

DESIGNING AND TESTING UNMANNED SURFACE VEHICLE (USV) WITH CATAMARAN INBOARD PROPELLER BASED ON ROBOT OPERATING SYSTEM (ROS)

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ABSTRAK

Java is the largest level of industrial density island in Indonesia. The island consists of some big cities such as Jakarta, Surabaya, Semarang, Sidoarjo, and Solo, which are labeled as industrial cities. The existence of these industries provide a variety of social effects, ranging from positive effects to negative effects. One of the negative effects is air pollution. It often pollutes the river without any sterilization. Therefore, it causes environmental pollution and the destruction of water or river ecosystems. Unmanned Surface Vehicle (USV) or Autonomous Surface Vehicle (ASV) is an unmanned vehicle that can be operated on water surface. USV is automatically controlled through the RQT in real time via telemetry by manually operating or providing input waypoints / locations to be addressed. Whereas the inboard propeller catamaran design model is one of the ship designs, which consists of combining two designs. Catamaran is a ship design with two main hulls. While the inboard propeller is a ship design that positions the propeller / propeller inside the hull with a flowing waterway, the inboard propeller design provides more effective effect for the motion of the ship than the outboard propeller design, this is because the inboard propeller design allows the propeller to be safe from dirt , garbage or wild roots that often fill the river, which will hamper the ship's rate. The combination of catamaran designs provides advantages in regulating the balance, stability, and maneuverability of the ship when it sails the river. The robot operating system is also able to provide good control stability with the data transmission process, which has proven that minimal bugging occurs. The generated distance is also quite good with a range of approximately 10 meters without obstacles. It can be still extended if using different networks.

Keywords: *ROS, Water pollution, catamarans, Unmanned Survace Vehicle, Waste*