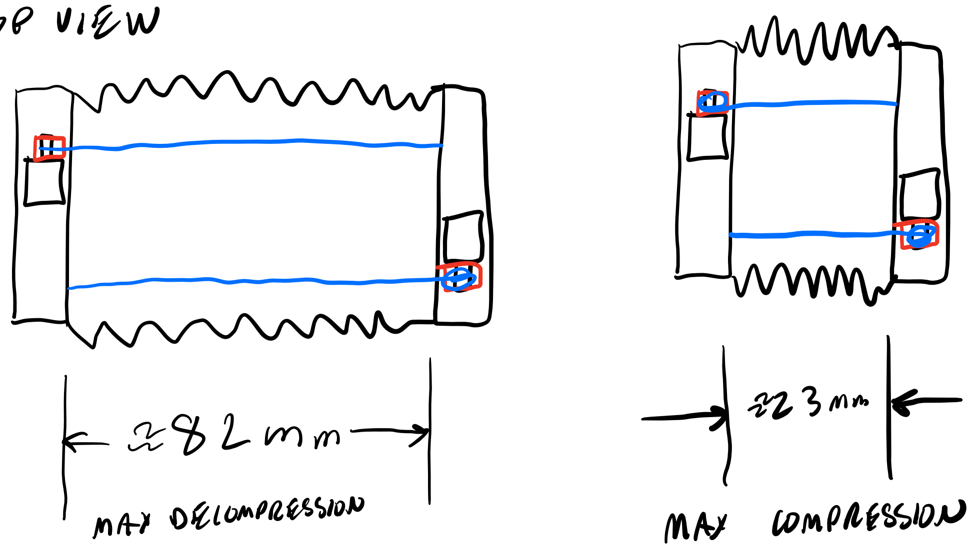
TOP VIEW




$\Delta L \approx 59\ mm$

$k_s = 0.57\ \frac{N}{cm}$

$F_{s,tot} = k_s \Delta L$

$= 0.57\ \frac{N}{cm} \cdot 5.9\ cm$

$= 3.4\ N$

$F_{s,motor} = \frac{F_{s,tot}}{2} = 1.7\ N$

IF STALLED AT END

$r_p = 6\ mm$


$T_m = F_{s,motor} \cdot r_p$

HARD TO GO MUCH SMALLER THAN THIS BUT COULD

$= 1.7N \cdot .6 cm$

$= 1.02\ N\text{-}cm$

DC MOTOR UNITS

$\Rightarrow 1.02\ N\text{-}cm \cdot \frac{1}{9.81\ m/s^2} \boxed{= 0.10\ kg\text{-}cm}$

ROBOT CAN DO 0.8 cm/s CURRENTLY BASED ON 1.56 cm/s TRANSLATION SPEED

FOR 1 cm/s COMPRESSION

$\Delta L = 5.9\ cm$

$r_p = 0.6\ cm$

$V = \frac{1\ cm/s}{2} = 0.5\ cm/s$ ← 2 MOTORS

$\omega_m = \frac{V}{r_p} = \frac{0.5\ cm/s}{0.6\ cm} = 0.83\ \frac{rad}{s}$

$= 0.83\ \frac{rad}{s} \cdot \frac{1\ rot}{2\pi\ rad} \cdot \frac{60 s}{1 min} \cdot \frac{60 min}{1 hr}$

$\boxed{= 7.93\ rpm}$