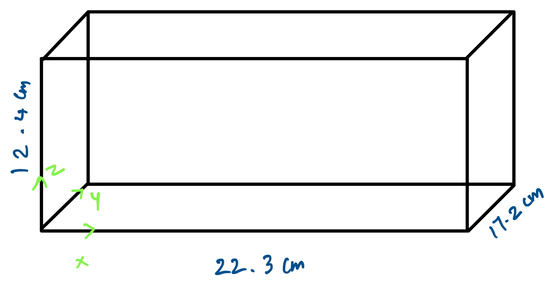
Robot dimensions

Tuesday, June 23, 2020 4:55 PM

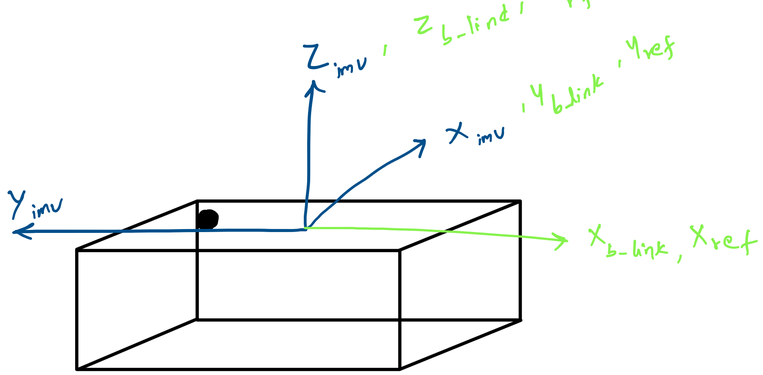
Ref frame & base link frame are in same direction



17.2
-7.1

$$\text{Robot center} = \left(\frac{22.3}{2}, \frac{17.2}{2}, \frac{12.4}{2}\right)$$

$$= (11.15,\ 8.6,\ 6.2)$$



$X_{ref}, Y_{ref}, Z_{ref}$

$$\text{imu center} = (3.5,\ 10.1,\ 12.2)$$

$$= 10.1, -X, z$$

$X_{ref}, Y_{ref}, Z_{ref}$

imu center = (9cm, 6.5, 12.2)

Go 2.1 in $-X_{imu}$

Go 6 in $-Z_{imu}$

Go 2.85 in $+Y_{imu}$

Rotation in z

$$R_z(\theta) = \begin{bmatrix} c\theta & -s\theta & 0 \\ s\theta & c\theta & 0 \\ 0 & 0 & 1 \end{bmatrix} = \begin{bmatrix} 0 & -(-1) & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix} \Rightarrow \begin{bmatrix} 0 & -1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

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

$$Q = [0,\ 0,\ -0.7071,\ 0.7071]$$

Previously +90 wrt b_link

now −90 wrt b_link

prev from odom to b_link → −90

now " " " " → +90

$$R_z(\theta) = \begin{bmatrix} c\theta & -s\theta & 0 \\ s\theta & c\theta & 0 \\ 0 & 0 & 1 \end{bmatrix} = \begin{bmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

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

$$Q = [0,\ 0,\ 0.7071,\ 0.7071]$$ ✓