

## **ABSTRACT**

*Environmental pollution is now a serious problem, especially in aquatic environments. One of the pollution that occurs in the waters is oil pollution. Oil mixed with water is very dangerous and threatens the destruction of the ecosystem that is in the water. This pollution can also have serious effects on human health such as digestive disorders and nervous disorders, if left for long periods of time. At present, separation is carried out by utilizing the density of water and oil, so that the oil rises to the top because the oil density is lighter, and the water drops, but the arrangement is very difficult and the cost of using this method is very expensive.*

*This study discusses the design of an automatic water and oil separator system using nanofilter. Water and oil that are mixed will enter into the tank to be separated using a nanofilter, so that oil can pass through but water does not. After the water and oil separate, the ultrasonic sensor will read the water and oil level then send a signal to the microcontroller. The microcontroller will activate a water pump that will drain water and oil that have been separated. The results of this study show the separation efficiency for cooking oil with a volume of 500 ml 93.26%, cooking oil with a volume of 1000 ml 94.9%, cooking oil with a volume of 1500 ml 96.68%, Dexlite with a volume of 500 ml 92.46%, Dexlite with a volume of 1000 ml 96.3% and Dexlite with a volume of 1500 ml 97.64%.*

**Keyword(s): Oil and Water Separation, Nanofilter , Pollution**