

ABSTRACT

Quadcopter is one type of aircraft Vertical Take off Landing (VTOL) that can take off and landing is perpendicular to the earth that can be done on a small area. Proportional Integral Derivative control system (PID) is a conventional controller which is used to determine the precision of a system with the characteristics of their feedback on the system. PID control system consists of three: Proportional, Integral and Derivative. Quadcopter model "+" with the dimensions of 60 cm x 60 cm x 15 cm and a total weight of 876 grams. The system consists of hardware, Turnigy 1200 KV brushless motor, Electric Speed Control (ESC) suppo 20 Ampere models, propeler 10x4.5, Lithium Polymer battery 3300 mAh / 11.1 Volt, gyrocope and accelerometer sensor module 10 DOF IMU, Remote Control Tx / Rx 6 channel 2.4 GHz and minimum system ATmega328P as the main controller. Graph PID algorithm design simulation with Matlab R2014a software. Arduino PID 1.0.5 as the compiler program that will be implemented to the system. Test results flew by giving one by one the value of Kp, Ki and Kd, obtained value of 0.5 Kp, Ki 0, Kd 0 which can help control quadcopter fly stably.

Keywords: Quadcopter, PID, Sensors, Microcontroller ATmega328P.