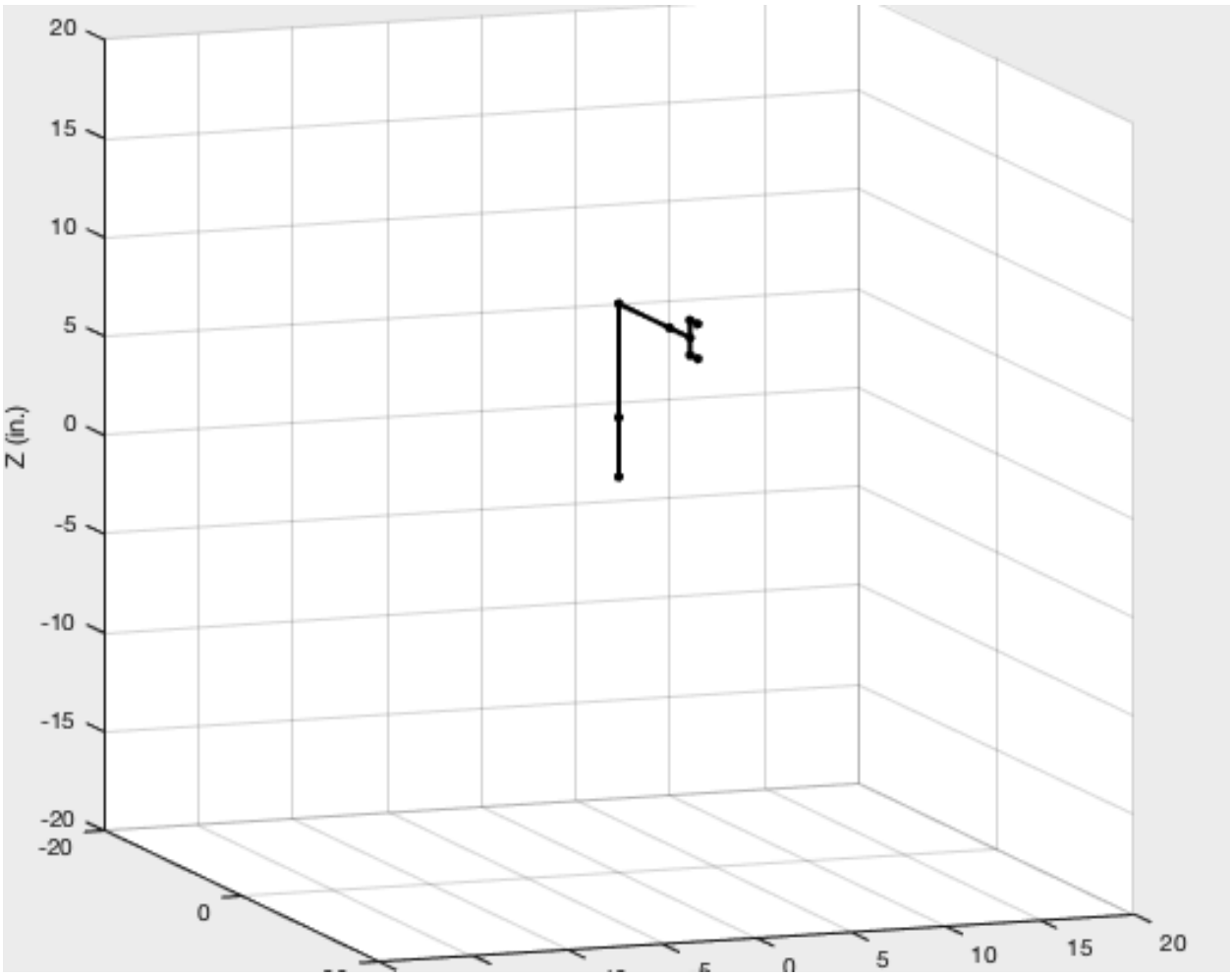

Figure 1: Robot Arm.