ABSTRACT

Science of electronics is rapidly increasing, for example in science flights this time more intense in flying quadcopter. Quadcopters is a flying object like helicopters but it is equipped by 4 pieces of the rotors are useful at vehicle. Quadcopter fly is almost equal with helicopters, these flying objects uses wind pressure downwards to fly, however way of stabilize of flying conditions quadcopter differ with helicopter. Helicopter fly by pushing air downward and using tail stabilizer to stabilize the helicopter position. Quadcopter while not using the propeller on the tail. Quadcopter air pressing down to fly, quadcopter regulate stability by regulating the speed of the four rotors that are on each side of the quadcopter.

Quadcopter uses sensor ultrasonic to read the distance from quadcopter. While quadcopter flying is utilize PID controller from module ardupilot embedded. It use to regulate and monitor the quadcopter. Ardupilot send information to ARM STM32F4 Microcontroller, ARM STM32F4 will process the value from the ultrasonic sensor and module ardupilot, then ARM STM32F4 will perform calculations for member data from the navigation quadcopter.

The results of this research prove is the quadcopter have error ini position shift during flight. Average error difference vector X of 0.072%, and the average error vector Y of 0.426% while quadcopter landing.

Keywords: quadcopter, navigation.