

ABSTRACT

Water pollution that occurs today is around 76% of the main rivers in Indonesia already experiencing pollution at an alarming rate. The level of pollution caused by human waste alone has reached 80%. The development of autonomous technology and remote control systems has made significant contributions in various fields.

Autonomous Surface Vehicle (ASV) is an unmanned vehicle that can move alone to the destination point. ASVs are used to facilitate conducting various studies on water, such as measuring water quality in contaminated areas. In the operation of ASV there are various components that support the work of this tool. The use of GPS to determine coordinates at longitude and latitude. as for the use of a compass to determine the direction of facing (heading). Heading is an angle that indicates the direction of the ship relative to geographic north (true north) or magnetic north. Heading is measured in degrees from 0° to 360°, with 0° or 360° indicating north, 90° indicating east, 180° indicating south, and 270° indicating west [1]. In this research, a feature is added in the form of a remote control as a safety feature. If autonomous use is constrained by interference, the remote control can be used to move the ship.

In the current study, ASV is used to measure the temperature and pH of water. the process in conducting this research is to determine the test location point by Latitude and Longitude taken on Google Maps. The ASV will move autonomously and the sensor data acquisition system will measure the temperature and pH sent by these sensors to the LCD continuously.

The use of remote control in this research can be used if the terrain to be reached has difficult obstacles such as winding or circular. Remote control is also a safety feature if there are obstacles in the use of ASV. The pH data measurement has an average error of 0.46 and temperature of 0.21. The waypoint navigation system has an average distance error of 2 meters. The average ship speed towards the waypoint is 0.78 meters / second. Based on system design and testing.

Keywords: Autonomous Surface Vehicle (ASV), Remote control, pH sensor, Temperature sensor, Water quality.