SERVICE-O-METER:
CAR MAINTENANCE REMINDER

This project is presented as fulfillment for the award of the
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In the name of Allah S.W.T, the Merciful and Gracious. Praise is for God, Lord of the world, Guide of the bewildered and joiner of those is severed; Whose help we seek in worldly matters and in religion. May His blessings and peace upon our Prophet Muhammad S.A.W, the truthful and Trustworthy.

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Thank you.

ABSTRACT

Most of the car components' may deteriorate over a certain period of time. Therefore, proper car maintenance is necessary in order to preserve the lifetime of the car parts. All cars come with their maintenance manuals, but most people tend to ignore it. Moreover, due to lack of information on this matter, some people do not even know how to maintain their own car. In order to overcome these problems, an electronic device that can calculate the components' replacement schedule based on the mileage and give good tips to the owners is designed. This device is called Service-O-Meter whereby it uses PIC16F877A microcontroller by Microchip as the brain. In this thesis, the whole project will be described briefly in each chapter. In Chapter 2, the theoretical aspect regarding the PIC16F877A microcontroller, LCD and voltage regulator will be presented and explained for further understanding. The Service-O-Meter hardware design is elaborated and the technical aspects are explained with the help of the schematic design in Chapter 3. In addition, the fabrication process is also discussed. Software is dedicated for Chapter 4. Furthermore, the results and discussions on the experiment done are analyzed in Chapter 5. Finally, the conclusion and future developments are presented in Chapter 6.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Most of the car components' deteriorate over a certain period of time. Thus, proper car maintenance is necessary in order to preserve its lifetime. All cars come with their maintenance manuals, but most people tend to ignore it. Moreover, due to lack of information on this matter, some people do not even know how to maintain their own car. In order to overcome these problems, an electronic device that can calculate the components' replacement schedule based on the mileage and give good tips to the owners is designed.

A device called Service-O-Meter which uses Microchips' PIC16F877A microcontroller as the brain was proposed as my final year project. But due to time constrain, the Service-O-Meter scope has been scaled down. The Service-O-Meter will be displaying the main menus and user can enter the setup menu and service menu.

1.2 Project Overview

For this time being, car owners are provided with a car maintenance manual book. The existing car maintenance manual would tear apart or wear out through time and being left aside. Thus, Service-O-Meter is designed to solve this problem. It would keep all the data of a car maintenance manual and displays it with the use of Liquid Crystal Display (LCD). The circuit designed and the control software written will be explained later for further understanding. In this design, the overall objectives were met. The Service-O-Meter design can be applied in other potential applications, including factory automation and replacing other kind of manuals. It can display all the services needed to be done by users and can be easily used by car owner as they scroll through the menu of this device.