

**DEVELOPMENT OF E-TUITION PROTOTYPE SYSTEM FOR PUSAT
BIMBINGAN SERI USAHA**

LAW YI-FANG

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BORANG PENGESAHAN STATUS TESIS

JUDUL: DEVELOPMENT OF E-TUITION PROTOTYPE SYSTEM FOR PUSAT BIMBINGAN SERI USAHA

SESI PENGAJIAN: 2009/2010

Saya LAW YI-FANG

mengaku membenarkan tesis (PSM/Sarjana/Doktor Falsafah) ini disimpan di Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dengan syarat-syarat kegunaan seperti berikut:

1. Tesis dan projek adalah hak milik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. ** Sila tandakan (/)

SULIT

(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)

TERHAD

(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)

TIDAK TERHAD

(TANDATANGAN PENULIS)

Alamat tetap: 42, Taman Bahagia,

Batu 36, Jalan Johor,

82000 Pontian,

Johor.

Tarikh: 24 / 6 / 2010

(TANDATANGAN PENYELIA)

En Erman bin Hamid

Nama Penyelia

Tarikh: _____

CATATAN: * Tesis dimaksudkan sebagai Laporan Akhir Projek Sarjana Muda (PSM)

** Jika Tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

BORANG PENGESAHAN STATUS TESIS

JUDUL: DEVELOPMENT OF E-TUITION PROTOTYPE SYSTEM FOR PUSAT BIMBINGAN SERI USAHA

SESI PENGAJIAN: 2009/2010

Saya LAW YI-FANG

mengaku membenarkan tesis (PSM/Sarjana/Doktor Falsafah) ini disimpan di Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dengan syarat-syarat kegunaan seperti berikut:

1. Tesis dan projek adalah hak milik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. ** Sila tandakan (/)

 SULIT

(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)

 TERHAD

(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)

 TIDAK TERHAD

(TANDATANGAN PENULIS)

Alamat tetap: 42, Taman Bahagia,

Batu 36, Jalan Johor,

82000 Pontian,

Johor.

Tarikh: 24 / 6 / 2010

(TANDATANGAN PENYELIA)

En Erman bin Hamid

Nama Penyelia

Tarikh:

CATATAN: * Tesis dimaksudkan sebagai Laporan Akhir Projek Sarjana Muda (PSM)

** Jika Tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

**DEVELOPMENT OF E-TUITION PROTOTYPE SYSTEM FOR PUSAT BIMBINGAN SERI
USAHA**

LAW YI-FANG

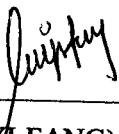
**This report is submitted in partial fulfillment of the requirements for the
Bachelor of Computer Science (Computer Networking)**

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2010**

DECLARATION

I hereby declare that this project report entitled
**DEVELOPMENT OF E-TUITION PROTOTYPE SYSTEM FOR PUSAT BIMBINGAN
SERI USAHA**

is written by me and is own effort and that no part has been plagiarized
without citations.

STUDENT : _____ Date: 24/6/2010

(LAW YI-FANG)

SUPERVISOR : _____ Date: _____
(ERMAN BIN HAMID)

DEDICATION

To my respect and love lecturers, thanks for the guidance and correction that bring me to the right way. Thanks for the advices and the challenge that given to me to let me come on with the problems and challenges.

To my dearness and beloved parents, your words and love are my greatest inspiration. You are the motivator who make me stronger and dare to face all the challenges.

To all my friends, thanks for the guidance, encouragement and support during my study life here. I really appreciate the times with all for you.

ACKNOWLEDGEMENTS

Firstly, I would like to express my sincere appreciation and impulsion to my respected supervisor, En. Erman bin Hamid, for his guidance and correction. He never feels tired and annoyed to explain and recommend solution for me. Besides, I would like to thanks to the evaluator, En Nor Azman Mat Ariff, he always give me many idea in this project.

Due to approach the policy of University Technical Malaysia Melaka, to award the degree awarded in Bachelor of Computer Science (Computer Networking), students are required to complete a Final Year Project called Project Sarjana Muda (PSM). I feel grateful and thankful because I have this special chance to challenging myself to finish a PSM in the time. All the way, I learnt very much.

At last, I would like to convey my sincere to thanks for my wonderful and faithful course mates. They are willing to share their idea, knowledge and information with me. Thanks for their support. I love them very much.

ABSTRACT

In this new era, the development of technology and telecommunication is very fast, and Internet has become a symbol of the development of the social community. These play as an important role in our life. However, as the importance of the internet increases, various threats arise too. Thus, e-tuition system is considered as a method to apply in tuition center to help to cope with the problem arisen. Currently, there are small amount of tuition centre used online system, enabling the teachers and students communicate through this system. Teachers can post any announcement or uploads the notes there. Then, students can just download theirs notes from the website. The E-tuition system is not just only for teachers and students used, but for the parents as well. The parents, who had registered as a user, can get the latest news from the tuition centre as well as to view their children attendance list. Other than that, this website also has a forum for the users to communicate with each other. They can drop down any comment or opinion there. Through the website, user can also view the profile of the teachers and students too. Besides, the website will able to send SMS notification when it has any announcement in the website, and parent can get his/her children attendance list through SMS. This project used Systems Development Life Cycle (SDLC) project methodology. The scripting language used to implement the system is Hypertext Pre-Processor (PHP) language and MySQL as the database. For Short Message Services (SMS), GSM Modem is Ozeki Message Server. Administrator is responsible to make announcement and manage the operation of the tuition centre. For teachers, they are responsible to upload notes and manage student's attendance while parents can check students' attendance status via SMS or by online system.

ABSTRAK

Dalam era yang baru ini, perkembangan teknologi dan telekomunikasi adalah sangat cepat, dan Internet merupakan simbol dari perkembangan masyarakat sosial. Hal ini memainkan peranan penting dalam kehidupan kita. Akan tetapi, peningkatan dalam kepentingan internet telah mendatangkan pelbagai ancaman juga. Oleh yang demikian, sistem e-Tuition dianggap sebagai kaedah untuk dilaksanakan dalam pusat pendidikan untuk membantu menyelesaikan masalah yang muncul. Pada masa ini, sebilangan kecil pusat pendidikan menggunakan sistem online dan ini membolehkan para guru dan pelajar pusat pendidikan berkomunikasi melalui sistem tersebut. Guru-guru boleh membuat pengumuman atau upload nota di sana. Selepas itu, pelajar hanya men-download nota mereka dari laman web. Sistem E-Tuition tidak hanya untuk kegunaan para guru dan pelajar, tetapi juga kepada ibubapa atau penjaga. Ibubapa atau penjaga yang telah mendaftar sebagai pengguna boleh mendapatkan berita terbaru dari pusat pendidikan. dan juga membaca senarai kehadiran anak-anak mereka. Selain itu, laman ini juga mempunyai satu forum bagi pengguna untuk berkomunikasi antara satu sama lain. Mereka boleh mengeluarkan komen atau pendapat di sana. Melalui website ini, pengguna juga boleh membaca profil guru dan pelajar. Selain itu, laman web akan menghantar SMS pemberitahuan ketika ada pengumuman di website, dan penjaga boleh mendapatkan senarai kedatangan anak-anak mereka melalui SMS. Projek ini menggunakan metodologi projek Systems Development Life Cycle (SDLC). Bahasa skrip yang digunakan untuk mengimplementasikan sistem ini adalah Hypertext Pre-Processor (PHP) dan MySQL sebagai database. Untuk Short Message Service (SMS), Modem GSM yang digunakan adalah Ozeki Message Server. Administrator bertanggungjawab untuk membuat pengumuman dan pengaturan operasi pusat pendidikan. Bagi guru, mereka bertanggungjawab untuk meng-upload dan mengatur catatan kehadiran pelajar, sementara ibubapa boleh menyemak status kehadiran pelajar melalui SMS atau dengan sistem talian.

TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE
	DECLARATION	i
	DEDICATION	ii
	ACKNOWLEDGEMENT	iii
	ABSTRACT	iv
	ABSTRAK	v
	TABLE OF CONTENTS	vi
	LIST OF TABLES	xii
	LIST OF FIGURES	xv
	LIST OF ABBREVIATION	xix
	LIST OF ATTACHMENTS	xx
CHAPTER I	INTRODUCTION	
1.1	Project Background	1
1.2	Problem Statement	2
1.3	Objective	2
1.4	Project Scope	3
1.5	Project Significance	3
1.6	Expected Output	4
1.7	Conclusion	4
CHAPTER II	LITERATURE REVIEW AND PROJECT METHODOLOGY	
2.1	Introduction	6

2.2	Literature Review	7
2.2.1	Domain	7
2.2.2	Keyword	8
2.2.2.1	E-Tuition	8
2.2.2.2	Short Message Service	8
(SMS)		9
2.2.2.3	Forum	10
2.2.2.4	GSM Modem	11
2.2.3	Previous Research	11
2.2.3.1	Current System at Pusat	
Bimbingan		12
Seri Usaha		14
2.2.3.2	Online System in UTM	15
2.2.3.3	Portal UTeM	15
2.2.3.4	Comparison of the system	15
2.2.4	GSM Modem	16
2.2.4.1	iTegno 3000	17
2.2.4.2	GS35i GSM Modem	18
2.2.4.3	Wavecom FASTRACK	18
GSM Modem		19
2.2.5	Scripting	19
2.2.5.1	Pre-Hypertext Processors	19
(PHP)		20
2.2.5.2	Visual Basic (VB)	20
2.2.5.3	Active Server Pages (ASP)	21
2.2.5.4	Comparison of Scripting	22
Language		23
2.2.6	Web Server	
2.2.6.1	Apache HTTP Server –	
Platform		
2.2.6.2	Internet Information Server	

	(IIS)
	2.2.6.3 Comparison of Web Server
	2.2.7 Comparison of Methodologies
2.3	Proposed Solution 25
	2.3.1 Project Methodology 25
2.4	Project Requirement 29
	2.4.1 Software Requirement 29
	2.4.2 Hardware Requirements 30
2.5	Project Schedule and Milestone 30
2.6	Conclusion 33
CHAPTER III	ANALYSIS
3.1	Introduction 34
3.2	Problem Analysis 35
	3.2.1 Analysis of Current System 35
	3.2.2 Survey Analysis Before Develop 36
	System
3.3	Requirement Analysis 40
	3.3.1 Data Requirement 40
	3.3.2 Functional Requirement 48
	3.3.3 Non-functional Requirement 50
	3.3.4 Others Requirement 51
	3.3.4.1 Software Requirement 51
	3.3.4.2 Hardware Requirement 54
	3.3.4.3 Network Requirement 55
3.4	Conclusion 55
CHAPTER IV	DESIGN
4.1	Introduction 56
4.2	High-Level Design 56
	4.2.1 System Architecture 57

4.2.2	User Interface Design	59
4.2.2.1	Navigation Design	60
4.2.2.1	Input Design	61
4.2.2.3	Output Design	84
4.2.3	Database Design	90
4.2.3.1	Conceptual and Logical Database Design	91
4.3	Detailed Design	91
4.3.1	Software Design	91
4.3.2	Physical Database Design	91
4.4	Conclusion	92
CHAPTER V	IMPLEMENTATION	93
5.1	Introduction	93
5.2	Software Development Setup	93
5.3	Software Configuration Management	94
5.3.1	Configuration Environment Setup	95
5.3.1.1	MySQL and Apache Configuration	95
5.3.1.2	MySQL Connector Configuration	99
5.3.1.3	Ozeki Message Server Configuration	101
5.3.2	Version Control Procedure	106
5.4	Implementation Status	107
5.5	Conclusion	108
CHAPTER VI	TESTING	109
6.1	Introduction	109
6.2	Test Plan	110
6.2.1	Test Organization	110

6.2.2	Test Environment	110
6.2.3	Test Schedule	111
6.3	Test Strategy	112
6.3.1	Classes of Tests	113
6.3.1.1	Coding Testing	113
6.3.1.2	Functionality Testing	113
6.3.1.3	User Acceptance Testing	113
6.3.1.4	Error Handling Testing	114
6.3.1.5	Connection Testing	114
6.4	Test Design	114
6.4.1	Test Description	114
6.4.2	Test Data	121
6.5	Test Result and Analysis	124
6.5.1	Result of the Testing	134
6.6	Conclusion	141
CHAPTER VII PROJECT CONCLUSION		142
7.1	Observation on Weaknesses and Strengths	142
7.2	Propositions for Improvement	144
7.4	Contribution	144
7.4	Conclusion	145
References		146
Bibliography		148
Appendix A – Gantt Chart		149
Appendix B – Data Relationship		151
Appendix C – Data Dictionary		153
Appendix D – Software Design		160
Appendix E – Physical Database Design		166
Appendix F – User Manual		173
Appendix G - Questionnaire Before Develop		189

Appendix G - Questionnaire Before Develop System	189
Appendix H - Questionnaire Of Testing	192

LIST OF TABLE

TABLE	TABLE	PAGE
2.1	Comparison between Existing System and e-Tuition System	15
2.2	Comparison of GSM Modem	17
2.3	Comparison of Scripting Language	20
2.4	Comparison of Web Sever	22
2.5	Comparison of Methodologies	23
2.5	Duration of each activity	30
2.6	Project Schedule for PSM I	31
2.7	Project Schedule for PSM II	32
3.1	Data Dictionary for Admin Table	40
3.2	Data Dictionary for Guardian Table	41
3.3	Data Dictionary for Student Table	42
3.4	Data Dictionary for Teacher Table	43
3.5	Data Dictionary for Attendance Table	44
3.6	Data Dictionary for Announcement Table	44
3.7	Data Dictionary for Comment Table	44
3.8	Data Dictionary for Note Table	45
3.9	Data Dictionary for subject_learnt Table	45
3.10	Data Dictionary for subject_taught Table	45
3.11	Data Dictionary for outbox Table	46
3.12	Data Dictionary for ozekimessagein Table	46
3.13	Data Dictionary for ozekimessageout Table	47
3.14	Explanation of Functional Requirement of e-Tuition System	49
3.15	Explanation of Non-functional Requirement of e-Tuition System	50
3.16	Justification of Usage of Software	51
3.17	Justification of Usage of Hardware	54

3.18 Description of Network Devices	55
4.1 Input Type and Validation Rules for User Login	62
4.2 Input Type and Validation Rules for Edit Profile	63
4.3 Input Type and Validation Rules for Admin Registration	67
4.4 Input Type and Validation Rules for Teacher Registration	68
4.5 Input Type and Validation Rules for Student Registration	69
4.6 Input Type and Validation Rules for Parent Registration	70
4.7 Input Type and Validation Rules for Add Announcement	71
4.8 Input Type and Validation Rules for Edit Profile for Teacher	74
4.9 Input Type and Validation Rules for Upload Note	75
4.10 Input Type and Validation Rules for Edit Profile for Student	78
4.11 Input Type and Validation Rules for Edit Profile for Parent	81
5.1 List of Version Control Procedure	106
5.2 Implementation Status of e-Tuition Prototype System	107
6.1 Hardware and Software Requirement for Testing Environment	111
6.2 Test Schedule of e-Tuition System	111
6.3 Login Test Case	114
6.4 View/Edit User Profile (View Administrator) Test Case	115
6.5 View User Profile (Teacher, Student, Parent) Test Case	116
6.6 Delete User Test Case	116
6.7 User Registration Test Case	117
6.8 Message (Broadcast) Test Case	118
6.9 Message (Request Attendance Status) Test Case	119
6.10 Message (Send Message) Test Case	119
6.11 Forum Test Case	120
6.12 Upload Notes Test Case	120
6.13 Upload Notes Test Case	121
6.14 Test Data for e-Tuition System (System Module)	122
6.15 Test Data for Requesting Attendance Status (SMS)	122
6.16 Administrator Test Case	123
6.17 Parent Test Case	123

6.18 Expected Result of the System**125**

LIST OF FIGURE

FIGURE	TITLE	PAGE
2.1	e-Learning@UTM	12
2.2	AIMS2000 Academic Information Management System	13
2.3	Portal UTeM	14
2.4	iTegno 3000	16
2.5	GS35i GSM Modem	16
2.6	Wavecom FASTRACK GSM Modem	17
2.7	Waterfall Life Cycle Diagram	25
3.1	DFD of Current System at Pusat Bimbingan Seri Usaha Tuition Centre	36
3.2	Bar Chart of Testing Feedback from Parents	37
3.3	Bar Chart of Testing Feedback from Students	38
3.4	Bar Chart of Testing Feedback from Teachers	39
3.5	DFD of e-Tuition System	48
4.1	SMS gateway system architecture[7]	57
4.2	Ozeki Message Server System Diagram	58
4.3	System Architecture of e-Tuition System	59
4.4	Navigation Design for e-Tuition System	60
4.5	Login Page for Admin and All Users	61
4.6	Admin Panel Page for Admin Use	62
4.7	Edit Profile Page for Admin	63
4.8&9	Teacher Profile Page	64
4.10&11	Student Profile Page	65
4.12&13	Teacher Profile Page	66
4.14	Admin Registration Page	67

4.15	Teacher Registration Page	68
4.16	Student Registration Page	69
4.17	Parent Registration Page	70
4.18	Add Announcement Page	71
4.19	Delete Announcement Page	72
4.20	Logged In User Page	72
4.21	Comment Approval Page	73
4.22	Teacher Home Page	73
4.23	Edit Profile Page for Teacher	74
4.24	Upload Note Page	75
4.25	Attendance Page	76
4.26	Forum Page	76
4.27	Student Home Page	77
4.28	Edit Profile Page for Student	77
4.29	Download Note Page	78
4.30	View Attendance Page	79
4.31	Forum Page	80
4.32	Parent Home Page	80
4.33	Edit Profile Page for Parent	81
4.34	View Attendance Page	82
4.35	Forum Page	83
4.36	Login Failed Page	84
4.37	Successful Edited Admin Profile	85
4.38	Confirmation Message	85
4.39	Successful User Registration	86
4.40	Successful Announcement	87
4.41	Upload Failed	87
4.42	Successful Upload File	88
4.43	Window for download file	88
4.45	Successful updated Student Profile	89
4.46	Successful updated Teacher Profile	89

4.47	Successful updated Parent Profile	90
5.1	Software Development Environment	94
5.2	Appserve Setup Wizard	95
5.3	Appserve License Agreement	96
5.4	Appserve Install Location	96
5.5	Appserve Select Component	97
5.6	Apache HTTP Server Information	97
5.7	MySQL Server Configuration	98
5.8	Completing Appserve Setup	98
5.9	ODBC Data Source Administrator	99
5.10	ODBC Create New Data Source	99
5.11	Connector/ODBC Configuration	100
5.12	Ozeki Database Plug-In Installation	101
5.13	Ozeki Database Plug-In Installing	101
5.14	Ozeki GSM Modem Driver Installation	102
5.15	Ozeki GSM Modem Driver Installing	102
5.16	Ozeki GSM Modem Preferences Configuration	103
5.17	Ozeki Database Plug-In Preferences Configuration	103
5.18	Ozeki Database Connection String Configuration	104
5.19	Data Link Properties Provider	104
5.20	Data Link Properties Connection	105
5.21	End Database Plugin Configuration	105
6.1	e-Tuition System Homepage	125
6.2	Sign in Interface	126
6.3	Error Message when Sign In Failed	126
6.4	Registration Form	127
6.5	Error Message when entered wrong format	127
6.6	Attendance Interface	129
6.7	Forum Interface	129
6.8	Upload Notes Interface	130
6.9	Invalid File Format Error Message	130

6.10	No Empty Field Error Message	131
6.11	Message of Upload Successful	131
6.12	Download Notes Interface	132
6.13	Download File	133
6.14	Bar Chart of Testing Feedback (Teacher)	135
6.15	Bar Chart of Testing Feedback (Student)	137
6.16	Bar Chart of Testing Feedback (Parent)	139

LIST OF ABBREVIATION

ASP	-	Active Server Pages
CSS	-	Cascading Style Sheets
DFD	-	Data Flow Diagram
EMS	-	Enhanced Messaging Service
GPRS	-	General Packet Radio Service
GSM	-	Global System for Mobile
GUI	-	Graphical User Interface
HTML	-	HyperText Markup Language
IIS	-	Internet Information Server
JAD	-	Joint Application Development
MIS	-	Management Information System
MMS	-	Multimedia Messaging Service
PHP	-	Pre-Hypertext Processor
RAD	-	Rapid Application Development
SDLC	-	System Development Life Cycle
SIM card	-	Subscriber Identity Module Card
SMS	-	Short Message Service
SQL	-	Structured Query Language
USB	-	Universal Serial Bus
UTM	-	Universiti Teknologi Malaysia
VB	-	Visual Basic

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
1.1	Gantt Chart	149
1.2	Database Relationship	151
1.3	Data Dictionary	153
1.4	Software Design	160
1.5	Physical Database Design	166
1.6	User Manual	173
1.7	Questionnaire Before Develop System	189
1.8	Questionnaire Of Testing	192