

ABSTRACT

Quadcopter is a type of UAV (Unmanned Aerial Vehicle) which has four rotors as its lifter. This UAV type can do a lot movements in the air while flying, such as yaw, roll, and pitch. This movement can work well by maintaining stability, direction, and the height of that quadcopter. Roll corner, pitch, and yaw are controlled so the quadcopter can move stably. PID (Prportional Integral Derivative) is one of the controlling method which can use to stabilize the quadcopter movement.

The parameters used in this modelling were mass, arm length, radius, motor torsy, and motor speed. Some assumptions applied in modelling of this quadcopter were the structure of quadcopter is assumed rigid, the structure of quadcopter is assumed symmetric, and the load heavy point of quadcopter is assumed located right in the middle (mass center) of quadcopter, and vibration effect in each propeller is assumed not happened.

This research gives result that in design of PID control for quadcopter must involve all three variables K_p , K_i , and K_d . Only with K_p and K_i quadcopter can already stabilize his attitude but there is still Overshoot which will cause a bit of instability on the quadcopter. This quadcopter design is stable with 1.3 k_p roll gain while k_p pitch is 1.5, k_i roll is 0.04 while k_i pitch is 0.05, k_d roll is 18.0 while k_d pitch is 15.0

Keyword: *PID, Quadcopter, Roll Corner, Pitch Corner, Yaw Corner, Attitude.*