CHAPTER 1

INTRODUCTION

1.1 Overview

Figure 1.1 shows that this project will focus to do the analysis of the engine oil to get the current value or conductivity for each different of the gap length of the electrode based on the distance of lubricant oil has been used in transportation system.
Engine oil tester or engine oil analysis is one of most important way to know whether the engine oil is in good condition; that mean that it can be use further or need to be changed. Lubricating oil is a major requirement for most applications that involves moving parts. It used to reduce the friction between the moving parts hence this can make the engine or the moving parts to run smoothly. Lubricant degrades during the course of the operation and the degradation process is governed by many parameters such as temperature, contaminants, electrical properties and etc.

The changing of the engine oil need to be taken seriously since the lubricant deterioration leads to undesired problems such as system malfunction, damage and failure of the engine. To prevent this happen, appropriate maintenance strategy need to be taken by the owner since the exchange of the engine oil is depends on the mileage, driver’s style and habit, driving routines etc. Nowadays, there are so many sensors or type of detecting the condition of the engine oil but people also cannot buy it due to the price and budgets.

Today, figure 1.2 is one oil tester that have been used widely that is Lubricheck. People nowadays just depend to the advice that been given by the oil companies or service station to changes oil every 3000 to 5000 miles. Normally by using this tester it is easier to know the condition of the oil since it’s used to measure or test all variables in the chemistry of the oil. This because the tester will directly detect or react to the acidity, metal particulates, carbonized particulates and foreign liquids such as water leaks or coolant leaks that may present in the oil.
Figure 1.2: Lubricheck Tester [21]

This project or data analysis can help the people to check their engine oil condition since the increase of the living costly lately reducing the buying power of people. In this project, a simple design of gap length of the electrode has been designed by using PCB construction. This is to find the different current or conductivity of each distance lubricant oil has been used to be references in the future. That’s mean to help people nowadays to know their own condition of engine oil.

1.2 Objectives

The objectives of this project or research are to:

- To identify the current/conductivity from original oil compares with used oil
- To suggest the data of electrical graph with the condition of the engine oil