

**DESIGN AND DEVELOP A PORTABLE METER SYSTEM USED FOR  
MEASURING SPEED OF WIND USING ULTRASONIC TECHNIQUES.**

**RUSKHAN BIN MOHD KUSNAN**

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Partial Fulfilment of the Requirements for the  
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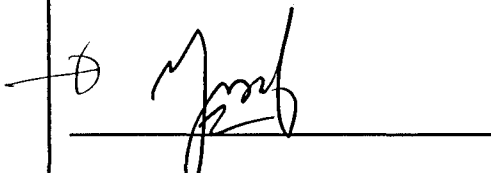
## APPROVAL SHEET

This Final Year Report entitled "Design and develop a portable Meter System Used For Measuring Speed Of Wind Using Ultrasonic Techniques." Was submitted by Ruskhan Bin Mohd Kusnan, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Physics, in the faculty of Applied Science, and was approved by



Madam Zakiah Binti Mohamed  
Supervisor Final Year Project  
Faculty of Applied Sciences  
Universiti Teknologi MARA  
40450, Shah Alam  
Selangor

Miss Farah Lyana Muhammad Khir  
Co-Supervisor Final Year Project  
Faculty of Applied Sciences  
Universiti Teknologi MARA  
40450, Shah Alam  
Selangor



Prof. Madya Yusof Theeran  
Project Coordinator  
Faculty of Applied Sciences  
Universiti Teknologi MARA  
40450, Shah Alam  
Selangor



Prof. Madya Dr. Ab. Malik Marwan Ali  
Head of Programme  
Faculty of Applied Sciences  
Universiti Teknologi MARA  
40450, Shah Alam  
Selangor

Date: 24/11/09

## ABSTRACT

In this project, we need to designed and develop a portable meter system used for measuring speed of wind using ultrasonic techniques. This device also called as Ultrasonic Wind Speed Meter (Anemometer).

Ultrasonic Wind Speed Meter (Anemometer) is the new technology to senses wind flow. This wind speed meter is intended for use in a variety of sports activities such as track events, sailing, hang-gliding, model aircraft flying, kite and a few more. It can even be used to monitor the conditions in garden.

This ultrasonic wind speed meter is operating when wind blowing between two 40 kHz ultrasonic transducer which are assign as  $X_1$  and  $X_2$ . The readout was display on the LCD with reading in meter per second (m/s), feet per second (ft/s), kilometers per hour (km/h), and miles per hour (mph).The resolution is nearest tenth meter per second, from 0mph up to around 50mph, and possibly higher.

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# CHAPTER 1

## INTRODUCTION

### 1.1 BACKGROUND

An anemometer is derived from the Greek word, *anemos*, meaning wind. This type of device is used in measuring the velocity (speed) or the pressure of the wind. This device also can be assumed as one of the obligate instrument that must be present in a weather station. Anemometers can be divided into two classes. There are those that measure the velocity of the wind, and those that measure the pressure of the wind, but as there is a close connection between the pressure and the velocity. In this project it focusing more on the anemometer that been used to measure the velocity or the speed of the wind.

This project is actually will be focusing on the developing the product or device called, "Ultrasonic Wind Speed Meter (Anemometer) using PIC" that will work when the two of the transducers detect the wind blow and the output will be displayed on the LCD. Peripheral Interface Controller (PIC) that will be used in this project is PIC16F628. PIC is not just a chip but also a whole line of the microcontrollers. It is family of Reduced Instruction Set Computer (RISC), which means that the chip designers did not put in a lot of instructions for the microprocessor to have to deal with. PIC is derived from the PIC1650 originally developed by General Instrument's Microelectronics Division.