Motorcycle Machine Oil Sensor System Based on Measurement of Capacitance And Refraction of Light

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Abstract

Motorcycle engine oil serves as an engine lubricating oil. Lubrication of the engine is used to avoid direct friction between the metal in the engine, so that the wear rate of the metal and the level of damage to the engine can be reduced.

To get a good lubricating oil viscosity of the oil factor is the amount that must be adapted to the classification and type of engine. In the final project has implemented a measurement system of motorcycle engine oil viscosity by using the method of measuring capacitance and light Bias Index. Tests carried out using oil Mesran with varying degrees of viscosity SAE. Tests using capacitance measurements using an astable multivibrator works by generating different frequencies at each level of viscosity SAE oil. Frequency data obtained from an astable multivibrator will be transmitted by the microcontroller in the LCD display.

For Bias Index System testing is done using the principle of light refraction. The light source used was a red HeNe laser is fired at the oil medium with the incident angle of 45°. The output of this system is a beam angle of refraction and the refraction of the light beam is captured using a computer-based webcam pixel values are then calculated using the software that has been designed using openCV. Based on test results obtained show that the system can distinguish viscosity engine oil on a motorcycle with some degree of viscosity SAE oil.

Keywords : Engine Oil, capacitif sensor, Refractive Lig