HIGHER TECHNICAL INSTITUTE

ELECTRICAL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

DEVELOPMENT OF A TEMPERATURE LOGGING DEVICE

by

KAKOURIS NEOPHYTOS GEORGIOU (E/896)

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Dedicated to my parents

DEVELOPMENT OF A TEMPERATURE LOGGING DEVICE

Project report submitted by
KAKOURIS NEOPHYTOS GEORGIOU

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Kakouris Neophytos
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ABSTRACT

TITLE : DEVELOPMENT OF A TEMPERATURE LOGGING DEVICE
WRITER : Kakouris Neophytos

The purpose of this project is to design, construct and test a temperature logging device. This project also explains the principle of operation of analog to digital conversion as well as the principle of operation of all the components used.

Based on the block diagram of the temperature logging device the appropriate circuit was designed, constructed and tested according to the project requirements.

These requirements are:

1. TO DESIGN A SIMPLE DATA ACQUISITION SYSTEM EMPLOYING AN 8 - BIT ADC.

2. TO PROVIDE MEANS FOR STORING THAT DATA, TEMPERATURE, IN A RAM.

3. TO PROVIDE MEANS FOR RETRIEVING THE STORED DATA.

The circuit was designed by examining each block separately according to its operation and requirements, and can measure temperature from $0^{o}C$ to $65^{o}C$.

INTRODUCTION

Nowadays thermometers have become a real part of our lives. Everywhere we use thermometers because we need them. One can thing a thousand applications of thermometers, from the most scientific to the simplest one. There are thermometers in the scientific laboratories, in the ambient, in hospitals, in shops and offices, in our homes even in modern cars etc. Having all these in mind one could tell that life should have been much more difficult without thermometers since science could not have such a rapid progress.

As soon as digital instruments have been developed, they start replacing all analog instruments. The same is happening with digital thermometers, and the reason is very simple. Digital thermometers offer clearer and easier readings, they can be more accurate since they can display a reading of a fraction of a degree and they are not very expensive.

This project is concerned with a temperature logging device. A temperature sensor gives an output voltage which increases linearly with the increase of temperature. This voltage is the input to an A/D converter, the output of which is displayed on two seven segment displays. Also this output is the input to a ram where it is stored at predetermined time intervals. These stored temperatures are displayed, with the same way, whenever is required. So this temperature logging device is a common digital thermometer and also offers you the opportunity to see previous temperature measurements.