ARDUINO LCD THERMOMETER

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ABSTRACT

A thermometer is an instrument for measuring and indicating temperature. It is often a sealed glass tube that contains a column of liquid, as mercury that expands and contracts or rises and falls with the temperature changes. The temperature being read where the top of the column coincides with a calibrated scale marked on the tube or its frame. Now in technology era, the digital thermometer was developed to replace the analog thermometer. The development of an analog thermometer is complicated. It is also have poor range accuracy and precision of measurement and takes a few minutes to measure the temperature. So from that problem statement our objectives are to improve the thermometer from analog to digital and display the temperature reading on the LCD.

There are three main important components that used in this project. There are LCD, sensor, LEDs and Arduino circuit. The function of LCD is used to display the measured temperature. The sensor is used to sense the temperature and the Arduino circuit is used to control the overall circuit. The LEDs are used to indicate the temperature whether its normal or not which is the green's LED will light up when temperature is normal while red's LED will light up when the temperature is hot. With that, we have successful doing our final year project and all objectives have been achieved.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

A thermometer is a device that functions to measure the temperature or temperature gradient. Thermometer was developed in early 11th century, and there are a research and development (R&D) year by year and century by century to improve this invention from various aspects like size and material to design the thermometer, scale and calibration, range, accuracy and precision of measurement and type of thermometer. Now in technology era, the digital thermometer was developed to replace the analog thermometer. Digital thermometer is function like old thermometer which to measure the temperature but in digital version, they are more sophisticated and advanced compare to common mercury thermometer or analog thermometer.[1]

Digital thermometers usually design by using integrated circuit (IC) like temperature sensor, analog-to-digital converter (ADC) and microcontroller. So it size is small compare to the analog thermometer and we can get the size as small as our thumb. It is very useful device, multi-purpose, portable, and user friendly. It can use to monitor and measure the temperature accurately at any place like a home, office, industrial, hospital and so on.

In addition, digital thermometers ease the user to read temperature and more accurate than using the analog thermometer. An example, users have to look carefully on the scales to take a reading. This situation is wasting time and it more exposed to user to make error when taking a reading (parallex error). So, we need to develop the digital thermometer which can ease the user by display the temperature directly from the thermometer.