

ABSTRACT

Oil spills are one of the causes of water ecosystem pollution which has a negative impact on the ecosystem and economic losses. However, overcoming pollution of water ecosystems by oil spills is not easy and requires expensive costs. The simplest example of overcoming this problem is by burning or applying surfactants to water ecosystems, but this method has a negative impact on water ecosystems. Therefore, an Internet of Things (IoT)-based oil and seawater separator is needed as a way to overcome the problem of oil spills in water ecosystems without re-polluting the water ecosystem. The tool is designed to use a separator as a method of separating oil and sea water by utilizing the weight of the liquid mass of oil and sea water. The oil which will float to the surface of the liquid will be sucked into a special oil tube. The special oil cylinder will be equipped with an ultrasonic sensor which functions to measure the volume of oil that has been separated. Apart from that, the system is also designed to have the advantage of being able to detect the presence of an oil separator using a GPS module. Data on oil volume and equipment location will later be sent using LoRa so that it can be monitored via the modular application on a cellphone. The research was carried out with the amount of oil divided into 3 parts, each part having the same water value of 1800 mL. The research results show that the average efficiency of oil that can be separated when 800 mL is 72.59%, when 1000 mL is 76.68% and when 1200 mL is 82.71%. Meanwhile, the average error result in the location monitoring system was 1,65 meters and the results of manual volume measurements by monitoring the average data difference were 2.1 mL.

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