

DESIGN OF UNMANNED SURFACE VEHICLE (USV) AS A RIVER WASTE CLEANER IN KEMBANGARUM VILLAGE

RIAN ZULFIANTO

*Electrical Engineering Study Program, Faculty of Science & Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : rianzulfianto@gmail.com*

ABSTRACT

Kembangarum Village is one of the tourist villages located in the Turi sub-district. The activities carried out by tourists cause a lot of waste, especially in rivers. Even though many tools have been developed to clean the surface of the river, most of the waste cleaning is still done manually, such as in Kembangarum village. This study aims to design an unmanned surface vehicle (USV) that can be controlled remotely with a remote control and is equipped with an actuator to clean garbage on the surface of the water. In the entire device several components are installed which are used in the form of an ultrasonic sensor to detect garbage when it is full, a motor driver to adjust the speed of the DC motor which is used as a conveyor drive and USV main drive, a remote control is used to remotely control USV and Arduino UNO as a processor to run tool system designed. Based on testing the accuracy of ultrasonic sensor readings from 15 experiments, an accuracy rate of 99.99% was obtained. While the results of the conveyor test in picking up trash on the surface of the water with mass variations, it was found that the maximum load that can be lifted by the conveyor is 649 grams. While the results of the trash notification test work well with an error percentage of 0%. Based on testing the entire system obtained a success rate of 100% from 10 trials.

Keywords: *Airboat, Garbage, Unmanned Surface Vehicle, Remote Control, Conveyor.*