FTMK E-LEAVE SYSTEM

HAFIZAH BT ABD WAHAB

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

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2010

© Universiti Teknikal Malaysia Melaka

BORANG PENGESAHAN STATUS TESIS*

JUDUL: **FTMK E-Leave System**

SESI PENGAJIAN: **2009/2010**

Saya **HAFIZAH BT ABD WAHAB**
(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)

Alamat tetap: 2148 Jalan Permata 10,
Taman Permata,
53300 Kuala Lumpur

Tarikh : 29/06/2010

(TANDATANGAN ~~PENYELIA~~)

CIK NOR HASLINDA ISMAIL
Nama Penyelia

Tarikh : 29/6/2010

CATATAN: * Tesis dimaksudkan sebagai Laporan Akhir Projek Sarjana Muda (PSM)
** Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

© Universiti Teknikal Malaysia Melaka

DECLARATION

I hereby declare that this project report entitled

FTMK E-Leave System

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

STUDENT : _____ Date: 29/06/2010
(HAFIZAH BT ABD WAHAB)

SUPERVISOR: _____ Date: 29/6/2010
(MISS NOR HASLINDA BT ISMAIL)

© Universiti Teknikal Malaysia Melaka

DEDICATION

To my beloved family, your prayers and love gives me hope and blessing.

To my lecturer, for the guidance and challenge to develop myself.

© Universiti Teknikal Malaysia Melaka

ACKNOWLEDGEMENTS

"In the name of Allah, Most Gracious, Most Merciful"

I would like to express my fullest gratitude and millions thanks especially to Cik Nor Haslinda bt Ismail for all the advice, guidance and support throughout this project. All the guidance has brought me to the success of this project. Plus, I would like to thank the panel, Puan Rosmiza Wahida bt Abdullah for the concern about this project. A part from that, I would like to thank all the lecturers for the cooperation, support as well as advice during my studies in UTeM.

Besides that, I would like express my gratitude to all my lovely friends especially the course mate 3 BITS for the helps, comments, ideas and the friendship during studies in UTeM. Last but not least, I would like to thank my beloved family for the love, prayers and blessings throughout the studies and project.

© Universiti Teknikal Malaysia Melaka

ABSTRACT

Mobile phone technology has been widely use nowadays. There are some system use mobile as network device. So do FTMK E-Leave System (E-Leave) which use mobile phone as a device to send SMS notification to the user to inform them that their leave application has been approved. The main function of E-Leave is apply leave and leave approval. The special addition in this system is using mobile phone to send notification. The development of this project used the V-shape Model methodology, Adobe Dreamweaver CS3 as software, PHP as the programming language whereas MySQL is for the database management system. This system developed by using SSDAM methodology. Overall, this system can help and facilitate management through more orderly manner.

© Universiti Teknikal Malaysia Melaka

ABSTRAK

Penggunaan telefon bimbit makin berleluasa sekarang. Terdapat beberapa sistem yang mengunakan telefon bimbit sebagai alat bantuan. Begitu juga dengan FTMK E-Leave System yang menggunakan telefon bimbit sebagai alat peratara yang peringatan atau makluman bahawasanya permohonan cuti beliau sudah diluluskan. Fungsi utama E-Leave ialah minta cuti dan sahkan cuti. Penamabahan istimewa di dalam sistem ini ialah penggunaan telefon bimbit untuk menghantar makuluman kepada pengguna. Bagi proses pembangunan, sistem ini menggunakan kaedah Model V-Shape, Adobe Dreamweaver CS3 sebagai perisian, PHP sebagai bahasa pengaturcaraan manakala MySQL adalah bagi sistem pengurusan pangkalan data. Sistem ini dibangunkan dengan menggunakan metodologi SSDAM. Secara keseluruhannya, sistem ini dapat membantu dan memudahkan pengurusan secara lebih teratur.

© Universiti Teknikal Malaysia Melaka

TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE
	DECLARATION	**ii**
	DEDICATION	**iii**
	ACKNOWLEDGEMENTS	**iv**
	ABSTRACT	**v**
	ABSTRAK	**vi**
	TABLE OF CONTENTS	**vii**
	LIST OF TABLES	**xii**
	LIST OF FIGURES	**xiv**
	LIST OF ABBREVIATIONS	**xvi**
	LIST OF APPENDICES	**xvii**
CHAPTER I	**INTRODUCTION**	
	1.1 Project Background	1
	1.2 Problem Statements	2
	1.3 Objectives	3
	1.4 Scopes	3
	1.5 Project Significance	6
	1.6 Expected Output	7
	1.7 Conclusion	8

© Universiti Teknikal Malaysia Melaka

CHAPTER II LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction 9

2.2 Facts and Findings 9

2.2.1 Domain 9

2.2.2 Existing System 11

2.2.2.1 Case Study 1 12

2.2.2.2 Case Study 2 13

2.2.2.3 Case Study 3 14

2.2.3 Comparison of Existing System 16

2.2.4 Technique 17

2.2.4.1 Interview 17

2.2.4.2 Review 17

2.3 Project Methodology 18

2.4 Project Requirements 20

2.4.1 Software Requirements 20

2.4.2 Hardware Requirements 20

2.4.3 Other Requirements 21

2.5 Project Schedule and Milestones 22

2.6 Conclusion 25

CHAPTER III ANALYSIS

3.1 Introduction 26

3.2 Problem Analysis 26

3.2.1 Background of current system 27

3.2.2 Context Diagram 27

3.3 Requirement Analysis 29

3.3.1 Data requirement 29

3.3.1.1 Entity Relationship Diagram 31

3.3.1.2 Data Dictionary 31

3.3.2 Functional requirement 33

© Universiti Teknikal Malaysia Melaka

3.3.3 Non functional requirement 34
3.3.3.1 System qualities 34
3.3.4 Other requirement 35
3.3.4.1 Software requirement 35
3.3.4.2 Hardware requirement 36
3.3.4.3 Network requirement 36
3.4 Conclusion 37

CHAPTER IV DESIGN

4.1 Introduction 38
4.2 High-Level Design 38
4.2.1 System Architecture 39
4.2.2 User Interface Design 41
4.2.2.1 Navigation Design 46
4.2.2.2 Input Design 48
4.2.2.3 Output Design 49
4.2.3 Database Design 51
4.2.3.1 Conceptual Database Design 52
4.2.3.2 Logical Database Design 54
4.2.3.3 Normalization 56
4.3 Detailed Design 56
4.3.1 Software Design 57
4.3.2 Physical Database Design 57
4.3.2.1 Data Definition Language (DDL) 57
4.4 Conclusion 59

CHAPTER V IMPLEMENTATION

5.1 Introduction 60
5.2 Software Development Environment Setup 61
5.3 Software Configuration Management 64
5.4 Implementation Status 66

© Universiti Teknikal Malaysia Melaka

5.5 Conclusion 68

CHAPTER VI TESTING

6.1 Introduction 69
6.2 Test Plan 69
6.2.1 Test Organization 70
6.2.2 Test Environment 70
6.2.3 Test Schedule 71
6.3 Test Strategy 72
6.3.1 Classes of Tests 73
6.3.1.1 Unit Testing 73
6.3.1.2 System Testing 74
6.3.1.3 Integration Testing 74
6.3.1.4 User Acceptance Testing 74
6.4 Test Design 74
6.4.1 Test Description 75
6.4.1.1 Unit Testing 75
6.4.1.2 Integration Testing/System Testing 77
6.4.2 Test Data 80

6.5 Test Results and Analysis 82
6.6 Conclusion 83

CHAPTER VII PROJECT CONCLUSION

7.1 Observation on Weakness and Strengths 84
7.1.1 System Strength 84
7.1.2 System Weakness 84
7.2 Propositions for Improvement 85
7.3 Contribution 85
7.4 Conclusion 86

© Universiti Teknikal Malaysia Melaka

REFERENCES 87

APPENDICES 90

© Universiti Teknikal Malaysia Melaka

LIST OF TABLES

TABLE	TITLE	PAGE
2.1	Comparison with the existing system	16
2.2	Software Requirement	21
2.3	Personal Computer (PC) with minimum requirement	21
3.1	Department Data Dictionary	31
3.2	Registration Data Dictionary	32
3.3	Leave Data Dictionary	32
3.4	Leavetype Data Dictionary	32
3.5	Functional Requirement of E-LEAVE	32
3.6	Performance System Qualities	34
3.7	Integrity System Qualities	34
3.8	Security System Qualities	34
3.9	Usability System Qualities	35
3.10	Software Requirements	36
3.12	Personal Computer (PC) with minimum requirement	36
4.1	FTMK E-Leave input design	48
4.2	Output design for FTMK E-Leave	50
4.3	Registration	55
4.3	Staff	56
4.4	Leave	56
4.5	Department	56
4.6:	Leavetype	57
5.1	Software Development Environment for Server	62
5.2	Software Development Environment for Database	62
5.3	Computer Requirements	62
5.4	Web Browser	60

© Universiti Teknikal Malaysia Melaka

5.5	Development Environment for E-LEAVE System	63
5.6	Version Control Procedure	65
5.7	Implementation Status	66
6.1	Individual Involved in Testing Phase	70
6.2	Test Environment Specification	71
6.1	Test Schedule for FTMK E-Leave System	71
6.2	Black Box Testing and White Box Testing Test Classes	73
6.5	Test Cases for Login Module	75
6.6	Test Cases for Registration Module	75
6.6	Test Cases for Registration Module	75
6.7	Test Cases for Leave Approval Module	75
6.8	Test Result and Analysis for Login Module	77
6.9	Test Result and Analysis for Registration Module	78
6.10	Test Result and Analysis for Leave Application Module	78
6.11	Test Result and Analysis for Leave Approval Module	79
6.12	Test Data for FTMK E-LEAVE SYSTEM	80
6.13	Test Result and Analysis	82

© Universiti Teknikal Malaysia Melaka

LIST OF FIGURES

FIGURE	TITLE	PAGE
2.1	Web-based system Architecture	10
2.2	User Menu Interface	11
2.3	Apply Leave	12
2.4	To fill leave form	12
2.5	Leave Form	13
2.6	Leave Application in UTeM	14
2.7	Leave Application in justlogin	15
2.8	Working number in justlogin	15
2.9	Display details	16
2.10	Email notification	16
2.11	Leave record	17
2.12	V-Model	21
2.13	Project Schedule and Milestone	24
3.1	Context Diagram for E-LEAVE	28
3.2	ERD for E-LEAVE	30
4.1	System Architecture in FTMK E-Leave System	40
4.2	Main page of the E-LEAVE	42
4.3	User registration of E-Leave	43
4.4	Staff Menu form of E-Leave	44
4.5	Apply Leave for Staff	44
4.6	HOD Leave Approval	45

© Universiti Teknikal Malaysia Melaka

4.7	Dean Leave Approval	46
4.8	SMS notification	46
4.9	Navigation Design of FTMK E-Leave System	48
5.1	Software Development Environment Setup	61

© Universiti Teknikal Malaysia Melaka

LIST OF ABBREVIATIONS

ABBREVIATION	WORD/DESCRIPTION
AppServ	Apache Web Server
DFD	Data Flow Diagram
DDL	Data Definition Language
ERD	Entity Relationship Diagram
GUI	Graphical User Interface
HTTP	Hypertext Transfer Protocol
E-LEAVE	FTMK E-Leave System
LAN	Local Area Network
MySQL	Structured Query Language
PC	Personal Computer
PHP	Pre-Hypertext Preprocessor
RAM	Random Access Memory
SSDAM	Structures System Analysis and Design Methodology
UTeM	Universiti Teknikal Malaysia Melaka
BITS	Bachelor in Information Technology (Software Development)
SDLC	System Development Life Cycle
PK	Primary Key
UiTM	Universiti Teknologi Mara

© Universiti Teknikal Malaysia Melaka

LIST OF APPENDICES

APPENDIX	TITLE
Appendix A	Appserv Installation
Appendix B	FTMK E-Leave System User Manual

© Universiti Teknikal Malaysia Melaka

CHAPTER I

INTRODUCTION

1.1 Project Background

The FTMK E-Leave System that will be developed is an upgraded from current system that is used by FTMK staffs to apply leave. Currently, the staffs of the faculty used the online system to apply leave. They need to fill the leave forms and afterward the forms will be approved by the head of department before being approved by dean. In FTMK E-Leave System there is a special features added. It is notification through mobile that will be sent to staff to let them know that their application is succeeded.

The system to-be will be developed based on seven modules. The main include are login, leave application, leave approval, register new staff check the leave status, calculate the balance of the leave and lastly the module to display the monthly leave report.

FTMK E-Leave System modeled according to the web-based development technique. Why I use web-based system is that it is cross-platform compatibility. Web-based applications have a much easier path to successful cross-platform compatibility than downloadable software applications. Several technologies including Java, Flash, ASP and Ajax allow effective development of programs supporting all of the major operating systems. Besides that, it is immediacy of access. Web-based applications need

© Universiti Teknikal Malaysia Melaka

not to be downloaded, installed and configured. You access your account online and they are ready to work no matter what your setup or hardware is. The most important thing is data is safer. While hard disk crashes will not disappear, it is likely that users will hear a lot less about them. As companies take over the storage of users data, highly reliable redundant data storage farms will become the norm rather than the exception, and users will have much less of a risk of losing their data due to an unforeseen disk crash or computer virus.

Project requirement needs in this system includes software requirements and requirements. For software requirements the system needs equipment tools such as Adobe Dreamweaver CS3 and Microsoft project. It also used Window as operating system and Appserv phpMyAdmin for database system and Ozeki Message Server as a server for SMS. Meanwhile, for hardware requirements the system needs the PCs or laptop to access to the system and mobile phone to enable staff to apply leave via mobile phone.

1.2 Problem Statement

The system will be developed based on the problems that occur from the current manual system. The problems are stated below:

i. Difficult to manage the leave record.

Currently to apply leave, must fill leave form manually. After that, the will be approved by the dean. Then, the administration will manage the leave by checking and calculating the balance of leave for each staff.

ii. Difficult to know the status of approval leaves.

© Universiti Teknikal Malaysia Melaka

After the staffs fill the leave form, the form will be approved by dean. It is difficult to get the leave status either the form had been approved or not by the dean. The process will also take time.

1.3 Objectives

Regarding the problem statement, the main goal of developing FTMK E-Leave System to manage staff's leave systematically and efficiently by using extra device which is mobile phone that will be used to send a notification. Therefore, the objectives of the system are as follow:

i. To manage the leave record more effectively.

FTMK E-Leave System will be generating in order to record and store all the staffs leave and information systematically. Staffs need to fill the leave form in the provided application and the form will be process automatically managed by administration. The form will be send automatically to dean to get the approval. After that, the staff will get the leave status either the leave is approved or not. The report will include total of the leave that has been taken for each staff. All the staff's leave information will be saved in database. So, it is easy for administration to manage the data and retrieve the staff's record easily.

ii. To know the status of approval leave easily.

By using this system, the staff can check their status of approval leave easily. The report will be generated by the system after the leave is approved.

1.4 Scope

The project scope was divided into three sections which are Project Scope, Module Scope and Target User. Project Scope will explain the overall scope of the project. Module Scope will explain all the modules scope that will be including in FTMK E-

© Universiti Teknikal Malaysia Melaka

Leave System target user will state the users of the system and the system limitation for each type of users.

Projects Scope of this system is focused on the leave record of the FTMK. This system will be used by staffs to apply leaves and only can be access in the faculty area because it used the client-server approach based on the user's requirement.

The FTMK E-Leave System has the target user. The target user divided into two categories. The first category is back-end user and second category is front-end user. Back-end user is head of department of FTMK. Head of department will be able to maintain the database and manage the leave process. Second category is front-end user. Front-end user also recognize as normal user or end-user. Front-end users include the staffs who want to apply the leave and dean to approve the leave.

The module of the system has been divided into seven main modules as the following:

i. Login and Logout Module

This module is used to identify the staffs that used the system. Only an authorized staff can enter the system. Beside, the head of department and dean also need to login the system.

ii. Head of department Management

Thus module allows the head of department to manage the staff's records. The system will record all the information and save it into database. The head of department can add, delete or update staff information or other required information. This module is designed to manage the record systematically.

iii. Leave application

© Universiti Teknikal Malaysia Melaka

Thus module allows staffs to fill the provided from which included the type of the leave and also the duration of leave (start and end date). After that, the form will be submitted for the approval. The staffs need to apply leave a week before or maximum three days before leave.

iv. Approval Leave

After the staffs fill the leave application form, the dean will approve the leave. If the dean is absence, the head assistance will approve that leave. The status of the approval leave will be shown in the leave application form.

v. Leave balance calculation

The system will calculated the staff's balanced leave based on the staffs record. The balanced leave of the year cannot be forward for the next year leave because the balance of the leave will be collected as award which is call as "Golden Hand Shake" at the of work.

vi. Check Leave Status

The staffs can check their leave status either their leave application has been approved or rejected by the dean.

vii. Report

The monthly leave record will be produced. The dean can view who is taken he leave for every month. Besides that, the staffs also can view their leave record for each month too.

© Universiti Teknikal Malaysia Melaka

1.5 Project Significant

The FTMK E-Leave System has been developed to help head of department to manage the staff's leave record more efficient. The benefits that have come up with the development of the system as will explain before.

FTMK E-Leave System will record the staff's information when the staffs apply the leave. With this information, the head of department can manage the staff's leave record properly. Besides that, with this system, the tasks of head of department become more easily. The head of department does not need to calculate the balanced of the staffs leave because all this will be done by the system.

Other than that, the system wili save the time because the leave application form will process automatically to get the approval. Moreover, the system helps the staffs to fill the leave form more easily. Only certain information is needed to fill by the staffs like staff ID and order information will be generated by the system.

1.6 Expected Output

After FTMK E-Leave System was developed user can expected that the system:

i. Authentication

Before enter the system, the staffs need to login first. It is to make sure that only an authorize staff can use the system.

ii. The staffs can apply leave easily and also can cancel the leave.

© Universiti Teknikal Malaysia Melaka