

## ABSTRACT

Offshore natural resource management sometimes experiences work accidents such as the occurrence of pipe leaks, spilling oil and sinking of oil carriers. The oil spills that are in the ocean have great potential damage to the environment. This oil pollution can cause pollution to waters and seas that impact the disruption of organism life and ecosystems within those waters. These oils and water cannot fuse, this is because of the nature of the molecule. Water has polar molecules whereas oil has non-polar molecules. This causes oil and water to form two separate layers. By removing oil from the sea would make the sea free from pollution so that the ecosystem is not damaged by oil spills. So it takes an effective way to clean oil from sea level quickly and efficiently.

On this study it was made a tool that could separate oil and water automatically using TSD-10 and NodeMCU sensors as its microcontrollers. The TSD-10 sensor will be paired on the water level, where the sensor will read the clarity of the water, when there is water surfaced oil then the water will become murky. Sensors read water clarity then microcontrollers will process it. Once processed on a microcontroller, then the microcontroller gives the on command to the DC motor to move the belt (belt) to transport oil towards the dump. Using a separate oil ultrasonic sensor is then delivered via the IoT Platform Thingspeak service in order to be displayed in the form of a user interface. The test results showed that the system's success rate for separating oil from the water level stood at 70%. The system is expected to be implemented as one method of doing marine cleanup from oil spills automatically.

**Keywords:** Oil and automated water separators, TSD-10 Sensors, Ultrasonic Sensors, Belt skimmers, Internet of Things