ABSTRACT

Unmanned aerial vehicle (UAV) is a flying robot that can controlled by humans using a Remotely Piloted Vehicle (RPV) or autonomously which has many uses including: military purposes, to monitor an object or as a photo media and videography. One of the types of the Unmaned aerial vehicle (UAV) is quadcopter. Quadcopter is the type of UAV that have 4 propellers. But at this time affordable drones still have many shortcomings including in the obstacle collision avoidance system where the drone has not been able to avoid a collision with an obstacle or barrier automatically during flight where this incident can be very dangerous if the drone accidentally hits a person or other object so that it can cause damage to the drone, property and victims soul.

In this study, designed a quadcopter with a collision avoidance system using a sharp ir sensor which will be processed with fuzzy logic. This collision avoidance system will detect the distance of the quadcopter to the surrounding obstacle. The distance data will be processed using Arduino fuzzy logic. Fuzzy logic will determine the direction in which the quadcopter will avoid. Then the data from the fuzzy logic results will be sent to the flight controller to control the quadcopter propeller.

The results of this study are expected to be a solution for cases of drones being damaged by hit an obstacle, and can help reduce cases of drones hitting humans.

Keyword: *Collision Avoidance, Sharp IR sensors, Quadcopter Collision Avoidance.*