ESTABLISHMENT OF HARDWARE INTERFACING SYSTEM

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ABSTRACT

This paper discuss about the hardware interfacing system by using USB 6008 data acquisition (DAQ) device. The hardware consists of mechanical and electrical part. For the mechanical part, the simple propeller anemometer is used to determine wind speed and wind direction with application of fiber optic as a sensor. The electrical part consists of signal conditioning circuit that used to determine the speed and direction measurement. The goal is to achieve an accurate measurement of the speed and direction by using photo detector or photodiode as a sensor before transformed to the desired output signal that is in term of frequency and voltage. Therefore, the aim of this project is to establish the hardware configuration system that can be used to interface with the mechatronic instrumentation and LabVIEW software. In this case, the USB 6008 DAQ device is proposed to be used as an interfacing hardware. The basic idea of this project is to have or get a smooth, accurate and ergonomic measurement and display from the results of developed instrument.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION.

Interface is the elements of instrument that used to connect the computer. The term instrument is used for a device, such as a sensor and transducer that is connected to a computer and software. In this research, our instrument is simple anemometer, which consists the application of fiber optic sensor. Hence, the main topic of this thesis is to establish the hardware interfacing configuration system. The interfacing program was developed by using LabVIEW software. Therefore to interface the anemometer's signal conditioning circuit with this program we need interfacing hardware, which is known as data acquisition (DAQ) device. DAQ means monitoring or controlling physical phenomena with a computer through electrical signal. The electrical signals are defined by their voltage or current level, and are usually attached to some sort of scientific or industrial equipment by means of transducer that can convert physical values.