ABSTRACT

Today especially in big cities in Indonesia have high traffic congestion level. With these conditions, directly impacted by the increase in the intensity of motor vehicle engine work. This results in decreased quality of lubricant oil in motor vehicles. Because oil has a certain time limit to be replaced, in order to keep the engine performance in good condition. Basically the function of engine oil is as a machine lubricant to reduce friction between components and as engine coolant.

Based on this background, this research implements portable motor oil quality detector. By using some sample of motor oil test with new motor oil viscosity condition, motor oil condition is still 2 months, and condition is still 5 months. In addition to viscosity, motor oil that the color conditions with new lighter than the old oil conditions that are worn more black and dark. Therefore, the motor oil detector uses a rotary encoder and photodiode sensor. The method used in this study uses fuzzy logic because it can classify motor oil conditions from those having different viscosities and oil colors.

Based on the results of this study using AHM Oil MPX2 motor oil sample, it was found that the difference of oil viscosity with oil has been used has the highest value of 16.01% in PWM 47 with duration of 7 seconds. And in color has the highest difference of 66.82% at a distance of 1 cm.

Keywords: Rotary Encoder, Photodiode, Optocoupler, DC Motor, Sample, Fuzzy Logic.