HIGHER TECHNICAL INSTITUTE NICOSIA - CYPRUS

ELECTRICAL ENGINEERING COURSE

DIPLOMA PROJECT

DEVELOPMENT OF A COMPUTERISED VOICE MAIL AND MESSAGING SYSTEM

E/906

PILAVA SILVIA

JUNE 1994

HIGHER PROJECT NO TECHNICAL 2289

ACKNOWLEDGEMENTS

First, I would like to express my sincere thanks to the Cyprus Telecommunications Authority, which has sponsored this project and gave me the opportunity to use the facilities of the Electronic Workshop. Specifically, I would like to thank Mr. Kiriakos Kililis, Mr. Emilios Kapellides, Mr. George Frangoudis and especially, Mr Andreas Kazamias for their great help and support throughout the project period.

Also, I wish to thank Mr. Yiannis Kassinos, the Telecommunication Manager of SCANDIA, who offered the PABX used for this project.

Finally, I would like to express my thanks to my project supervisor, Mr. Charalambos Theopemptou, for his valuable assistance and guidance.

SUMMARY

TITLE: DEVELOPMENT OF A COMPUTERISED VOICE MAIL AND

MESSAGING SYSTEM

STUDENT: SILVIA PILAVA

SUPERVISOR: CHARALAMBOS THEOPEMPTOU

OBJECTIVES:

1. To design and construct a circuit that generates and detects DTMF codes.

- 2. To provide an interface to an IBM PC compatible computer that will provide the speech signal.
- 3. Develop the required software in order to implement a Voice Mail System.

TERMS AND CONDITIONS:

- 1. The system designed should be capable of easy expansion of both vocabulary and actions.
- 2. Investigation of the functions to be provided by the system.

CONTENTS

		PAGE
ACKNOWLED	GEMENTS	i
SUMMARY		ii
INTRODUCT	ION	iii
CHAPTER1:	8085 MICRO TARGET BOARD	1
1.0	Micro Target Board MTB85-1	
1.1	Applications	
1.2	Construction	
1.3	Specifications	
1.4	Memory Map and I/O Decoding	
1.5	Connections	
1.6	Target Expansion	
1.7	Why use the 8085 Micro Target Board	
CHAPTER2:	CIRCUIT FOR THE RS-232 SERIAL PORT	7
CHAPTER3:	THE MAGIC WORLD OF SERIAL COMMUNIACATION	8
3.0	Basic Concepts in Serial Communication	
3.1	Interfacing Requirements	
3.2	Alphanumeric Codes	
3.3	Transmission Format	
3.4	Standards in Serial I/O	
3.5	The 8085 Serial I/O Lines: SID & SOD	
3.6	Values selected for Baud rate, Data and Stop	bits
3.7	Time Delay between each bit sent	
3.8	Why choose Serial Communication	

CHAPTER4:	WELLCOME TO SOUND BLASTER PRO	18
4.0	General Specifications	
4.1	Connecting External Devices	
4.2	Voice Editor II	
CHAPTER5:	FACILITIES OFFERED BY PABX CALLSWITCH 210	25
CHAPTER6:	BASIC TELEPHONY	26
6.0	General	
6.1	Dual Tone Multi Frequeny (DTMF)	
CHAPTER7:	THE VOICE MAIL CARD	30
7.0	General	
7.1	Ringing Detector Circuit	
7.2	Answering Circuit	
7.3	DTMF Detector Circuit	
7.4	DTMF Generator Circuit	
7.5	The Speech Circuit	
7.6	General Operation of the Voice Mail card	
7.7	Construction of the Voice Mail card	
7.8	Testing the Voice Mail card	
CHAPTER8:	A FEW WORDS ABOUT THE SOFTWARE	53
8.0	General	
8.1	Assembly program	
8.2	QBASIC program	
	•	
APPENDIX A	A: ASSEMBLY PROGRAM	

APPENDIX B: QBASIC PROGRAM