

GSM Communication Trainer

Degree Project Report

Noman Habib

01-133142-242

Nauman Ali

01-133132-189



Supervised by

Engr. Waleed Manzoor

Report is submitted to the Department of Computer Engineering,

Bahria University, Islamabad.

In partial fulfillment of requirement for the degree of BS(CE).

Certificate

We accept the work contained in this report as a confirmation to the required standard for the partial fulfillment of the degree of BS(CE).

Head of Department

Supervisor

Internal Examiner

External Examiner

Dedication

This project is dedicated to our parents and teachers.

Acknowledgements

We are thankful to Allah Almighty for He provided us with the courage all the way to the end. We are grateful to our parents for their support during the project.

A special thanks to:

Our supervisor Engr. Waleed Manzoor in believing in us and his support throughout the project.

Abstract

The main objective of this project is to provide the effective GSM trainer board solution. AS the GSM trainer board is the important requirement of Communication system lab. we have done the experiment on GSM trainer board which needs a dedicated computer system to run its software and then we have to connect the trainer with computer serially and then we send the required operation to our GSM trainer through software run by a dedicated computer and that required operation goes through serial cable connecting both trainer board and a dedicated computer. The available solutions of trainer boards were taking too much cost, space, power so we decided to reduce all these issues by providing the effective learning environment. In our project we used 3.2inches touch screen LCD, Arduino mega 2560 as controller, GSM sim900 module for GSM operation (call, message and phonebook), and PS2 keyboard to input data from user. By using all this hardware the user can perform all GSM operations (making/receiving call, sending/receiving text message, phonebook operations) using AT commands manually (command mode) as well as automatically (graphical mode).

List of Figures

Figure 1.1 Hardware design architecture of GSM communication trainer.....	11
Figure 1.2 software design architecture of GSM communication trainer.....	13
Figure:2.1(a) currently in use GSM Communication trainer.....	15
Figure:2.1(b).....	15
Figure:3.1 Hardware architecture.....	19
Figure 4.1 Existing GSM Communication Trainer.....	26
Figure 4.2: System Architecture.....	28
Figure 4.3: Design Methodology.....	30
Figure 5.1 Starting Interface of Trainer.....	31
Figure 5.2 Selection window interface.....	32
Figure 5.3 Command Mode Interface.....	33
Figure 5.4 Graphical Mode Interface.....	34
Figure 5.5 Phonebook Window Interface.....	35
Figure 5.6 Adding new number Interface (i).....	36
Figure 5.6 Adding new number Interface (ii).....	37
Figure 5.7 View window Interface.....	38
Figure 5.8 Delete contact Interface.....	39
Figure 5.9 Making Call window interface.....	40

Table of Contents

Certificate.....	ii
Dedication.....	iii
Acknowledgements.....	iv
Abstract.....	v
List of Figures.....	vi
Table of Contents.....	vii
1. Introduction.....	10
1.1 Project Overview.....	11
1.1.1 Problem.....	10
1.1.2 Proposed Solution.....	10
1.2 Project Description.....	12
1.2.1 Hardware part.....	12
1.2.2 Software part.....	12
1.3 Project Objectives.....	14
1.4 Project Scope.....	14
2. Literature Review.....	15
2.1 Previous Related work.....	16
2.2 Our Designed system.....	17

3.Requirement specifications.....	18
3.1 system requirement.....	19
3.2operating systems.....	19
3.3 Recommended hardware configuration.....	19
3.4 Software Requirement.....	20
3.5 What is GSM?	21
4.SystemDesign.....	21
4.1 Existing System.....	22
4.2 Proposed System.....	22
4.3 System Architecture.....	23
4.4 Design Constraints.....	24
4.5 Design Methodology.....	25
4.5.1 Arduino.....	25
5. System Implementation.....	26
5.1 Start Interface.....	27
5.2 Selection Window.....	28
5.3 Command Mode.....	29
5.4 Graphical mode.....	30
5.5 Phonebook window.....	31
5.6 Add phone number Window	32
5.7 view window	33

GSM Communication Trainer	
5.8 Delete window.....	34
5.9 Making call window	34
6. Conclusion.....	36
6.1 conclusion.....	37
6.2 Future work	37
7. Appendices.....	42
7.1 References.....	45