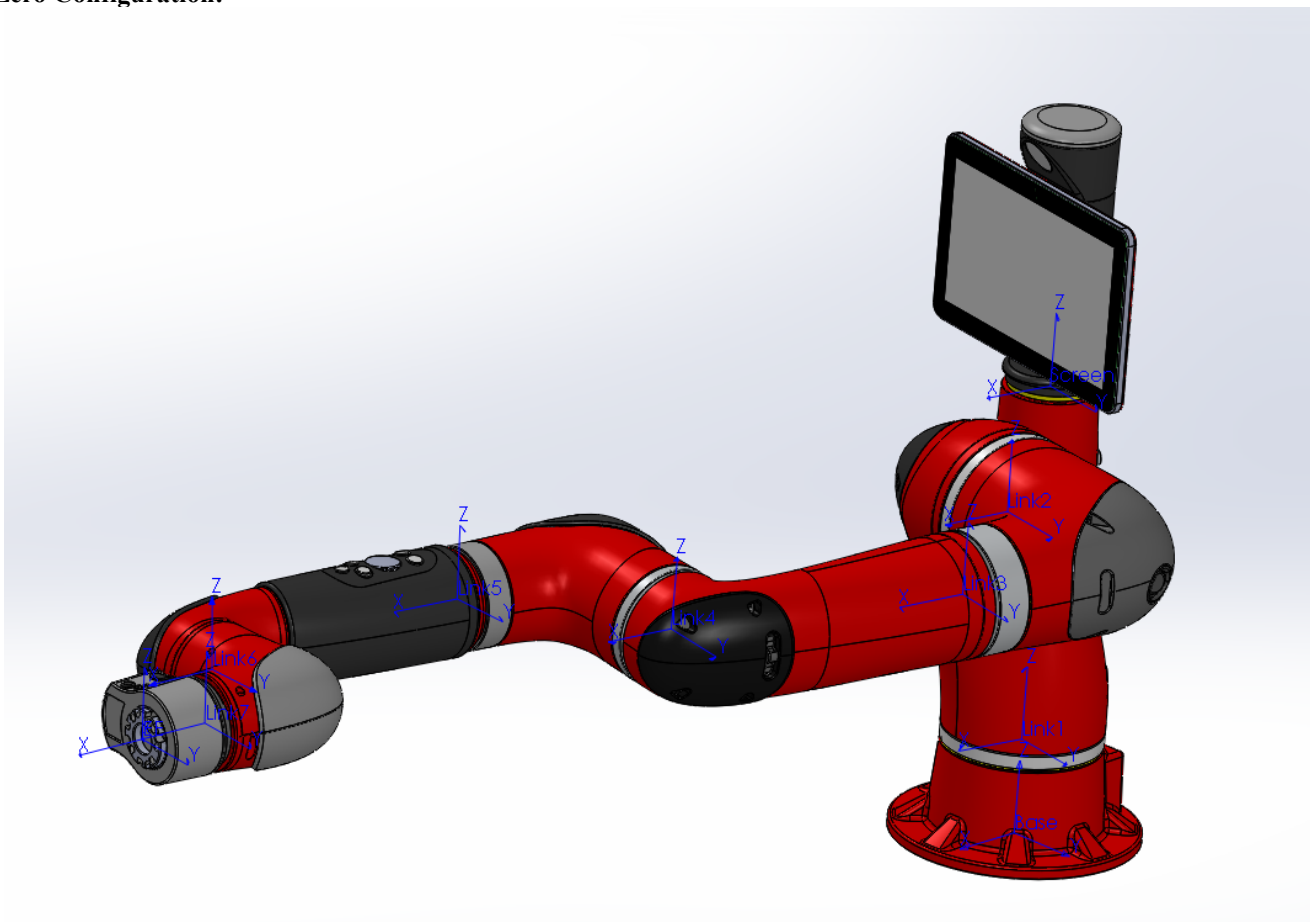
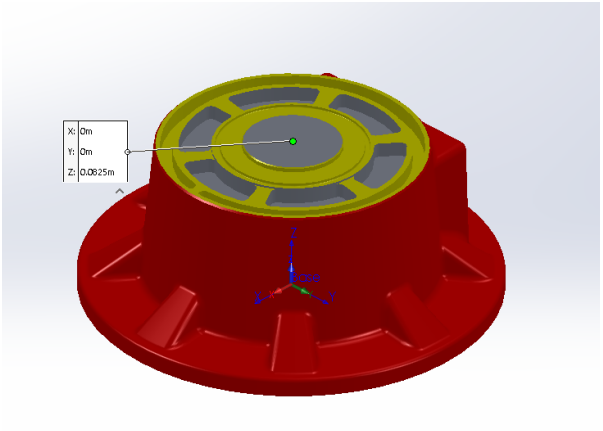
Rethink Sawyer
Kinematic Dimensions and Mass Parameters

Zero Configuration:

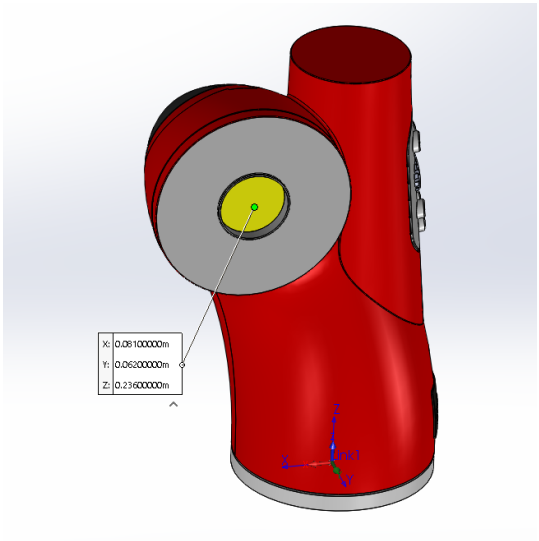


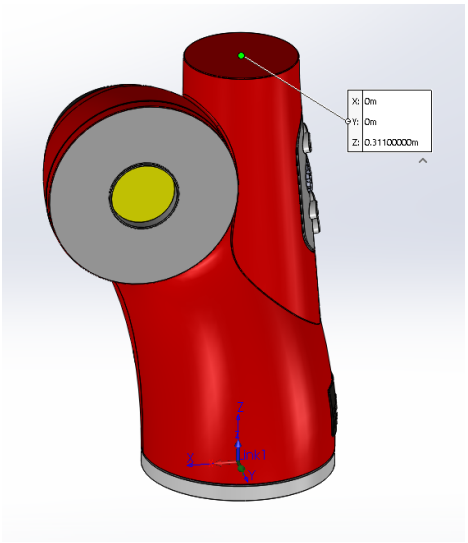
Base:



$$ {}^{I}_{I}\boldsymbol{r}_{1} = \begin{bmatrix} 0 \\ 0 \\ 0.0825 \end{bmatrix} (m) $$

Link 1:





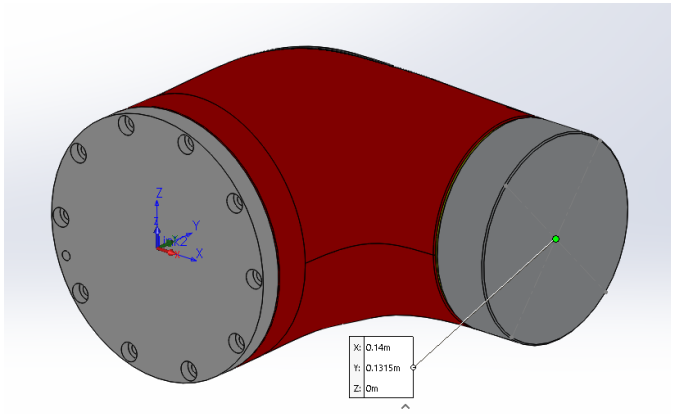
$$ {}^{1}_{1}\boldsymbol{r}_{2}=\begin{bmatrix}0.081\\0.062\\0.236\end{bmatrix}\ (m) \qquad {}^{1}_{1}\boldsymbol{r}_{screen}=\begin{bmatrix}0\\0\\0.311\end{bmatrix}\ (m) $$

$$ m_1=8.19264294\ \ (kg) $$

$$ {}^{1}_{1}\boldsymbol{r}_{cm}=\begin{bmatrix}0.02734797\\-0.00317970\\0.15563460\end{bmatrix}\ (m) $$

$$ {}^{1}_{1}\boldsymbol{J}=\begin{bmatrix}0.26607023 & -0.00038981 & -0.04801856\\-0.00038981 & 0.28078511 & 0.00174486\\-0.04801856 & 0.00174486 & 0.03266273\end{bmatrix}\ (kg\,m^2) $$

Link 2:



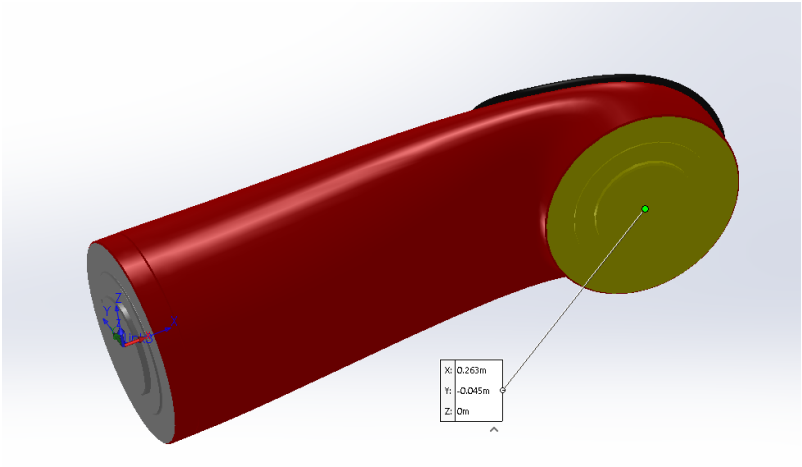
$$ {}^{2}_{2}\boldsymbol{r}_{3}=\begin{bmatrix}0.14\\0.1315\\0\end{bmatrix}\ (m) $$

$$ m_2=5.50781768\ \ (kg) $$

$$ {}^{2}_{2}\boldsymbol{r}_{cm}=\begin{bmatrix}0.02479837\\0.09522711\\0.00001324\end{bmatrix}\ (m) $$

$$ {}^{2}_{2}\boldsymbol{J}=\begin{bmatrix}0.06807013 & -0.01811791 & 0.00000238\\-0.01811791 & 0.02398210 & -0.00001133\\0.00000238 & -0.00001133 & 0.08122087\end{bmatrix}\ (kg\,m^2) $$

Link 3:



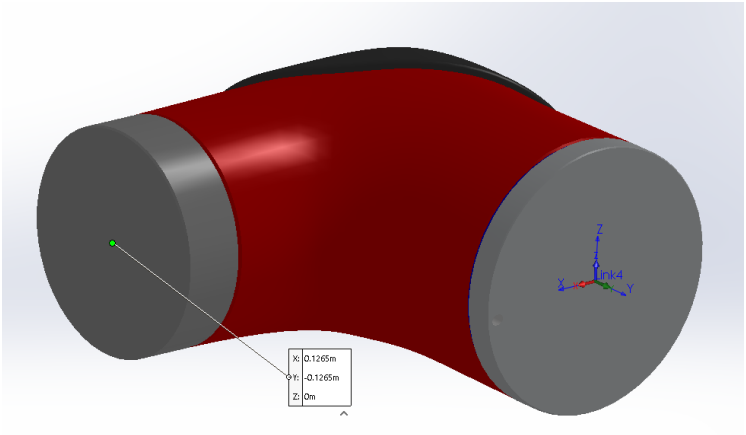
$$ {}^{3}_{3}\boldsymbol{r}_{4} = \begin{bmatrix} 0.263 \\ -0.045 \\ 0 \end{bmatrix} \ (m) $$

$$ m_3 = 3.81978662 \ (kg) $$

$$ {}^{3}_{3}\boldsymbol{r}_{cm} \begin{bmatrix} 0.14336135 \\ -0.00104665 \\ -0.00000231 \end{bmatrix} \ (m) $$

$$ {}^{3}_{3}\boldsymbol{J} = \begin{bmatrix} 0.00458681 & 0.00169482 & 0.00000052 \\ 0.00169482 & 0.11052135 & -0.00000006 \\ 0.00000052 & -0.00000006 & 0.10995021 \end{bmatrix} \ (kg\ m^2) $$

Link 4:



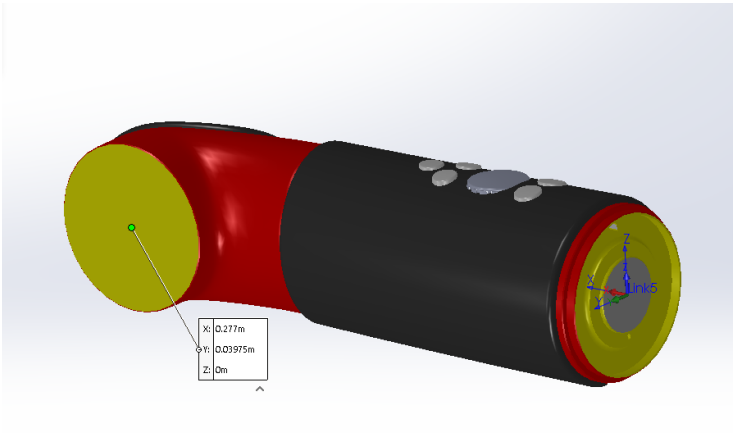
$$ {}^{4}_{4}\boldsymbol{r}_{5} = \begin{bmatrix} 0.1265 \\ -0.1265 \\ 0 \end{bmatrix} \ (m) $$

$$ m_4 = 3.37865995 \ (kg) $$

$$ {}^{4}_{4}\boldsymbol{r}_{cm} = \begin{bmatrix} 0.02658902 \\ -0.09611792 \\ -0.00006966 \end{bmatrix} \ (m) $$

$$ {}^{4}_{4}\boldsymbol{J} = \begin{bmatrix} 0.03973192 & 0.01142099 & -0.00000198 \\ 0.01142099 & 0.01197658 & -0.00003404 \\ -0.00000198 & -0.00003404 & 0.04758280 \end{bmatrix} \ (kg\ m^2) $$

Link 5:



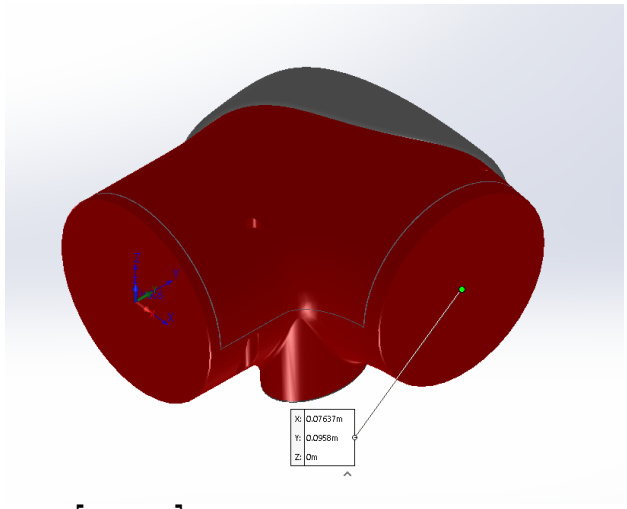
$$ {}^{5}_{5}\boldsymbol{r}_{6} = \begin{bmatrix} 0.277 \\ 0.03975 \\ 0 \end{bmatrix} \ (m) $$

$$ m_5 = 3.04430043 \ (kg) $$

$$ {}^{5}_{5}\boldsymbol{r}_{cm} = \begin{bmatrix} 0.14486497 \\ 0.00099740 \\ 0.00027129 \end{bmatrix} \ (m) $$

$$ {}^{5}_{5}\boldsymbol{J} = \begin{bmatrix} 0.00284307 & -0.00117636 & -0.00008063 \\ -0.00117636 & 0.08916094 & -0.00000018 \\ -0.00008063 & -0.00000018 & 0.08895676 \end{bmatrix} \ (kg\,m^2) $$

Link 6:



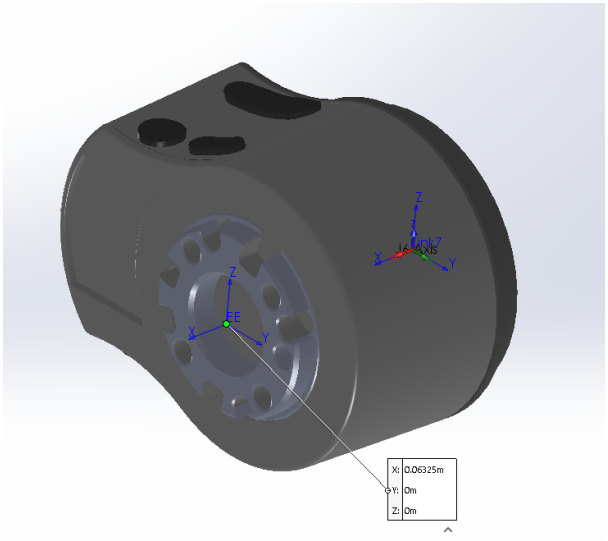
$$ {}^{6}_{6}\boldsymbol{r}_{7} = \begin{bmatrix} 0.07637 \\ 0.0958 \\ 0 \end{bmatrix} \ (m) $$

$$ m_6 = 1.93085347 \ (kg) $$

$$ {}^{6}_{6}\boldsymbol{r}_{cm} = \begin{bmatrix} 0.01219767 \\ 0.07446539 \\ -0.00128796 \end{bmatrix} \ (m) $$

$$ {}^{6}_{6}\boldsymbol{J} = \begin{bmatrix} 0.01427892 & -0.00224277 & 0.00003962 \\ -0.00224277 & 0.00311424 & 0.00019771 \\ 0.00003962 & 0.00019771 & 0.01544417 \end{bmatrix} \ (kg\,m^2) $$

Link 7:



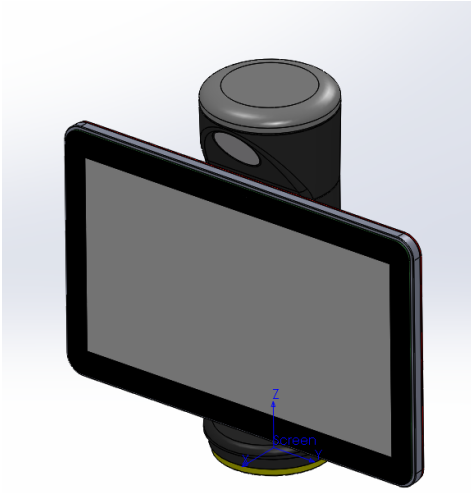
$$ {}^{7}_{7}\boldsymbol{r}_{E} = \begin{bmatrix} 0.06325 \\ 0 \\ 0 \end{bmatrix} \ (m) $$

$$ m_{7} = 0.66211106 \ (kg) $$

$$ {}^{7}_{7}\boldsymbol{r}_{cm} = \begin{bmatrix} 0.03037622 \\ -0.01061201 \\ -0.00000331 \end{bmatrix} \ (m) $$

$$ {}^{7}_{7}\boldsymbol{J} = \begin{bmatrix} 0.00082641 & 0.00022344 & 0.00000013 \\ 0.00022344 & 0.00103886 & 0.00000004 \\ 0.00000013 & 0.00000004 & 0.00134811 \end{bmatrix} \ (kg\,m^2) $$

Screen:



$$ m_{screen} = 2.52094779 \ (kg) $$

$$ {}^{screen}_{screen}\boldsymbol{r}_{cm} = \begin{bmatrix} 0.00366851 \\ 0.00049050 \\ 0.11638732 \end{bmatrix} \ (m) $$

$$ {}^{screen}_{screen}\boldsymbol{J} = \begin{bmatrix} 0.04954300 & -0.00001992 & -0.00086409 \\ -0.00001992 & 0.04540562 & -0.00012555 \\ -0.00086409 & -0.00012555 & 0.00621396 \end{bmatrix} \ (kg\,m^2) $$