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ELECTRICAL ENGINEERING
DEPARTMENT

DIPLOMA PROJECT

DEVELOPMENT OF AN
ALARM CONCENTRATION SYSTEM
CART TESTER

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DEVELOPMENT OF AN "ALARM CONCENTRATION SYSTEM" CARD TESTER

by
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PROJECT REPORT

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To my family

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Marina Kilili

SUMMARY

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Project Title: **Development of an "Alarm Concentration System" Card Tester**

A new project that is currently being developed by CYTA, requires a large number of Interface Cards. As a result a Testing System must be developed in order to ensure the proper operation of the Cards. This Testing System must be fast, reliable, efficient and operate directly from a personal computer. Thus the fault is located and indicated to the user.

The project developed, proposes a Testing System with the above requirements. Using an 8085 microcontroller system, the System is able to supply inputs to the Card under test, monitor the state of output and assess the results to decide whether a fault exists. It is able to identify a number of fault conditions and indicated each fault with the appropriate message. It can by operated in both Automatic and Manual mode, depending on the operator's selection. All procedures and results are indicated to the operator through the P.C. screen using especially designed software that provide serial communication with 8085 - CPU.

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INTRODUCTION

This project was carried out in order to fulfill the requirements of The Cyprus Telecommunications Authority (CYTA) for testing of a particular type of interface cards. This card is being used in an Alarm Concentration System designed by CYTA for remote monitoring and control of distant stations all over Cyprus.

The objective of the project was to design a Testing System for the Interface Card after being constructed in the Electronic Laboratories of CYTA to ensure its suitability to be used in the Alarm Concentration System. The testing procedure should be carried out using the construction, on which the Interface Card Under Test should be placed, connected to a computer. The operator using the designed software should be able to carry out a particular testing procedure to determine the proper operation of the Card. The Testing Procedure could be Automatic or Manual depending upon the selection of the operator. Any fault conditions detected by the system should be recorded and displayed on the PC.

To fulfill these requirements a microprocessor controlled construction which will provide the Testing Procedure of the system is used. This system includes:

- A CPU Card provided by CYTA
- An Input Card
- An RS - 232 Standard Serial I/O for handshake between the microprocessor based Testing System and the PC.

In past years, a Testing System was designed for this type of Interface Cards with a different approach involving an LCD (liquid crystal display) and a keyboard.

The project involves three general sections: the hardware construction of the Testing System; the software design of the 8085 microprocessor in assembly language to

perform the testing routines; and the design of the operator interaction with the P.C. using high level language, Quick Basic 4.5.

The purpose of the project is to make the testing procedure of the Interface Card much faster and more convenient for the technician. Since this type of Cards are used very frequently by CYTA and a large number of them is constructed, this project will limit the time required by the technician for manual testing of the card and thus limit the construction costs. It will also provide a clear indication of the conditions of fault (if any) thus making repair much faster.