A PIC-BASED WIPER BLADE MAITENANCE SYSTEM

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ABSTRACT

This thesis presents the maintenance system of a wiper blade using Peripheral Interface Controller (PIC). The system consist of three main parts; Sensor, Microcontroller (PIC16F84A) and Motor. When the temperature is detected from the windscreen it will converted to a digital signal and sends it to the microcontroller (PIC16F84A) for processing purposed. MPLAB is the software use to download or programmed data into the controller by using PICkit to PIC16f84A. It will receive the converted outputs from the sensor and recognized the digital signals from the input pins. This PIC16F84A has been programmed according to certain instruction. Furthermore the PIC16F84A will send the digital output to the motor based on the desired inputs detected. The motor will be installed to the wiper and lift it up to avoid the blade from touching the windscreen that can make it defect. Therefore the lifetime of the wiper blade can be increased and user doesn't have to replace the wiper blades more often.

Keywords: Peripheral Interface Controller (PIC), MPLAB, PICkit, wiper.

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CHAPTER 1

INTRODUCTION

1.1. Introduction

A wiper blade is made from rubber therefore it will begin to deteriorate from the start it was installed to the vehicle. When not in used the rubber is in contact to the windshield where it is exposed to the wind, rain and sun 24 hours every day. There are many reasons for the deterioration such as ultraviolet, ozone, oil, sand, mud, dust, snow, ice, acid and salinity of the air and water. The major reason of damaging the rubber is ultraviolet light and ozone where it produces heat. There are three symptoms of damaged rubber visible damage; splitting cracking, corrosion, deformation audible damage; causes noise with blade vibration and chattering and damage that can be felt; hardening of the rubber. A damaged wiper blade cannot be expected to give good services because it will limit the field of vision of a driver on the windshield glass. Basically the signs where the wiper blades deteriorate are the windshield glass is streaking, jumping, and spotting and uneven wiper blade pressure [1].

The system that will develop in this project used PIC16F84A as the controller to drive the whole system for the purpose of maintaining the wiper blade. Initially, when the car engine is turn off it will automatically activate the PIC and operate the system. The heat sensor will send the signals to PIC so that it will be able to examine. Thus the wiper will start to lift up when a certain signal is identified. Apart from that, the design of the hardware and software from this development will be presented later on.