Interactive Speech Ability Training System for Children

Final Year Project

A 4th Year Student

Project report submitted in part fulfilment of the degree of BCS (Hons.) with the supervision of My supervisor Pn. Marina binti Ismail and co-ordinated by Pn. Siti Salwa Binti Salleh.

Faculty of Information Technology and Quantitative Sciences

Universiti Teknologi MARA

03 December 2007

Abstract

Interactive speech ability training system is one of the best medium in learning. An interactive system will help children in leaning and communication. Previously, children used books to learn pronunciation and other will guide them. The problem is, the children do not know whether is correct or wrong if there is nobody to guide them. The objectives of our research/project are to develop an interactive speech ability training system for children and to ease children to learn how to pronounce syllable correctly. The scope is for children to learn about the syllable then how to pronounce it correctly in an interactive way. This project has been used Microsoft speech engine as automated speech recognition (ASR) to analyze data (speech) from the user and then give the respond to the user. The system is difficult to recognize the Malay syllable speech using English speech engine. There are only the certain syllables that can be recognizing by the engine. The suggestion for the future research, it should use the Malay speech engine for recognize Malay syllable, word or sentences.

Keywords: Speech Ability Training, Interactive Learning, Learning for Children, Speech Recognition, Computer-Based Education.

Acknowledgements

At first, I would like to express our gratitude to Allah S.W.T for His blessing and mercy that enables to complete my final year project successfully. While the project progress, many people help and give their contribution references material and collaborative support. So that, here I want to thanks and express my appreciation to them especially to my supervisor Puan Marina binti Ismail who always be there to guide me in completing this project. Special thanks to my Final Year Project lecturer, Pn. Siti Salwa binti Salleh for the guidance and advice in developing the project Not forget to my friends that always support me. I also would like to thanks to the people that involved either direct or indirect during collecting and getting information to develop this project. Also thanks to my family for being so understanding, encouraging and supporting me during progression of completing the project. Last but not least, I do believe that if there is a will, there is always a way. No matter how hard to finish the project, I have done my best, in my own way. Thank you.

Table of Contents

Approval iii

Acknowledgements iv

1 CHAPTERI 1

1.1 Background 1

1.2 Problem Statement 3

1.3 Objectives 3

1.4 Scope of Research/Project 4

1.5 System Constraint 4

1.6 Contribution of Research/Project 5

2 CHAPTERII 6

2.1 Introduction 6

2.2 Definition of Pertinent Technical Terminologies 8

2.2.1 Speech Training System 8

2.2.2 Interactive Learning System 10

2.2.3 Speech Recognition (SR) / Automated Speech Recognition (ASR)... 10

2.2.4 Computer-Based Education 13

2.2.5 Multimedia 13

2.3 Related Researches on Interactive Speech Ability Training 13

2.4 The Fundamental Design 17

Architecture diagram of CHIMP prototype 17

2.5 Other Topics that Related to the Study 18

3 CHAPTER m 20

3.1 Introduction 20

3.2 Research/Project Formulation Framework 21
3.2.1 Diagram of the procedure involves 21
3.2.2 Diagram of the procedure involves (detail tasks) 23
3.3 Data Collection 25
3.4 Prototype Development 26
3.4.1 Speech Training Phase 26
3.4.2 The fundamental design 27
3.4.3 The storyboard 28
3.5 Hard ware and software requirement 29
3.5.1 Hardware requirement 29
3.5.2 Software requirement 29
3.6 Measurement and Evaluation Design 30
4 CHAPTER IV 31
4.1 Introduction 31
4.2 Screen Design 31
4.2.1 Flash Intro Screen 32
4.2.2 Main Menu Screen 33
4.2.3 Learning (Menu Screen) 34
4.2.4 Learning (Intro ABC Screen) 36
4.2.5 Learning (ABC-i Screen) 37
4.2.6 Learning (ABC-ii Screen) 39
4.2.7 Learning (Intro Object Screen) 41
4.2.8 Learning (Object Screen) 42
4.2.9 Learning (Intro Syllable Screen) 44