ABSTRACT

Oil pollution in the sea is very dangerous for marine life. Oil pollution generally occurs due to tank leaks, offshore oil drilling or accidents. Oil pollution in the sea can cause harm to humans, especially the ecosystem in the sea. Some of the consequences that occur from oil pollution at sea include damage to coral reefs, failure to harvest sea weeds and difficulty for fishermen to find fish at sea. To solve the problem we need a device that can work to clean the spilled oil.

In this final project, a design system prototype ship for water oil separation automation assisted nano separator membrane using internet of things (IoT), with Arduino as a microcontroller, TCS3200 as a sensor to detect the presence of oil, US100 sensor as a reading of the volume of filtered oil, nano membrane separator as water and oil filter and IoT system. The IoT system is designed to display the volume of filtered oil and the mixture of water and oil stored on the ship. The test aims to find the efficiency value of water and oil separation with the nano separator membrane and the efficiency of the water and oil separator vessel system. From the results of testing the separation of water and oil with the membrane nano separator, the average efficiency value is above 84% for oil and 96% for pertalite, moreover while for testing the oil water separation vessel system an efficiency is obtained of 88% and experiments with pertalite obtained efficiency of 52%. Hopefully this research can be a solution and help reduce oil pollution in the sea.

Keyword : Pollution in The Sea, IoT, Membrane Nano Separator, TCS3200, US100