

ABSTRACT

Indonesia is one of the lungs of the world with an area of 99.6 million hectares of forest. In the dry season, Indonesian forests are often ravaged by fire. Because of difficulties in the forest terrain traversed Indonesia, wag forests in Indonesia are often rapidly spread and cause widespread areas affected by fires. Enterprises in fire fighting can only be done by dropping water from a plane or helicopter. However this is a risk to the pilot who piloted the aircraft or helicopter.

Unmanned Aerial Vehicle (UAV) is an air explorer robot without using a pilot inside. One kind of UAV is quadcopter. Currently, quadcopter has been growing very rapidly. Quadcopter excellence can be calculated very helpful. The use of quadcopter can be done in all kinds of places even in places that are difficult ones. Because of these advantages, quadcopter widely used in various applications. One type of application being developed is quadcopter with detection systems and fire extinguishers.

Based on this background, the author design and implement a prototype with detection systems and fire extinguishers on quadcopter using image processing. On the image processing, the authors use the camera as a visual image on quadcopter. The image results are sent directly to a ground station. From each of the image results, quadcopter analyze whether the images taken have fire points or not. If on the visual contained fire points, quadcopter extinguish it. On the image processing, the authors use a Color Filtering HSV (Hue, Saturation, Value) method as a comparison of the color of fire against quadcopter coverage area. Quadcopter using microcomputers as the brain processes the fire detection system. From the test results can be concluded that the detection system and fire extinguishers have been able to run accurately. So expect detection systems and fire extinguishers can replace human tasks, and a solution in time of the fires.

Keyword : *Unmanned Aerial Vehicle, quadcopter, remote control, image processing, Ground Station, Color Filtering, HSV (Hue, Saturation, Value).*