Governing equations:

$\tau = I\alpha$

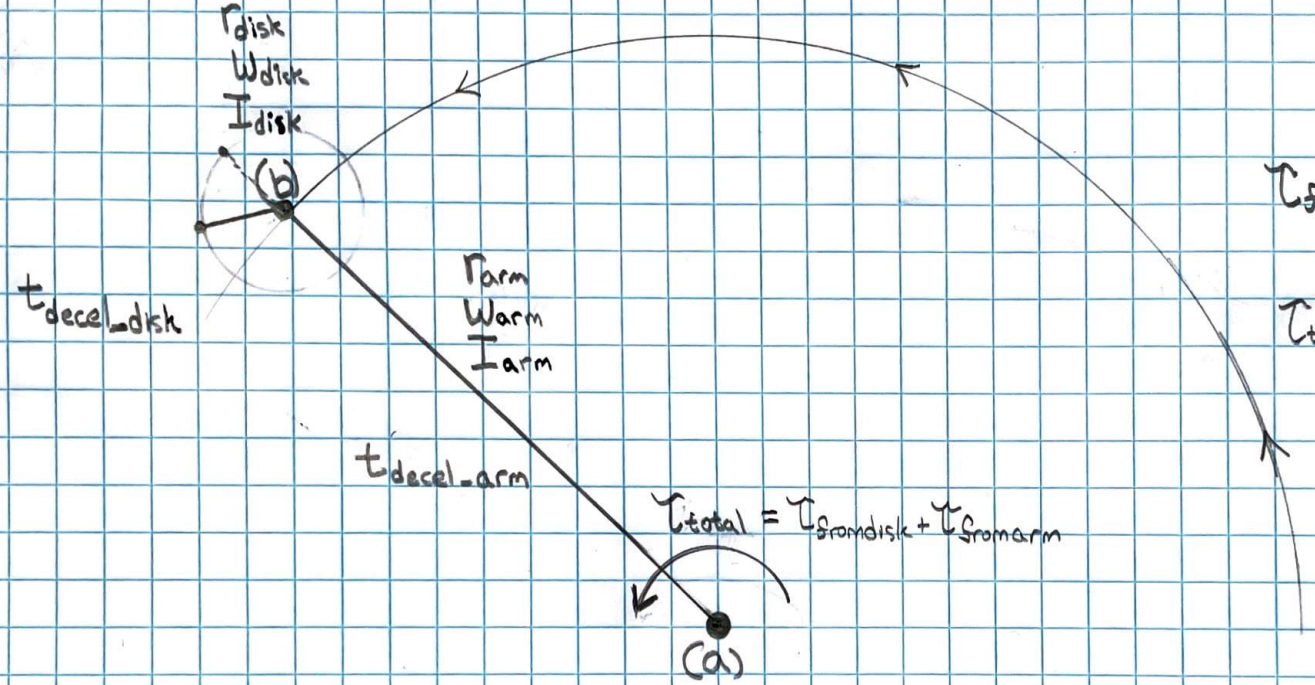
$\tau = r \times F$

Upon Impact:

$\tau_{on\,disk\,axis} = I_{disk} \cdot \frac{\omega_{disk}}{t_{decel\_disk}}$

$F_{disk\,tip} = \frac{\tau_{on\,disk\,axis}}{r_{disk}}$

(on arm) $\tau_{from\,disk} = (r_{arm} + r_{disk}) \cdot F_{disk\,tip}$ //



$\tau_{from\,arm} = I_{arm} \cdot \frac{\omega_{arm}}{t_{decel\_arm}}$ //

$\tau_{total} = \tau_{from\,disk} + \tau_{from\_arm}$ //

Dynamic Torque Approximation Calculation

Aman Penmetcha

Colossal Avian 4/29/24