ABSTRACT

Ocean pollution is currently one of the problems that must be addressed seriously, because in the last few years many events have caused marine pollution. One of the causes of marine pollution is oil spills. If this marine pollution continues, of course, it will cause a detrimental impact on living things. The health impacts of marine pollution can interfere with respiration, irritate the skin, nausea, and can cause blood cancer. In addition, the impact on marine ecosystems also can damage marine life, damage the food chain, decrease the quality of life of marine organisms and will delay the natural photosynthetic process. In addition, marine pollution can also have an economic impact. Therefore, we need a technology that capable to separate oil from water effectively and economically as well.

This study designed a ship prototype, on automatic water-oil separator based on Internet of Things (IoT), utilizing nano separator membrane. In this system, a conductivity sensor to distinguish oil and water. When the conductivity sensor detects oil, the oil will be pumped and transferred into the separation compartment. Then, the process of separation of oil from water with be assisted by the a nano separator membrane. The volume of oil that has been separated was detected by the ultrasonic sensor,and can be monitored via Thingspeak. The designed system was subjected for testing with palm oil and coconut oil. The experiment results showed that the system has, separation efficiency of about 60%. From this device, it is hoped that it can be useful to solve and reduce oil pollution that occurs in water.

Keywords: Membrane nano separator, Internet of Things, oil and water separator