THE FAN CONTROLLER SYSTEM USING MICROCONTROLLER (PIC16F877)

Thesis is present in partial fulfillment for the award of Bachelor of Electrical Engineering (Honors) University Technology MARA

> NORLAINA BINTI ABDULLAH Faculty Of Electrical Engineering UNIVERSITY TECHNOLOGY MARA 40450 SHAH ALAM, SELANGOR

ACKNOWLEDGEMENT

In the name of Allah s.w.t, the Beneficent and the Most Merciful with the deepest sense of gratitude, who gives strength and ability to complete this thesis as it is today. All perfect praises belong to Allah, the Lord of the Universe. O'Allah, Shower your blessing and peace on your Prophet Muhammad s.a.w on the members of his family and his companions.

First of all, I would like to express my appreciation and gratitude to my personal supervisor Puan Aisah Mohamed, the lecturer who devotedly her time in giving me guidance and her willingness in sharing knowledge towards the completion of this thesis.

I would like to share my greatest appreciations to my beloved parents, Abdullah Ibrahim and who always give me support and encourage in solving problem that facing during to complete this thesis. I love you guys. Thanks for always there for me.

Lastly to my comrade, who lends me their deepest knowledge and shares important sources without any reimbursement. Thank you very much.

ABSTRACT

Nowadays, personal computer (PC) become important to people in solving their job especially university students. Students used the PC to settle their assignments and surfing the net to find references in finishing their assignments, also to reply mail or playing games. If the PC for a long period, the processor in the Centre Processing Unit (CPU) will get hot, therefore a fan is used to cool the processor and avoid it from damage. However the fan produced a noise.

This project presents the development of fan controller to control the fan speed via the temperature sensor. The circuit can control either automatically or manually and it is easy to used. The main components to perform this project are microcontroller (PIC16F877), temperature sensor, Pulse Width Modulation (PWM) and windows application, Visual Basic. The software is written in PIC language using MPLAB, which control the overall circuit. The software needs to be written and download into the microcontroller to operate the circuit. The window application is used Visual Basic $C^{++} 6.0$.

From the results obtained in completing this project, it showed that the project has the potential in market, especially in Malaysia.

KEYWORDS

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Microcontroller, Peripheral Interface Controller (PIC), MPLAB, temperature sensor, Pulse Width Modulation

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Regularly, we use PC to finish our work such as typing, keying data, surfing the net, replying mails and playing games. Most of the personal computer (PC) users use PC more than 7 hours. In this case, fan controller plays the vital role in cooling the processor of the PC. If processor is not properly cooled using fan, it can burnt and damaged the motherboard. The life-span of the fan will also be shorten and debt will accumulate faster. The fan must run at full speed to provide enough airflow to cool the processor. It will be directly connected to the motherboard.

The type of fan used in CPU depends on the computer brands. Some CPU used their own company's fan but pirates PC used different type of fan[2]. This fan sounds like hairdryer. The fan rated 7000 rpm and draw 0.5 A @ 12 V.

This project was created towards developing suitable fan controller for processor in CPU. Although the designed is only a model it could be commercially produced with minor adjustment.

This project presents a system for controlling the fan speed by adapting the PIC 16F877 microcontroller, which control the fan manually. Software has been developed for the microcontroller to read signal from the temperature sensor and switching circuit of PWM and produce a suitable output to control the fan speed. The windows application, Visual Basic is used to interface between microcontroller and fan.