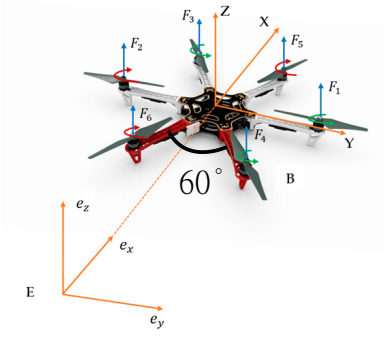


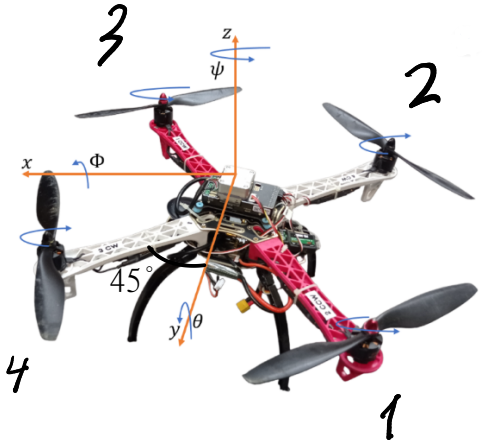
$$\begin{cases} U_1 = F_1 + F_2 + F_3 + F_4 + F_5 + F_6 \\ U_2 = (F_2 - F_1 + (F_3 + F_6 - F_4 - F_5)/2)L \\ U_3 = (F_3 + F_5 - F_4 - F_6)L\sqrt{3}/2 \\ U_4 = \tau_2 + \tau_5 + \tau_6 - \tau_1 - \tau_3 - \tau_4 \end{cases},$$

$$T = \begin{bmatrix} 1 & 1 & 1 & 1 & 1 & 1 \\ -L & L & L/2 & -L/2 & -L/2 & L/2 \\ 0 & 0 & L\sqrt{3}/2 & -L\sqrt{3}/2 & L\sqrt{3}/2 & -L\sqrt{3}/2 \\ -d/b & d/b & -d/b & -d/b & d/b & d/b \end{bmatrix}.$$

Technical Specifications

Frame Weight	478 g.
Diagonal Length (Motor to Motor)	550 mm.
Takeoff Weight	1200g-2400g.
Recommended Propeller	10 x 4.5 inch or 8 x 4.5 inch

$$\begin{bmatrix} f_z \\ \tau_x \\ \tau_y \\ \tau_z \end{bmatrix} = T \begin{bmatrix} \Omega_1^2 \\ \Omega_2^2 \\ \Omega_3^2 \\ \Omega_4^2 \\ \Omega_5^2 \\ \Omega_6^2 \end{bmatrix} \rightarrow \begin{bmatrix} \Omega_1^2 \\ -\Omega_2^2 \\ -\Omega_3^2 \\ -\Omega_4^2 \\ \Omega_5^2 \\ \Omega_6^2 \end{bmatrix} = T^{-1} \begin{bmatrix} f_z \\ \tau_x \\ \tau_y \\ \tau_z \end{bmatrix}$$



$$f_z = f_1 + f_2 + f_3 + f_4$$

$$\tau_x = l(f_1 - f_2 - f_3 + f_4)\sin 45°$$

$$\tau_y = l(f_1 + f_2 - f_3 - f_4)\sin 45°$$

$$\tau_z = l(-f_1 + f_2 - f_3 + f_4)$$

$$f_i = K_f \Omega_i^2$$

$$f_i^1 = K_M \Omega_i^2$$

$$\begin{bmatrix} f_z \\ \tau_x \\ \tau_y \\ \tau_z \end{bmatrix} = \frac{K_f l}{\sqrt{2}} \begin{bmatrix} \frac{\sqrt{2}}{l} & \frac{\sqrt{2}}{l} & \frac{\sqrt{2}}{l} & \frac{\sqrt{2}}{l} \\ 1 & -1 & -1 & 1 \\ 1 & 1 & -1 & -1 \\ -\frac{\sqrt{2}}{K_f} K_M & \frac{\sqrt{2}}{K_f} K_M & -\frac{\sqrt{2}}{K_f} K_M & \frac{\sqrt{2}}{K_f} K_M \end{bmatrix} \begin{bmatrix} \Omega_1^2 \\ -\Omega_2^2 \\ -\Omega_3^2 \\ -\Omega_4^2 \end{bmatrix}$$