ABSTRACT

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Title : *Implementation Fire Detection Algorithm Based On Its Color Composition In An Autonomous Quadcopter*

In the dry season, forest fires ravaged Indonesia always. In fact, Indonesia is one of the lungs of the world with an area of 99.6 million hectares of forest. Forest fire suppression efforts are very difficult to do because of the lack of direct access to hotspots in the woods, except by opening the way. Another effort is by dropping water from a plane or helicopter. However manned aircraft would have other risks for its passengers.

Unmanned aircraft can certainly do the job of fire detectors and replace human tasks. In order to float just above the fire point, the selected type of quadcopter. With so need to be made on a fire detection system that is generally equipped Quadcopter GPS to fly.

In this thesis, the fire detection algorithm, based on the composition of color on a Quadcopter which can fly automatically using the web camera and an additional microcomputers, specifically for fire detection process that can be integrated with flight controller. Microcomputers will detect it and send commands based on the calculated results to the flight controller to move toward hotspots were detected. From the results of measurements and tests can be concluded that the fire detection algorithm is adaptive quadcopter in a variety of conditions with an accuracy rate of 80,24%. So expect the fire detection system can replace human tasks and a solution at the time of wildfires

Keywords : *Quadcopter, Fire detection, Autonomous*