16 CHANNEL SIGNAL TRANSMISSIONS; PIC 16F84 MICROCONTROLLER BASED SYSTEM

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In the Name of Allah

Most Gracious Most Merciful

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ABSTRACT

This 16 channel signal transmissions project used PIC 16F84 microcontroller as a based system. It will be able to detect the 16 input from transmitter circuit and send the signal to receiver to produce an output. The signal can be send or transmit in both directions simultaneously.

This project is concerned with the development of transmitter and receiver circuit that was designed around the Microchip PIC 16F84. PIC is the IC which was developed to control the peripheral device, dispersing the function of the main CPU. When comparing to the human being, the brain is the main CPU and the PIC shares the part of which is equivalent to the autonomic nervous.

The software is written in PIC language using software development tool call MPLAB. It is a Window® based development platform for the Microchip Technology microcontroller families. As the circuit was not to complex, all the work is done by the software. The software is able to control the signal for transmit and receive the signal from two different locations.

At the end of this project the circuits are able to communicate between two different locations. For the application of the project, the output can be used to drive another circuit or can be used for monitoring system.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This project provides sixteen channels of on-off signaling communication through just a single pair of wires, in one direction or in both directions simultaneously. In a one-way system, the transmitter may be powered through the same pair of wires which allows the monitoring sixteen inputs from locations having no local power supplies. The interfacing option enables operation through audio circuits, such as private internal telephone and intercom systems. This project uses the PIC micro controller as a based system and the MPLAB as software to program the micro controller.

The PIC is a microcontroller and has all the CPU, memory, oscillator, watchdog and I/O incorporated within the same chip. This saves space, design time and external peripheral timing and compatibility problems, but in some circumstances, can limit the design to a set memory size and I/O capabilities.

Microchip Technology's series of micro controllers is called PIC chips. Microchip secured a trademark for the name PIC. Microchip uses PIC to describe its series of PIC microcontrollers. PIC is generally assumed to mean *programmable interface controller*. The PIC16F84 is use in this project to be a micro controller to the circuit. The PIC micro controller is discussed in Chapter 3.

The software is written in PIC language using software development tool call MPLAB. It is a Window® based development platform for the Microchip Technology microcontroller families. It allows users to edit programs, assemble, and download into a PIC using the PIC Start Plus burner.