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PC Thermometer / Norhayati Abd Rahman.

# **PC THERMOMETER**

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**This report is submitted in partial fulfillment of the requirements for the award  
of Bachelor of Electronic Engineering (Industrial Electronics) With Honors**

**Faculty of Electronic and Computer Engineering  
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UNIVERSITI TEKNIKAL MALAYSIA MELAKA  
FAKULTI KEJURUTERAAN ELEKTRONIK DAN KEJURUTERAAN KOMPUTER

BORANG PENGESAHAN STATUS LAPORAN  
PROJEK SARJANA MUDA II

Tajuk Projek : PC THERMOMETER

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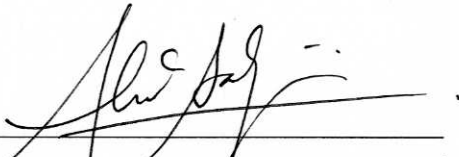
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“I, hereby declare that this thesis entitled, PC Thermometer is a result of my own research idea concept for works that have been cited clearly in the references.”

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Special dedication to my loving family, all my siblings, and my kind hearted supervisor Mr. Sadhiqin Bin Mohd. Isira and also dearest friends.

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## ABSTRACT

A PC Thermometer is an operation to display both of temperature which are indoor and outdoor temperature on the computer screen by detect the temperature from indoor and outdoor temperature where is monitoring. This application is intended for educational or personal purposes only. This system also will be divided into two important part, which will be involved in hardware application in design the circuit and software development. Hardware application uses the digital signal while the software develop using Visual Basic will get the value from the serial port data areas in binary value and calculate the actual temperature detected and display it on computer screen and the software will create a record the temperature value which is detected in the computer storage.



## ABSTRAK

PC Thermometer adalah merupakan satu alat untuk memaparkan kedua-dua bacaan suhu iaitu suhu di dalam bilik dan di luar bilik dengan mengesan suhu dalam bilik dan di luar bilik tersebut. Kegunaan projek ini adalah disasarkan untuk aktiviti pembelajaran dan untuk orang perseorangan. Sistem ini dapat dibahagikan kepada dua bahagian yang yang penting iaitu bahagian perkakasan dan bahagian keduanya adalah bahagian perisian. Aplikasi bagi perkakasan adalah menggunakan isyarat digital manakala pembangunan perisian dibina dengan menggunakan Visual Basic bagi mendapatkan nilai dari kabel liang sesiri data dia mbil dalam bentuk binari dan nilai sebenar suhu dikesan dan ia dipaparkan pada skrin komputer serta perisian 'software' akan mencatat bacaan suhu.

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## CHAPTER 1

### INTRODUCTION

#### 1.1 Project Introduction

This project will display temperature readings ( $^{\circ}\text{C}$  or  $^{\circ}\text{F}$ ) which are indoor and outdoor temperature. This hardware is easier and faster to the user to take temperature readings because the temperature readings will be displayed by the computer screen using Visual Basic software to display the temperature.

The protocol that used in this project to connect between computer and the project circuit is serial port. This cable has 9 pins which it sends data on the transmit pin of the serial cable connector. This project is easier to the user whereby user no need to record the temperature readings manually. Indirectly, the error while recording the data will be prevented.





## 1.2 Objective

The aim of the designing and constructing the circuit is to fulfilled several objectives that need to be achieved. Nowadays, sciences and technology is very important to us. Day by day, there a lot of something new and useful has been created. So, this project can be assumed as a contribution to the sciences and technology if it can be done successfully.

Furthermore, this project has been done because to teach and give knowledge to the students and to the beginners. They can learnt the secrets of IIC bus, how to implement IIC bus using only two resistors and a couple of zeners, how to drive it on a serial port using Visual Basic

This project is to design and get the data from the computer using Visual Basic software. When the saving and printing process is key-in into this program, so directly it can be easier to the user to record the data (temperature readings).

Besides that, this project actually to know more about the function of DS1621 digital temperature sensor. This project is to be done because to know the differences temperature between indoor and outdoor.

### **1.3 Scope of Project**

The scope of this project is designing a system through the temperature readings will be displayed on the screen computer using Visual Basic program. Below are the scopes of the project:

#### **1. Study and Research**

Get as many as information about this project from books, internet, journal, and supervisor and also from products that sold at the market so that more knowledge can be known about this project.

#### **2. Design and construct the programming**

Design software which is Visual Basic program to interface hardware and computer so that it can display both temperatures which is indoor and outdoor. Then, construct the program to make sure that the program has error or not.

#### **3. Hardware Design**

The circuit designing and constructing process for this project is done using *PCB* software. It is because to see that the function of the circuit before it can be transferred to the PCB board. Each of the circuit should fulfilled the standard specification that be allowed. Besides that, the components that are choosing and using have it own function.

## **4. Testing To the Hardware and Program**

The finishing hardware will be interfaced to the computer using serial port cable. The program using the Visual Basic will display the temperature which is indoor or outdoor.

### **1.4 Problems Statement**

This project actually user friendly to the peoples. Even a child also can use this project if he/she wants to know the temperature readings at that time. Just connect the hardware to the computer using the serial port. Only one click to the icon then the computer screen will display the temperature readings at that time.

Although this project is very simple and user friendly, but this project has it problems. User need to compare the temperature readings with the temperature device. It is important to know whether the temperature readings that has been taking from PC Thermometer same with the temperature device.

### **1.5 Report Structure**

This report contains of five chapters that explain detail about this project. The first chapter is introduction of the project. This chapter contain of project introduction, project objectives, project scope and problem statement.

The second chapter is Project Methodology. This chapter will figure out a few tests that have been conducted. This is to make sure the components and other devices involves are in good condition function. The testing procedures, devices and method used to generate the expected results will include in this chapter

The third chapter is literature review about pc thermometer. This includes of similar project which is "PC Thermometer" but use the different method. The project

will be explained briefly in this chapter. What are the advantages and disadvantages using my way or method? So, it is very important to understand the concepts involve and how this system works.

The fourth chapter is about the components used in this project. This chapter gives information about hardware and software involves in order making this project works. These chapters also give information about a circuit and the main components used. The components are DS1621 digital temperature sensor, LM2936Z-5.0 Ultra low dropout voltage regulator and many more.

The fifth chapter is result of PC Thermometer. This chapter consists of an outcome for this project. It shows results, possible problems and solution for the problems occurred.

The last chapter is about project application of the project, discussion and conclusion of the project. This chapter also contain of suggestion to improve this project for future works. The overall conclusion of this project showed.

## CHAPTER II

### PROJECT METHODOLOGY

#### 2.1 Project Methodology

There are a few of method and procedure is used to achieve the objectives project. See the flow chart below:

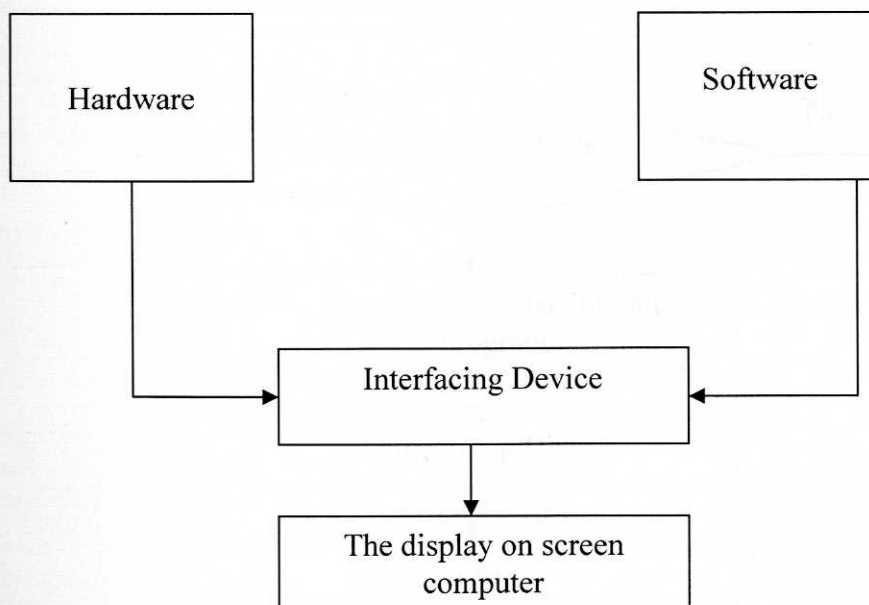


Fig 2.1.1: Project Methodology

## 2.2 The Method / Procedure Project

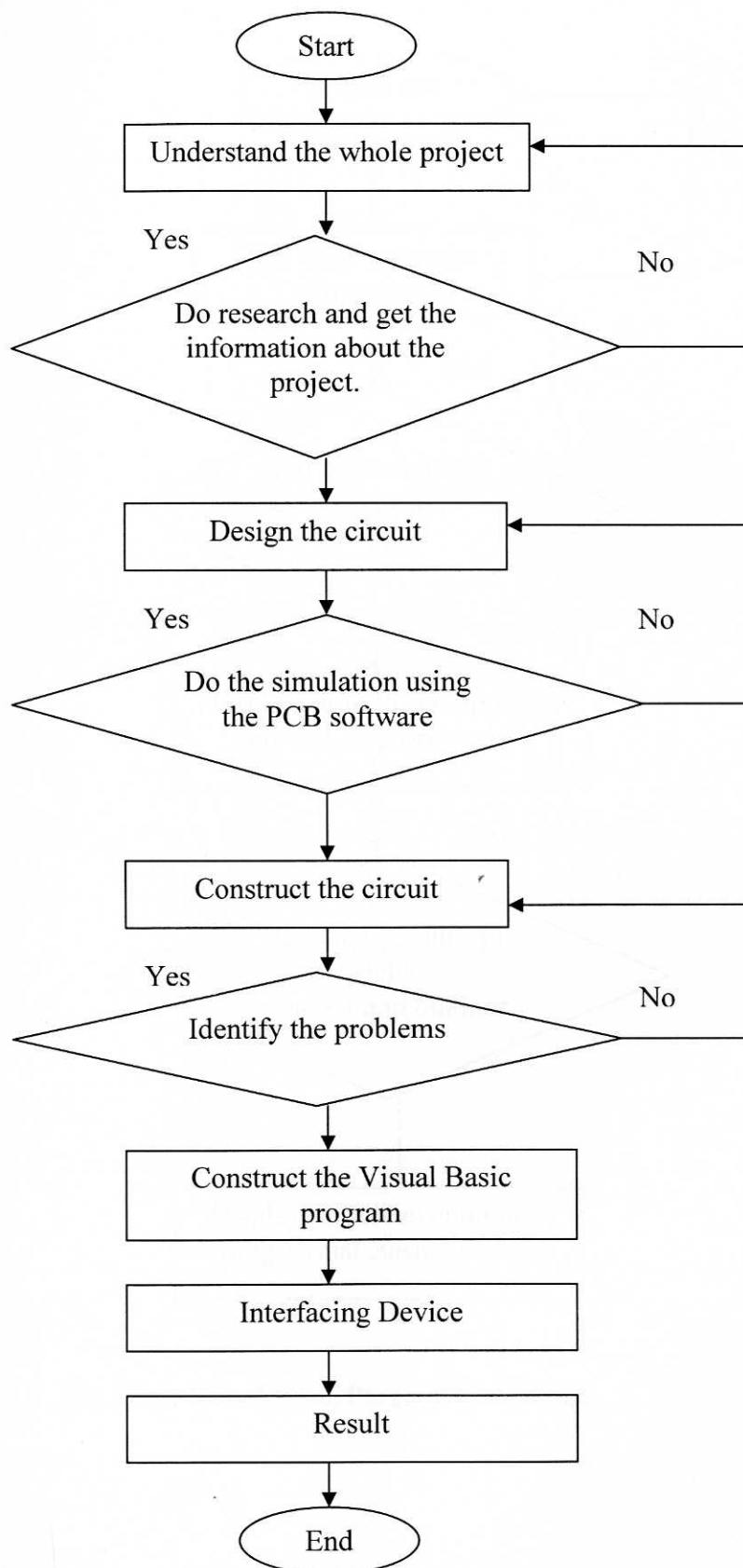


Fig 2.2.1: The Method/Procedure used

### 2.3 Visual Basic Display as Center Point

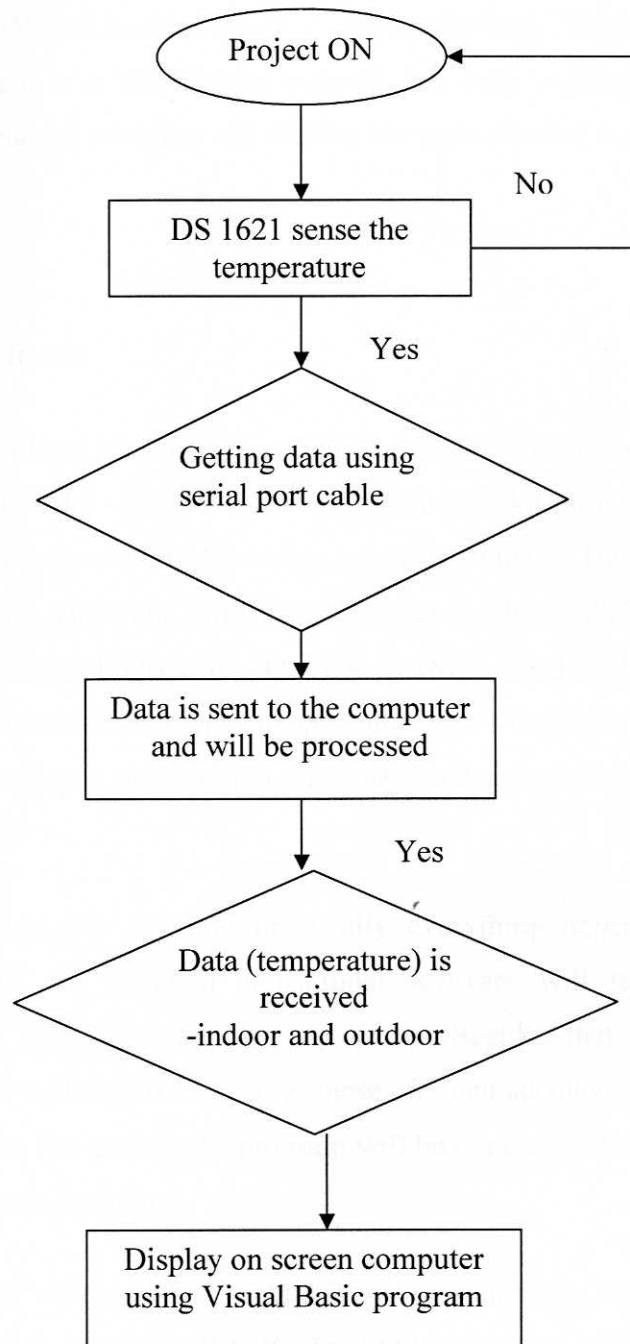


Fig 2.3.1: Visual Basic Program Flow Chart