

BORANG PENGESAHAN STATUS TESIS

JUDUL: FTMK MOBILE COMPLAINT SYSTEM

SESI PENGAJIAN: 2008 /2009

Saya MOHAMAD YUSUF B. MAT YASIT

(HURUF BESAR)

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

1. Tesis adalah hakmilik 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)



(TANDATANGAN PENYELIA)

Alamat tetap: No,100 Jln.Bukit Palas,

SYURIA BT. AMIRRUDDIN

Kg. Cherating, 26080 Kuantan, Pahang.

Nama Penyelia

Tarikh: 30/06/09

Tarikh: 30/6/09.

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

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

FTMK MOBILE COMPLAINT SYSTEM

MOHAMAD YUSUF B. MAT YASIT

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

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2009**

DECLARATION

I hereby declare that this project entitled

FTMK MOBILE COMPLAINT SYSTEM (FMCS)

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

STUDENT: 
(MOHAMAD YUSUF B. MAT YASIT)

Date: 30/06/09

SUPERVISOR: 
(SYURIA BT. AMIRRUDIN)

Date: 30/6/09.

DEDICATION

To my beloved family, I love you all. To my supervisor, thank you so much for the assist and help.

ACKNOWLEDGEMENTS

In the name of Allah s.w.t, the Most Gracious and Most Merciful.

Alhamdulillah, finally, I managed to finish this final year project entitled 'FTMK Mobile Complaint System'. It is impossible to state all of the people who have contributed to this project. Through this golden chance, I would like to express a special appreciation to my nice supervisor lecturer, Pn. Syuria Binti Amirrudin for her warming encouragement, precious guidance and eternal effort in helping me completing this project.

Besides that, I would like to convey my heartfelt thanks to my classmates and beloved family for their support and suggestions. Without them, I would not be able to complete this project.

Last but not least, may almighty bless all the people who have helped me in order to complete this thesis as well. Thank you for everything.

ABSTRACT

The mobile complaint system is a mobile application that allows users from the Faculty of Information and Communication Technology (FTMK) to submit their complaint toward faculty service via the Internet and Java enabled mobile phones. The mobile users have to connect to the server via Internet connection. The administrator web system was created to enable the faculty staffs to manage user submitted complaints. The campus environment was chosen as an application domain of this study because it is highly populated by large numbers of potential test subjects and with strong infrastructure support services. The web application was developed using PHP 5 technologies, while the mobile client was developed using Java ME's MIDP 2.0. The database for this system was built using MySQL 5.0. Hopefully, this system will contribute lots of benefit in solving some of the challenging problem in mobile computing technologies issues.

ABSTRAK

Sistem aduan mudah alih adalah satu aplikasi mudah alih yang membenarkan pengguna daripada Fakulti Informasi dan Teknologi Komunikasi (FTMK) bagi mengemukakan aduan mereka terhadap perkhidmatan fakulti melalui telefon bimbit yang mempunyai aplikasi Java dan jaringan Internet. Pengguna lincah itu perlu disambungkan kepada pelayan melalui jaringan Internet. Jaringan pentadbir sistem diwujudkan bagi membolehkan kakitangan fakulti untuk menguruskan aduan pengguna. Suasana kampus dipilih sebagai domain kajian ini kerana terdapat pengguna yang ramai dan sokongan infrastruktur yang kukuh. Aplikasi jaringan dimaju menggunakan teknologi PHP 5, manakala pelanggan mudah alih dimaju menggunakan Java ME MIDP 2.0. Pangkalan data untuk sistem ini dibina menggunakan MySQL 5.0. Diharapkan sistem ini juga memberi sumbangan ke arah penyelesaian sebahagian masalah yang mencabar dalam isu teknologi pengkomputeran bolehgerak.

TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENTS	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	x
	LIST OF FIGURES	xii
	LIST OF ABBREVIATIONS	xiii
	LIST OF ATTACHMENTS	xiv
CHAPTER I	INTRODUCTION	
	1.1 Project Background	1
	1.2 Problem Statements	2
	1.3 Objectives	2
	1.4 Scope	3
	1.5 Project Significance	3
	1.6 Expected Output	3
	1.7 Conclusion	4

CHAPTER II LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1	Introduction	5
2.2	Facts and Findings	6
2.2.1	Domain	6
2.2.2	Keyword	7
2.2.3	Existing System	13
2.3	Project Methodology	21
2.4	Project Requirements	24
2.5.1	Software Requirement	24
2.5.2	Hardware Requirement	25
2.5	Project Schedule and Milestones	27
2.6	Conclusion	27

CHAPTER III ANALYSIS

3.1	Introduction	29
3.2	Problem analysis	30
3.3	Requirement Analysis	31
3.3.1	Data Requirement	32
3.3.2	Functional Requirement	35
3.3.4	Non- Functional Requirement	59
3.3.5	Other Requirement	50
3.4	Conclusion	63

CHAPTER IV DESIGN

4.1	Introduction	64
4.2	High-Level Design	65
4.2.1	System Architecture	65
4.2.2	User Interface Design	66
4.2.3	Navigation Design	67

4.2.4 Database Design	86
4.2.4.1 Conceptual and Logical Database Design	86
4.3 Detailed Design	88
4.3.1 Software Design	88
4.3.2 Physical Database Design	100
4.4 Conclusion	103

CHAPTER V IMPLEMENTATION

5.1 Introduction	104
5.2 Software Development Environment Setup	105
5.3 Software Configuration Management	106
5.3.1 Configuration Environment Setup	107
5.3.2 Version Control Procedure	111
5.4 Implementation Status	113
5.5 Conclusion	115

CHAPTER VI TESTING

6.1 Introduction	116
6.2 Test Plan	117
6.2.1 Test Organization	117
6.2.2 Test Environment	117
6.2.3 Test Schedule	118
6.3 Test Strategy	119
6.3.1 Classes of test	119
6.4 Test Design	121
6.4.1 Test Description	121
6.4.2 Test Data	125
6.5 Test Result and Analysis	125
6.6 Conclusion	132

CHAPTER VII PROJECT CONCLUSION

7.1 Observation on Weaknesses and Strength	134
7.2 Proposition for Improvement	135
7.3 Contribution	136
7.4 Conclusion	137

REFERENCES	138
-------------------	-----

ATTACHMENTS	139
--------------------	-----

LIST OF TABLES

TABLE	TITLE	PAGE
2.1	Comparison of features in Existing Systems	19
3.1	User Database Table	32
3.2	Notice Database Table	33
3.3	Comment Database Table	33
3.4	Contentitem Database Table	33
3.5	Cbsubject Database Table	34
3.6	Cbstatus Database Table	34
3.7	Cbitem Database Table	34
3.8	Use Case Description for Mobile User Submit Complaint	36
3.9	Use Case Description for Mobile User Submit Comment	37
3.10	Use Case Description for Mobile User View Action Status	39
3.11	Use Case Description for Mobile User Post Notice	40
3.12	Use Case Description for Mobile User View Notice	41
3.13	Use Case Description for Mobile User View Complaint	42
3.14	Use Case Description for Web User Submit Complaint	44
3.15	Use Case Description for Web User Submit Comment	46
3.16	Use Case Description for Web User Edit Profile	47
3.17	Use Case Description for Web User View Action Status	48
3.18	Use Case Description for Web User Post Notice	49
3.19	Use Case Description for Admin Manage Complaint	51
3.20	Use Case Description for Admin Manage Comment	52
3.21	Use Case Description for Admin Manage User	53

3.22	Use Case Description for Admin Manage Notice	56
3.23	Software Requirement for FMCS	61
3.24	Hardware Requirement for FMCS	62
3.25	Network Requirement for FMCS	62
4.1	Mobile User Login Interface Input-Output Design	69
4.2	Mobile Main Interface Input-Output Design	71
4.3	Submit Data Interface Input-Output Design	72
4.4	Retrieve List of Submitted Complaint Interface Input-Output Design	74
4.5	Retrieve Latest Notice Interface Input-Output Design	75
4.6	View Action Status Interface Input-Output Design	76
4.7	User Authentication Interface Input-Output Design	77
4.8	Add Complaint Interface Input-Output Design	78
4.9	Add Comment Interface Input-Output Design	78
4.10	Edit Profile Interface Input-Output Design	79
4.11	Add Notice Interface Input-Output Design	80
4.12	View Complaint Board Topic Interface Input-Output Design	81
4.13	View Complaints Interface Input-Output Design	82
4.14	View Comments Interface Input-Output Design	83
4.15	View User List Interface Input-Output Design	84
4.16	Add User Interface Input-Output Design	85
4.17	Data Dictionary for FMCS Database	87
5.1	Version Control Procedure 1	112
5.2	Version Control Procedure 2	113
5.3	Implementation Status	114
6.1	Test Module	118
6.2	Test Schedule	119
6.3	Test Description for Mobile User Module	121
6.4	Test Description for Web User Module	122
6.4	Test Description for Web Admin Module	123

6.5	FMCS Interface Unit Testing	123
6.6	User Acceptance Unit Testing	124
6.7(i)	Module 1 Test Case Result	124
6.8(ii)	Module 2 Test Case Result	127
6.9(iii)	Module 3 Test Case Result	128
6.10(iv)	Module 4 Test Case Result	129
6.11(v)	Module 5 Test Case Result	130
6.11(v)	Module 6 Test Case Result	130

LIST OF FIGURES

DIAGRAM	TITLE	PAGE
2.1	Overview of the components of Java ME	8
2.2	The Connected Limited Device Configuration (CLDC)	9
2.3	PDA's Hardware and GUI Design	11
2.4	PDA's Infrastructures	12
2.5	EC customer Feedback PDA solutions	13
2.6	Infrastructure of EC Customer Feedback PDA Solutions	14
2.7	Interface of Embrace Mobile Survey	15
2.8	Administrator site	16
2.9	Registration process flow	16
2.10	Survey process flow	17
2.11	Phases in RAD	22
3.1	UTeM Customer Feedback System	31
3.2	Use Case for FMCS (Mobile User)	36
3.3	Use Case for FMCS Web Module (User)	44
3.4	Use case for FMCS (Administrator)	50
3.5	Sequence Diagram of FMCS (Mobile User)	57
3.6	Sequence Diagram of FMCS Web Module (User)	58
3.7	Sequence Diagram of FMCS Web Module (Administrator)	59
4.1	System Architecture of FMCS	66
4.2	Navigation Design of FMCS Mobile Module	67
4.3	Navigation Design of FMCS Web Module	68
4.4	Mobile User Login Interface	69
4.5	Mobile User Main Menu Interface	70

4.6	Mobile User Submit Data Interface	71
4.7	Mobile User Retrieve List of Submitted Complaint	73
4.8	Mobile User Retrieve Latest Notice Interface	74
4.9	Mobile User View Action Status Interface	75
4.10	Web User Authentication Interface	76
4.11	Web User Add Complaint Interface	77
4.12	Web User Add Comment Interface	78
4.13	Web User Edit Profile Interface	79
4.14	Web User Add Notice Interface	80
4.15	Web User View Complaint Board Interface	81
4.16	Web Admin View Complaints Interface	82
4.17	Web Admin View Comments Interface	83
4.18	Web Admin View User List Interface	84
4.19	Web Admin Add User Interface	85
4.20	ERD of FMCS	87
5.1	FMCS Development Environments	105
6.1	Login Fail Test	124
6.2	Login Successfully Test	125

LIST OF ABBREVIATIONS

FMCS	-	FTMK Mobile Complaint System
Java ME	-	Java Platform, Micro Edition
PDA	-	Personal Digital Assistants
FTMK	-	Fakulti Teknologi Maklumat dan Telekomunikasi
UTeM	-	Universiti Teknikal Malaysia Melaka
ICT	-	Information and Communication Technology
GPRS	-	General packet radio service
API	-	Application programming interface
CLDC	-	Connected Limited Device Configuration
CDC	-	Connected Device Profile
MIDP	-	Mobile Information Device Profile
PIM	-	Personal Information Manager
RAD	-	Rapid Application Development
PHP	-	PHP: Hypertext Preprocessor
J2SE	-	Java Standard Edition
HTTP	-	Hypertext Transfer Protocol
DBMS	-	Database management system
WWAN	-	Wireless Wide-Area Networks
UML	-	Unified Modeling Language
RAM	-	Random Access Memory

LIST OF ATTACHMENTS

ATTACHMENTS	TITLE	PAGE
1.1	Gantt Chart	140
1.2	User Manual	142
1.3	Data Dictionary	151

CHAPTER I

INTRODUCTION

1.1 Project Background

Handheld computers, or personal digital assistants (PDAs), are devices that run cut-down versions of "standard" office software packages. The small size of handhelds can make extended use inconvenient, but they're ideal for on-the-move access to email, schedules and documents. Some PDAs can also being used as mobile phones. Mobile devices can be used for a wide variety of purposes. Key features include immediate access to data needed. It is often possible to carry out the same tasks as in office while on the move, as many mobile devices operate the same software as laptop or desktop.

An effective mobile device application management solution can assist organization in delivering value-added contents and services. A well-planned complaint management system allows organisations to obtain user feedback and data. The complaint data will be used to make process improvement, increase users satisfaction. Therefore, the FTMK Mobile Complaint System (FMCS) is the best solutions for those mentioned profits. Students and lecturers can use the FMCS program to submit their complaint toward faculty services faster and easier.

This system works only in PDAs or mobile phone with Java also together with internet access. Users must request the installer from faculty or download it from faculty website. The other module is web based for management purposes. Next, users also need to submit their complaint through this site. This system also can be used by other UTeM faculty.

1.2 Problem Statement

When dealing with Faculty of Information and Communication Technology (FTMK) management, sometimes users do not satisfy with the services provided. Basically, users need to fill the complaint form manually and submit it to the faculty. Users must complete the process in the faculty and this may take lots of time also quite complicated. This is because, the form that had been filled by the users need to be processed first by the admin and not all the requests can be approved by the admin. What will happen if the form does not being approved by the admin? This will waste the user's time or in other words "hopeless job". Moreover, the form may be lost toward human reliability factor or because of the Mother Nature factors such as fire or flood. The complaint data could not be managed efficiently through manual way. Consequently, the further action toward those issues cannot be performed well because of those mentioned problems.

1.3 Objective

Each project must have certain goals or objectives in order to make the project runs smoothly as what had been planned before. Therefore, the main objectives of this application are:

- i. To develop a prototype FMCS in the mobile devices.
- ii. To collect data concerning users complaint about FTMK managements and services.

- iii. To manage the data collected more efficient and systematic.

1.4 Scope

Certain scopes had been identified to make the project become clearer, concise also detail in order to identify how, with what and by who the program will react and runs. Therefore, the scopes of this project are:

- i. The targeted users for this application are FTMK students, staffs and lecturers.
- ii. This application will be use in mobile devices.
- iii. The management of data will be conducted on web – based module.

1.5 Project Significance

The significance of this project is it enable user to submit their complaint automatically through their mobile devices or web – based application. In this proposed system, administrator able to manage and collect the user complaint efficiently.

1.6 Expected Output

This application will be installed in the mobile devices so that the users can submit their complaint. They also can submit their complaint through web – based module via online.

1.7 Conclusion

As a conclusion, this application is developed for FTMK students and lecturers to submit the complaint in easiest way only at the finger tip by using mobile devices that flexible to use anywhere and anytime. The FMCS provides benefits to the FTMK management in order to improve services for users. This chapter reviews on the description of the project and some related background information on the project. Besides that, this chapter observes the problem statements of this project to give a clear insight of what is the scope and objectives of the project. This chapter acts as guideline to all the works in the next stages later on.

CHAPTER 2

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This chapter is quite important in developing any software project. This is because it contains a lots if important information that will be used during the development of the project. The intention of this chapter is to describe and explain on the literature review carried out on the system, which is very important for the research. Moreover, this chapter also contains the methodology that used in developing this system. Besides that, previous research also will be discussed in this section for at least three existing system and methodologies that already being used in other research will be explained and compared to highlight the differences.

For the next section, every project development includes discussion of the methodology used where the methodology is use as the solution tree to the project. Methodology is a set of guidelines, standards and processes that is involved and followed explicitly in order to produce a product or software. In this study the methods consist of the compatibility development process. By having the proper project methodology, the project is able to be completed within the given time.

For the project required section, where all the requirements such as software and hardware as well as the operating system requirement will be listed so that the developer

can understand all the features that are available in the requirement before proceeding to the proposed project.

Finally, the last section of this chapter is discussing the project schedule and milestones. In this section, a Gantt chart will be attached. The Gantt Chart listed details of all task and activity required during the progress of the project and the conclusion section will end the entire explanation for this chapter.

2.2 Fact and Finding

Fact and Finding is a discovery or determination of fact or accurate information. This section conveys about the mobile application, analysis the existing system, to find out the strength and weaknesses of the system. After all the strength and weakness has been analyze, it will then been applied to the system and the failure and weaknesses will then be improved.

2.2.1 Domain

Every project has it own domain. In this FMCS, the domain for the project is the Information and Communication Technology (ICT) in mobile application. According the article from Marliza (1999), advancing technology in wireless communication offers users anytime, anywhere access to information and network resources without restricting them to the fixed network infrastructure. Mobility introduces new challenges as several assumptions made regarding distributed networks are no longer valid.

The article reveals that the mobile technology gives many advantages to people who use the mobile technology such as mobile phone. Today, mobile phone is used for many applications such as shopping, media entertainments and others. Media entertainments nowadays use mobile technologies to vote their artist in reality show. Thus, FMCS also tried to use the same method in managing the data which is by using the mobile technologies. The technology actually is use to make the life much easier.