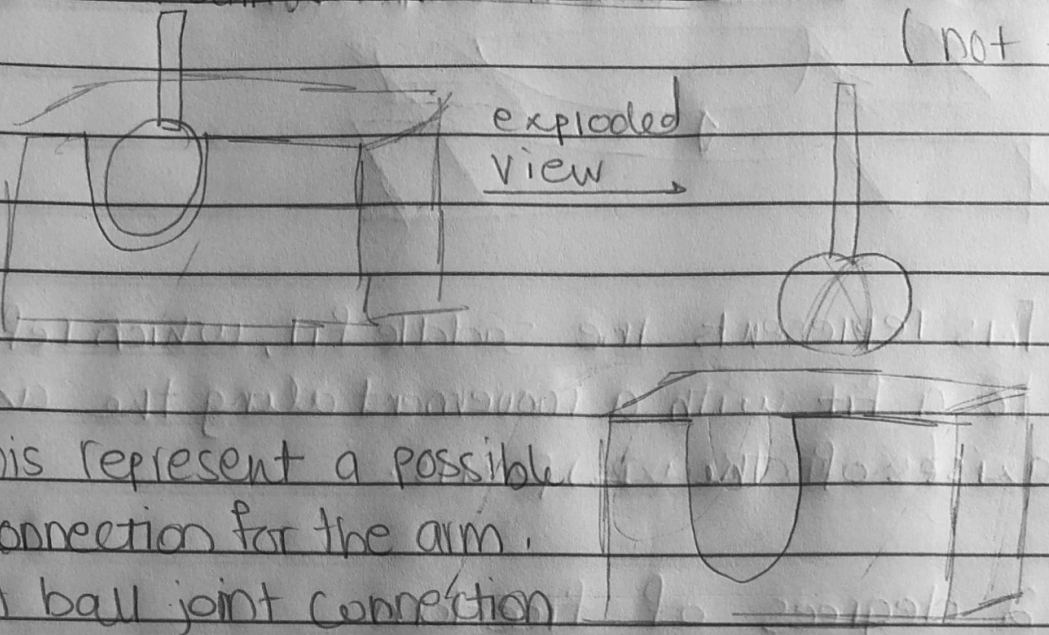
Module 2: ball joint / connection

(not to scale)



+ This represent a possible connection for the arm.

+ A ball joint connection allows for a 360° rotation

+ 3 degrees of freedom.

+ m = maximan load that ball joint can withstand = 9 lbs

+ $F = mg = (9\,lb)(9.8\,m/s^2) = 88.2N$.

+ $\mu = 0.1$

$F = \mu \cdot F = (0.1)(88.2N) = 8.82\,lbf$

+ $\sigma = \frac{F}{A} = \frac{88.2\,N}{\pi/8\,m^2} = 224.6\,N/m^2$

$d = 1m$

$A = \frac{\pi l^2}{2} = \frac{\pi(0.5)^2}{2} = \pi/8\,m^2$