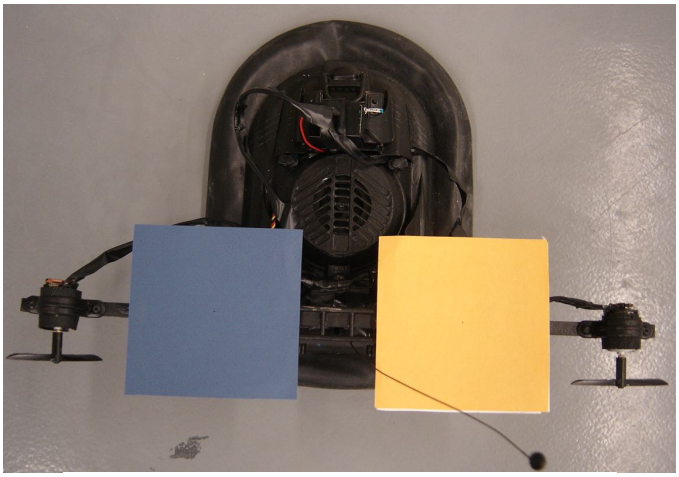

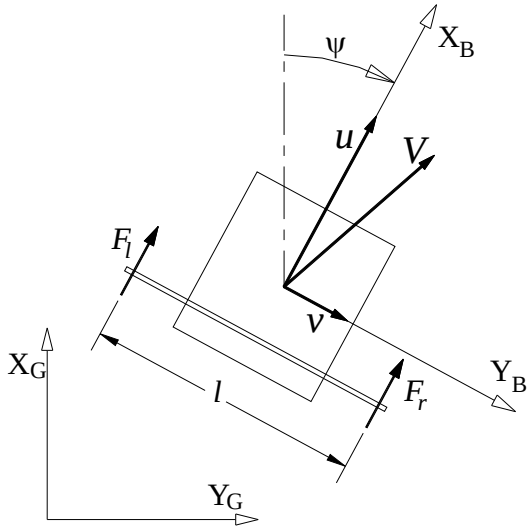

$$M(\dot{u} - vr) = F_l + F_r - c_1 u$$
$$M(\dot{v} + ur) = -c_2 v$$
$$J\dot{r} = \frac{l}{2}(F_l - F_r) - c_3 r$$
$$\dot{x}_c = \cos(\psi)u - \sin(\psi)v$$
$$\dot{y}_c = \sin(\psi)u + \cos(\psi)v$$
$$\dot{\psi} = r$$

u and v - components of velocity V in the X_B and Y_B directions
ψ - yaw angle
r – yaw rotation rate
M - mass
J - moment of inertia
c_1, c_2 coefficients of viscous friction in the X_B and Y_B directions
c_3 - rotational coefficient of viscous friction