

DESIGN AND DEVELOPMENT OF SYSTEM MONITORING, ANALYSIS,
RESEARCH AND TECHNICAL FOR LOCAL AUTHORITIES BATU PAHAT

MOHAMED FAKRUL RAZI BIN ASHARI

A thesis submitted in TYPE of the
requirements for the award of the degree of
Master of Science (Information Technology Entrepreneurship)

Faculty of Computer
Universiti Teknologi Malaysia

JANUARY 2017

I dedicated this thesis to my Abah, Umi and my family for nursing me with affections, love and educations and their dedicated partnership just the see me success in my life.

ACKNOWLEDGEMENT

Alhamdulillah, I wish to express my sincere appreciation to my supervisors, Assoc. Prof. Dr. Nor Azman Ismail and Dr. Umar Haiyat , for facilitating, encouragement, guidance, critics and mentorship. Without these people, my project would have no leg. I owe a huge debt of gratitude to them all.

I am also indebted to Universiti Teknologi Malaysia (UTM) for providing high quality knowledge during my master degree study.

My fellow postgraduate students should also be recognized for their support. My sincere appreciation also extends to all my colleagues and others who have provided assistance at various occasions. Their views and tips are useful indeed. Lastly, to my beloved family for their endless support and encouragement.

ABSTRACT

System Management Analysis Research and Technical (S.M.A.R.T.) is a project that will create a product to facilitate in managing business documents systematically. Nowadays, managing documents are important part because these documents are company's asset. Traditional documents storage method required a width storage room but less security. Traditional style also, need user to spend more time on researching process. So, as a way to overcome these situation, a computerize system is applicable with today's environment. With this system, users have to work friendly and attractive user interfaces in process to keep, edit, find and secure the million documents. In order to develop this system, developer has to analyze current problem so that, we would appear with the best solution. At the end of developing phase, the web-based efficient, systematic and centralized documents storage will be in implement at Local Authorities Batu Pahat.

ABSTRAK

System Management Analysis Research and Technical (S.M.A.R.T.) ialah satu sistem yang dibina bertujuan untuk membantu dalam pengurusan fail perniagaan secara sistematik. Di zaman milinium ini, pengurusan dokumen memainkan peranan yang penting. Ini kerana dokumen-dokumen ini juga termasuk di dalam aset perniagaan. Jika menggunakan pegurusan dokumen secara manual, ia memerlukan ruang yang dilengkapi dengan keselamatan dari penceroboh. Ia juga memerlukan masa dan tenaga yang lebih banyak hanya untuk mencapai dokumen tersebut. Perubahan daripada dokemen kertas kepada digital boleh membantu menyelesaikan masalah yang dihadapi. Dengan menggunakan S.M.A.R.T., pengguna dapat bekerja dengan sistem yang mesra pengguna di dalam proses menyimpan, mengemaskini, mencari dan memastikan keselamatan yang tinggi tanpa memerlukan ruangana yang besar. Untuk membina sistem ini, masalah yang dihadapi perlu di analisa dengan terperinci agar dapat menghasilkan penyelesaian yang terbaik. Satu sistem berciri web yang kemas, cekap, sistematik dan berpusat akan dibina di akhir fasa pembangunan dimana S.M.A.R.T. akan diserahkan dan dilaksana di Majlis Perbandaran Batu Pahat.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENT	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	xi
	LIST OF FIGURES	xii
	LIST OF APPENDICES	xiii
1	CHAPTER 1 INTRODUCTION	1
	1.1 Overview	1
	1.2 Problem Statement	2
	1.3 Objectives	2
	1.4 Scope of Study	3
	1.5 Project Significance	4
	1.6 Summary	4
2	CHAPTER 2 LITERATURE REVIEW	5
	2.1 Overview	5
	2.2 Facts and Finding	6

	2.2.1 Definition of Document Management	6
	2.3 Article Reviews	8
	2.3.1 File Management System by Anuj Saluja	9
	2.3.2 Document on Demand by SABIC	9
	2.3.3 Enterprise Document Management System (EDMS) by University of Minnesota	10
	2.3.4 Electronic Document Management System (EDMS) by The Crowley and enChoice	11
	2.3.5 The Principles of Document Management by CDW	13
	2.3.6 Web based document processing and management system by Lin Sun	14
	2.4 Conclusion	15
3	CHAPTER 3 METHODOLOGY	16
	3.1 Overview	16
	3.2 Phases	16
	3.2.1 Customization	17
	3.2.2 Session	18
	3.2.3 Wrap Up	18
	3.3 Participant	19
	3.4 Summary	20
4	CHAPTER 4 SYSTEM ANALYSIS AND DESIGN	21
	4.1 Overview	21
	4.2 Business Model	22
	4.3 Product Value-chain Analysis	23
	4.4 COGS	24

4.5	Five years of Projection	25
4.6	Uniqueness	26
4.7	Current System Scenario	26
4.8	Operational Feasibility	28
4.8.1	System features	28
4.8.2	System Process	29
4.8.3	Input	29
4.8.4	Output	29
4.9	Technical and Economy Feasibility	30
4.9.1	Software Requirement	30
4.9.2	Hardware Requirement	31
4.10	Entity Relationship Diagram	31
4.11	ERD Level 1 Diagram	33
4.12	Use Case Diagram	33
4.12.1	General Office Assistant	34
4.12.2	Head Unit	34
4.12.3	Assistants	35
4.12.4	Technician	35
4.12.5	Planner Officer Assistant	36
4.12.6	Planner Officer	36
4.13	Work Breakdown Structure	37
4.14	Roles and Responsibility Matrix	38

5	CHAPTER 5 SYSTEM DEVELOPMENT AND TESTING	39
5.1	Overview	39
5.2	S.M.A.R.T Interfaces	40

	5.2.1 Admin	40
	5.2.2 Head Unit, Officer, Officer Assistants and Assistant	43
	5.3 White Box Testing	46
6	CHAPTER 6 CONCLUSION	47
	6.1 Overview	47
	6.2 System Advantage	47
	6.2.1 Future Enhancement of the System	48
	6.2.2 Conclusion	49
	REFERENCES	50
	APPENDICES	52

LIST OF TABLES

TABLE NO.	TITLE	PAGE
Table 4.1	COGS table	24
Table 4.2	Five year projection	25
Table 4.3	Current SOP	26
Table 4.4	Software Requirement	30
Table 4.5	Hardware Requirement	31
Table 4.6	Roles and Responsibility Matrix	38

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
Figure 2.1	System Flowchart	12
Figure 4.1	Product Value Chain	23
Figure 4.2	Entity Relationship Diagram	32
Figure 4.3	Use Case General Office Assistant	34
Figure 4.4	Use Case Head Unit	34
Figure 4.5	Use Case Assistants	35
Figure 4.6	Use Case Technicians	35
Figure 4.7	Use Case Planner Officer Assistant	36
Figure 4.8	Use Case Planner Officer	36
Figure 5.1	Admin Login	40
Figure 5.2	Admin Home	41
Figure 5.3	User Registration Page	41
Figure 5.4	List of User Page	42
Figure 5.5	Find User Page	42
Figure 5.6	Staff Login Page	43
Figure 5.7	Staff Home Page	44
Figure 5.8	List of Applications Page	44
Figure 5.9	Applications comment Page	45
Figure 5.10	Find Applications Page	45

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
APPENDIX A	S.M.A.R.T. BUSINESS PLAN	53
APPENDIX B	ENTITY RELIATIONSHIP LEVEL 1 DIAGRAM	54
APPENDIX C	WORK BREAKDOWN STRUCTURE	55
APPENDIX D	APPLICATION FORM	56
APPENDIX E	PRO FORMA FINANCIAL PLAN	57

CHAPTER 1

INTRODUCTION

1.1 Overview

In this Millennium Age with the people keep on going toward to new era, everyone keep on relying on the information so that they can complete their certain goal or task. For an example, we can easily get information from television, radio or other media. That has made information a new source of inspirations for peoples. Everyone that cannot keep on going will be left behind in this information world.

Electronic Medias was the most being used by people to get and interpret any kind of information. Now every company and management system in bigger country such first class country has been computerized. The local government also has to start to computerized their system so that they can give an example for the local people to see the important of it.

Thus, I have has attracted to this computerized system and made a decision to made a better solution for managing file for the local government to monitor and managing their file which will be name SMART (System Monitor, Analysis, Research and Technical). This program will change the current file monitoring systems and help from the head units, officer, technician and other workers in the government sector to managing their files.

1.2 Problem Statement

In Majlis Perbandaran Batu Pahat (MPBP), there a lot of project and file processing occurred every year. The workers in MPBP has kept every file in a hardcopy and categorized it if a difference types. How to manage the entire file processing in efficient way is a problem for the head units and the officers. This is because every file processing has a time limit that before submitting the file for checking. The workers also might involve in several different other job where they might have different roles for complete process the file. For an example, the file must be process within 14 days by the Administrative Assistant before the Technicians can continue the processing the file by checking on side. Right now they do not have the software to manage their file processing yet.

1.3 Objectives

By using the online SMART, without having a meeting of conferencing, the employee could know the task assigned to them by the Head Units. The Head Unit also can check on every file processing that has complete and currently processing. This will made the time length processing more efficient and secure. The employee also will know which file that they need to prioritize before doing the processing. The Head Unit also will also know how many files that is currently in process and who is responsible for the files.

Also, sometimes the people need to know where the file processing is stuck. For an example, the local people need to know what keeping their file from processing. The Head Unit will check and display any kind of report that the employee made that explain the current problem in the files. All of these could be done by using the SMART. The design and implementation of SMART is the goal of this project.

All the information about the files and employees will be store in the server database. Without managing the employee, we cannot monitor and manage the file processing. Every employee has different roles where the old employee leave and new employee come. All together in SMART, there are about six types of roles and jobs are included in this project.

1.4 Scope of Study

The whole SMART can be partitioned in several subsystems. For each subsystems, it has a several task will be given depends on the user level and jobs.

1. System (Level 0)
 - Automatically pass the task to other employee
 - Create a template for report and letter
2. Head Unit (Level 1 user)
 - Designate task to other employee
 - Check the file location and progress
3. Assistant
 - Input the application information
 - Check the documentation
 - Categorize the application file
4. Planner Officer
 - Check the comment of technician and planner officer assistant
 - Update meeting result
5. Planner Officer Assistant
 - Check the report and comment by date
6. Technician

Do the site survey using all the information given at the application and comments

1.5 Project Significance

The SMART is a system that uses the online documents to records storage method. It that will distribute the file to a specific level of user that responsible to process the application forms. The employee will take this system as an advantages system for the organization because it will provide a systematic file monitoring and process in a server. When we talk about traditional filing system, responsible staff required to categorize then locate that files to its place manually. Traditional system style has a disadvantage where sometimes there are a few storage location depends to each departments in the organization. If the organization is new with a small amount of business documents, it is not a problem about file monitoring and storage. But for a larger organization, they would have a problem with a large amount of documents to monitor and process. Sometime with the traditional system, a human mistake often occurs such as misplace the documents and lost it. These have proven that the organization needs this system to make their works more efficient.

1.6 Summary

In this chapter, readers should be able capture what SMART is going to be. The traditional style for documents storage will be the guided the idea to develop this system. This system is available for MPBP due to it will implement a systematic and centralized storage to monitor and process all of their application forms.

REFERENCES

- Marketing Advertising Services, 2007. *Document Management*. Available from: <<http://www.marketing-advertising-services.com/Document-Management.htm>> [Accessed time: 20/10/2016]
- DataCore Technology, 2007, *Glossary of Term*. Available from: <www.data-core.com/glossary-of-terms.htm> [Accessed time: 20/10/2016]
- DSSI, 2008, *Managing*. Available from: <<http://www.scanportal.com/ECM/Default.aspx>> [Accessed time: 20/10/2016]
- Marketing Advertising Services*, 2007. Available from: <www.marketing-advertising-services.com> [accessed time: 20 /10/2016]
- Open EDMS, 2006, *Challenges of Enterprise Document Management*. Available from:<http://www.techworld.com/cmsdata/whitepapers/3111/enterprise_document_management_whitepaper1.pdf> [accessed time: 20/10/2016]
- Anuj Saluja, 2003, *FILES MANAGEMENT SYSTEMS* Available from: <<http://msoe.us/taylor/cs384/salujaa.pdf>> [Accessed time: 1/11/2016]
- SABIC, 2011, *Documents on demand* Available from: <<https://www.adobe.com/content/dam/Adobe/en/customer-success/pdfs/sabic-case-study.pdf>> [Accessed time: 1/11/2016]
- University of Minnesota, 2010, *Enterprise Document Management System (EDMS)* Available from: <http://www1.umn.edu/oit/prod/groups/oit/@pub/@oit/@web/@planning/documents/content/oit_content_029941.pdf> [Accessed time: 1/11/2016]
- The Crowley and enChoice , 2009, *Electronic Document Management System (EDMS)* Available from: <<http://www.thecrowleycompany.com/downloads/pdf/EDMS-study.pdf>> [Accessed time: 1/11/2016]

CDW, 2012, *Principles of Document Management* Available from:
<<http://www.edtechmagazine.com/higher/sites/edtechmagazine.com.higher/files/the-principles-of-document-management.pdf>> [accessed time: 1/11/2016]

Lin Sun, 2006, *Web based document processing and management system* Available from: <http://www.cl.cam.ac.uk/~ls418/works/undergraduate_final_report.pdf> [Accessed time: 1/11/2016]