

## **ABSTRACT**

Feeding fish to fulfill the nutritional needs of the fish, can increase the growth of the fish until it reaches a marketable size. However, manual feeding requires a lot of time and cost. Therefore, an automation system is needed that can help feed fish automatically at the right time and amount. To solve this problem, the Unmanned Surface Vehicle (USV) Fish Feeder product with fuzzy logic control is an interesting topic to research which has the advantage of reducing production costs and the time required for manual feeding. The navigation system must be able to move according to the specified destination. In this research, a navigation system using GPS and compass is designed. A fuzzy logic control system will be applied to control the movement of the USV Fish Feeder with input distance error and angle error. The location of the USV Fish Feeder can also be monitored through an android application to facilitate monitoring of its location when it is in use. The result of the tests that have been carried out is that the designed navigation system can move the USV Fish Feeder to a predetermined waypoint. In addition, the USV Fish Feeder automatically stops every certain distance. Navigation testing at the first waypoint resulted in an average error of 1,38 m, the second waypoint with an average error of 1,7 m, the third waypoint with an average of 1,3188 m, and the fourth waypoint with an average error of 0,7703 m. As for the location monitoring system, it has an average error of 1,5 m. Meanwhile, the location monitoring system has an average error of 1,111578947 m.

**Keywords:** Fuzzy Logic, Unmanned Surface Vehicle, Autonomous, Location Monitoring.