

## ABSTRACT

Current robot technology advances have helped human especially in handling difficult job done by human. So with the robot, difficult jobs can be completed easily and quickly. One type of robot is being developed is a flying robot. Flying robot that is used is Multicopter. This multicopter use 4 (four) propellers called quadcopter.

This final project aims to analyze the performance of proportional to control system on quadcopter. Proportional is used to control the speed of the fourth propeller motor of quadcopter so can fly stable and balanced and can overcome the influence of some extreme conditions, such as high winds or other physical interruption.

Analytical results obtained are IMU can work but still found error that can disrupt the value of sensor. So that needed filterization, filterization designed to address the problem of refractive error. Proportional constant influence on value systems affect Anomalies waiting time ( $t_d$ ), rise time ( $t_r$ ), peak time ( $t_p$ ), and maximum overshoot. From the data obtained that, the effect of changing constants P is not in accordance with the properties of the controller P. This is caused by the cycle time is not real time program that controls the action too late to overcome the error.

Keywords : Flying robot, Proportional, accelerometer, gyroscope, microcontroller, Multicopter, quadcopter, Inertial Measurement Unit