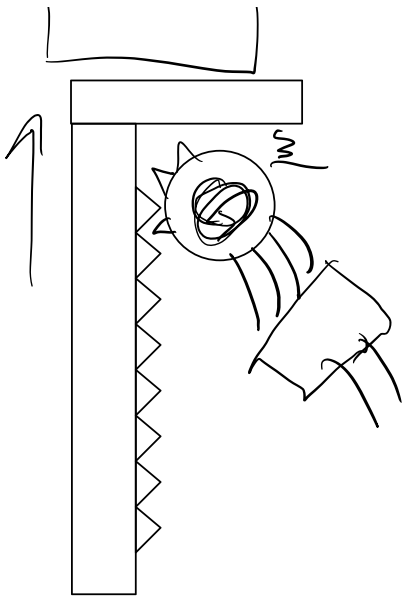
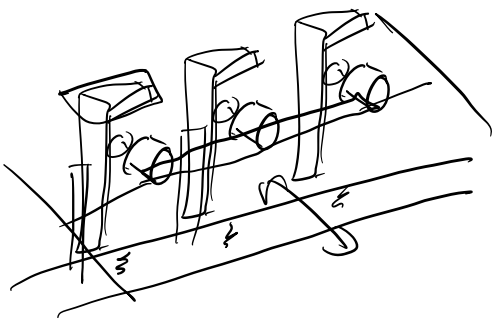
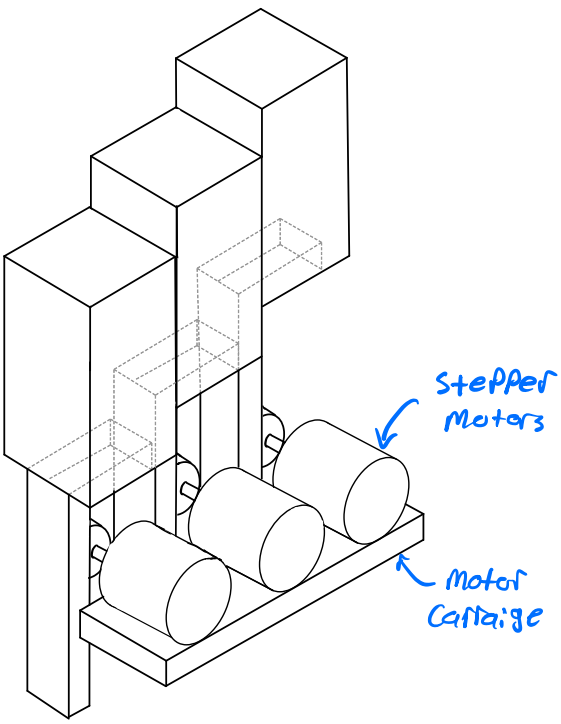
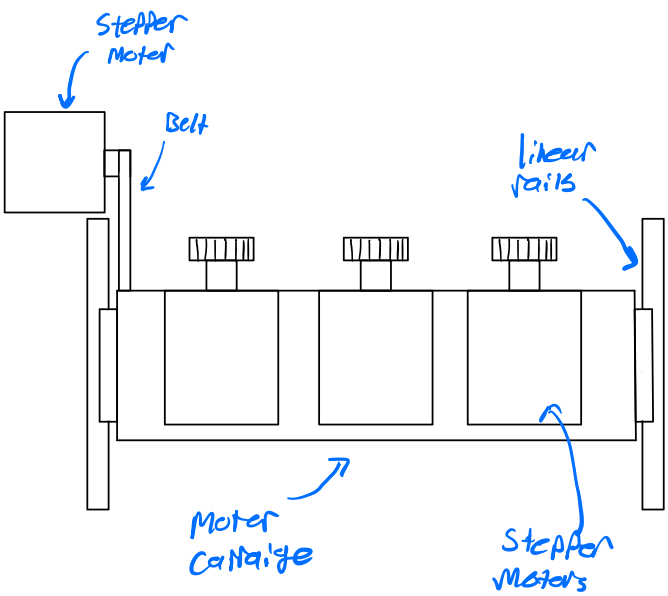
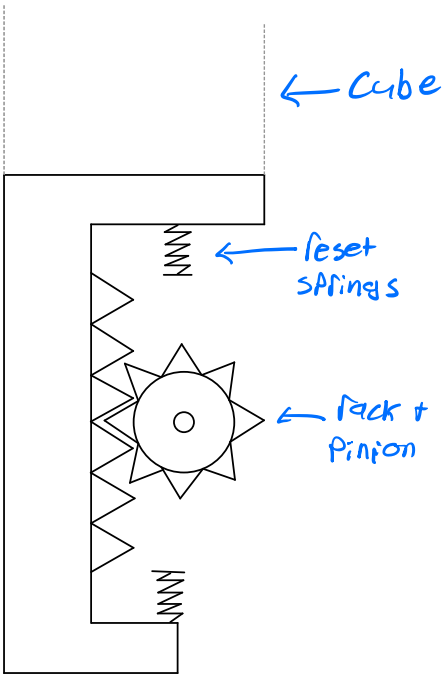
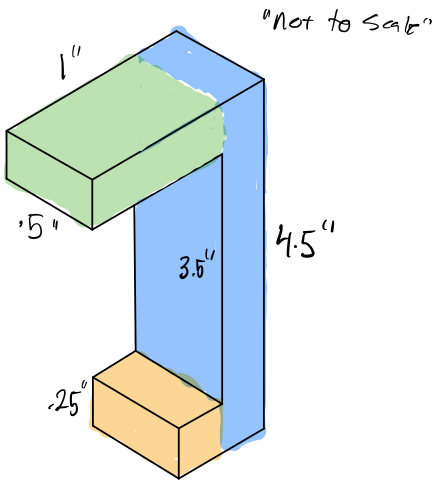





Stepper Motors
Motor Carriage


Stepper Motor
Belt
Linear rails
Motor Carriage
Stepper Motors





$.25 \times .5 \times .25 = .0\overline{3125}\ in^3$

$4.5 \times .25 \times .5 = .5625\ in^3$

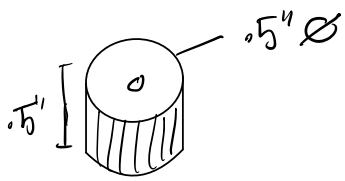
$.75 \times .5 \times .25 = .0\overline{9375}\ in^3$

Total = $.6875\ in^3$

@ 50% infill

$= .34375\ in^3$

$5.6E\text{-}6\ m^3$



$\frac{\pi}{4} .5^2 \times .5 = .0\overline{982}\ in^3$

@ 50%

$= .0\overline{49}\ in^3$

$8.03E\text{-}7\ m^3$

Pinion

$\rho = 1.24\ g/cm^3 = 1240\ kg/m^3$

$m_p = 8.03E\text{-}7\ m^3 \times 1240$

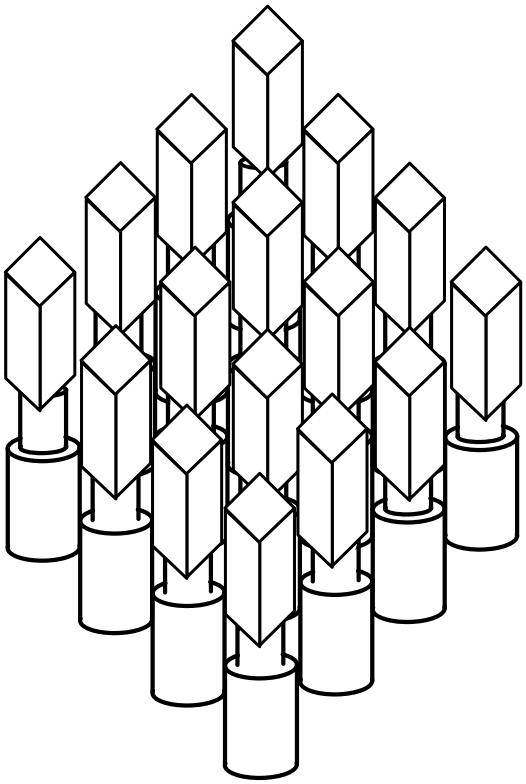
$m_p = .00\overline{1}\ kg$

Rack

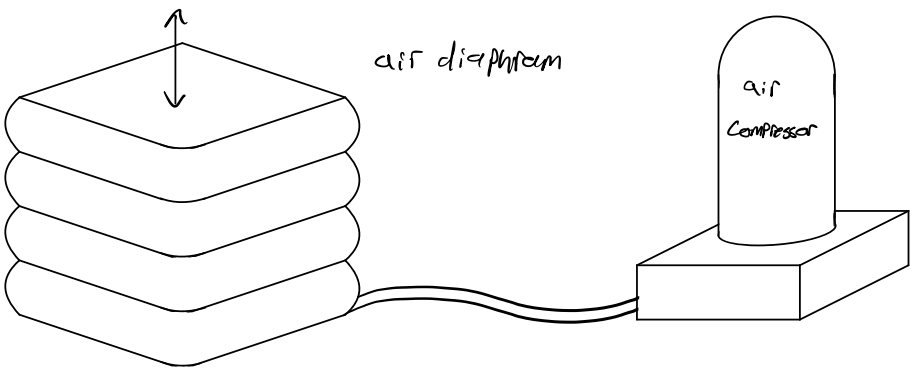
$m_r = 5.6E\text{-}6\ m^3 \times 1240\ kg/m^3$

$m_r = .00\overline{69}\ kg$

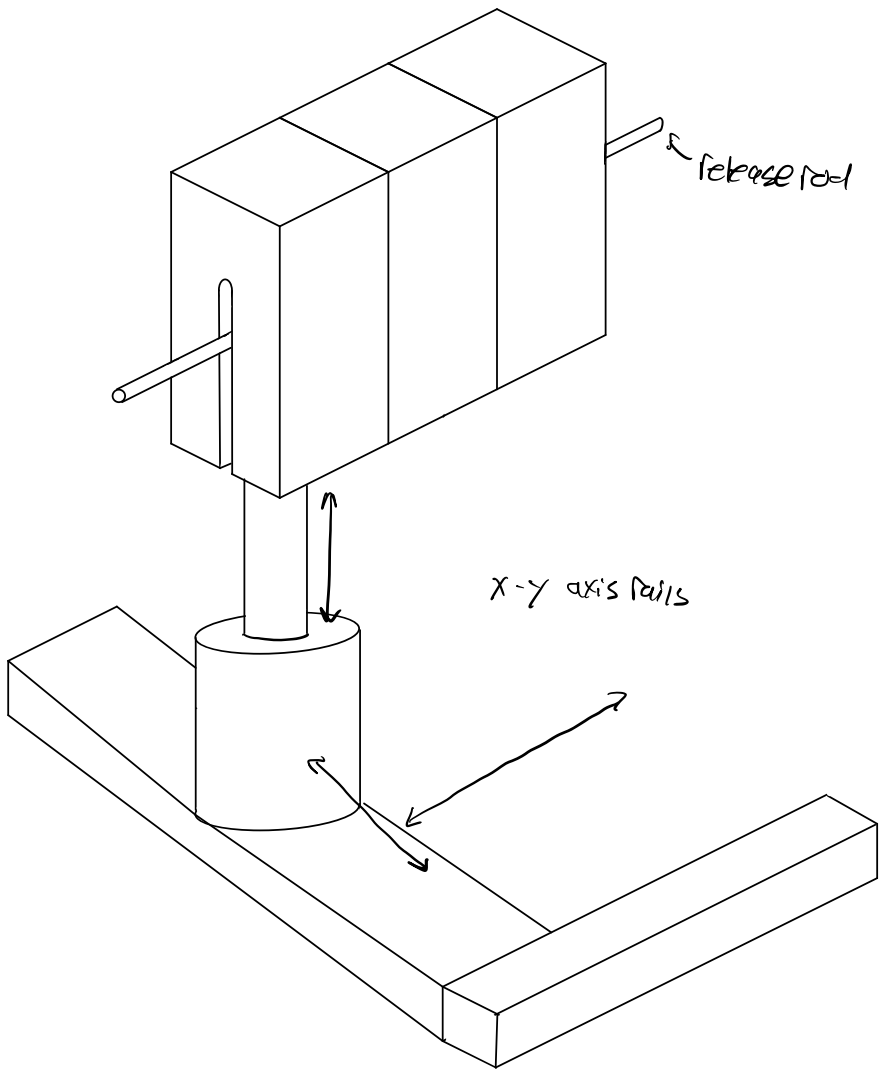
Individual Control

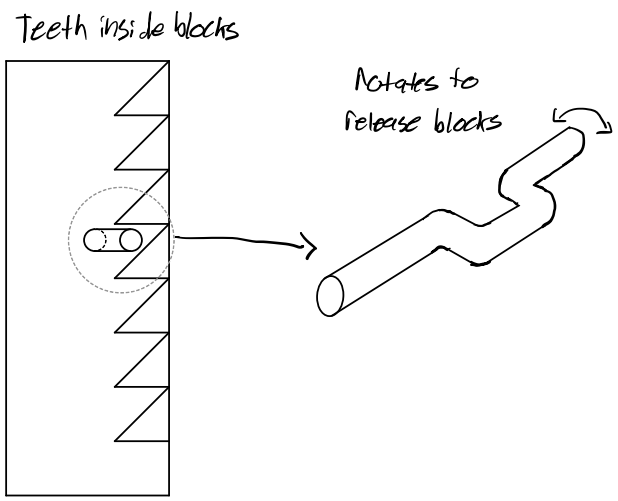
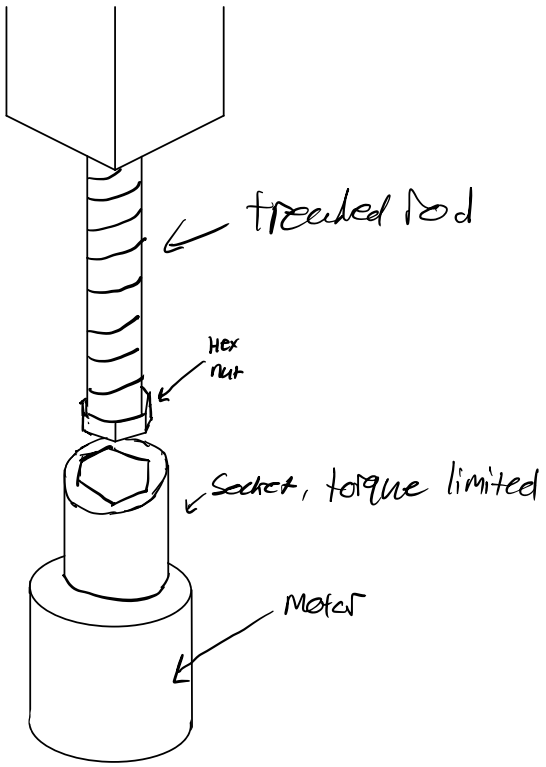


Pneumatic



linear actuator w/ ratchet





screw design