

ABSTRACT

Robot with automatic control is a robot that can move by itself without human intervention[1]. Robot itself has a diverse cruising range on land, air and sea. One type of robot that operate in water a swarm boat, wich is intended for battle. Swarm boat uses more than one unmanned survace vehicle (USV) wich is an autonomus robot that operate in water. USVs will form a formation that has been predetermined, so the position between the USV is very important. Yet many of the problems USV faced towards the desired position are either from waves that is too large such that it is difficult for each USV to position and maintain the formation.

This research design a USV that use camera as a sensor that will be used to distinguish one USV with the others. In each USV a color marker is given, which will be processed by the camera to show the distance between USV. Fuzzy logic control is used to control USV movement to get the desired position in the formation.

As the result of this final project, the fuzzy logic control can be used in USV movement. This is proved by the percentage of success that reach 71,67%, with an average angle error of 40,93°, an average error distance of 23,22 cm, and average travel time of 4,4 seconds.

Keywords: Swarm Boat, Unmanned Surface Vehicle, autonomous, Fuzzy Logic Control