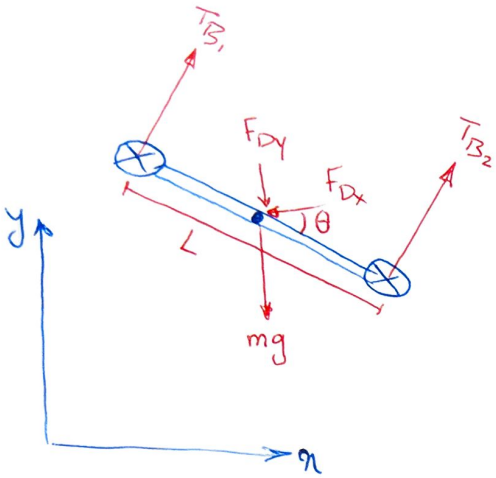
Quadrotor - 2D



$$\begin{cases} T_{B_1} = k\omega_1^2 \\ T_{B_2} = k\omega_2^2 \end{cases}$$

$$\begin{cases} F_{Dx} = -k_d \dot{x} \\ F_{Dy} = -k_d \dot{y} \end{cases}$$

$$F_g = -mg$$

$$\tau_B = Lk(\omega_2^2 - \omega_1^2)$$

Position $\begin{cases} x \\ y \end{cases}$

Orientation θ

$\downarrow a_x$

equations: I) $\sum F_x = m\ddot{x}$

$$m\ddot{x} = k(\omega_1^2 + \omega_2^2)\sin\theta + F_{Dx}$$

$\downarrow a_y$

II) $\sum F_y = m\ddot{y}$

$$m\ddot{y} = k(\omega_1^2 + \omega_2^2)\cos\theta + F_{Dy} - mg$$

III) $\sum M = I\ddot{\theta}$

$$I\ddot{\theta} = Lk(\omega_2^2 - \omega_1^2)$$