***TESIS APPROVAL STATUS FORM**

JUDUL: **TEXTBOOK LOAN SCHEME DISTRIBUTED SYSTEM**

SESI PENGAJIAN: **1/2004-2005**

Saya **NORBAIZURA BINTI HAYAT** (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 Kolej Universiti Teknikal Kebangsaan Malaysia.
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 :
No 44 Jalan Lunak,
25/118 Tmn Sri Muda Seksyen 25,
40400 Shah Alam Selangor.

Tarikh : 1.11.2004

(TANDATANGAN PENYELIA)
Nama Penyelia :
Mohd Khanapi Bin Abd Ghani

Tarikh : 1.11.2004

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

© Universiti Teknikal Malaysia Melaka

TEXTBOOK LOAN SCHEME DISTRIBUTED SYSTEM

raf
LB3045 .N67 2004

0000039120
Textbook loan scheme distributed system / Norbaizura Hayat.

NORBAIZURA BINTI HAYAT

This report is submitted in partial fulfillment of the requirements for the
Bachelor of Information and Communication Technology
(Software Development)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA
2004

© Universiti Teknikal Malaysia Melaka

ADMISSION

I Admitted that this project title name of

TEXTBOOK LOAN SCHEME DISTRIBUTED SYSTEM

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

STUDENT : _____ Date : 1.11.2004

(NORBAIZURA BT HAYAT)

SUPERVISOR : _____ Date : 1.11.2004

(MOHD KHANAPI B ABD GHANI)

© Universiti Teknikal Malaysia Melaka

DEDICATION

I Dedicate this succeed to my beloved mother "Salmiah Bt Hj Haron", the kindest person I know "Mohd Fairol Bin Othman" and to my father "Hayat Bin Sayuti", who support me to complete this PSM (Projek Sarjana Muda). Not forgotten to my younger sister and younger brother.

© Universiti Teknikal Malaysia Melaka

ACKNOWLEDGEMENTS

I would like to thank En Mohd Khanapi Bin Abd Ghani for giving assistant to complete this project successfully. I'm grateful to the authority of my supervisor which gave me lot of lesson and experience. Thanks as well to my supervisor for the helpful and the knowledge during complete the project. Your patience and constructive criticism were essential to complete this project and appreciated.

Special thanks are offered to my family and my sweetheart for love, support and encouragement. Finally, I acknowledgement the contributions, encouragement and patience to my entire friend:

- Nor Farahida Idris.
- Roshidah Mustafa.
- Hajariah Jamhari.
- Nor Azizah Abd Hamid.
- Noraisah Kamaruddin.
- Habsah Daud@ Yusof.
- Salasiah Abas.
- Ainani Ali.
- Nurul Aqmar Musa.
- Nurhafiza Abd Rahman.

© Universiti Teknikal Malaysia Melaka

ABSTRACT

TLSDS is a project which responsibility the textbook scheme at Ministry of Malacca education. This scheme is including district office and school in whole Malacca. TLSDS is a system which running in internet application. All school and district office can access the system through the internet. The user for TLSDS is clerk for the school level, management for district level and state level. The main function for SPBT Enterprise is stock controlling which handle by district office. District office is the main places which doing the textbook transaction. Ministry of education Malacca is maintenance the code book and title book for an updates code and newer book. All data which related to the system is store at ministry of Malacca education, which is situated a state server.

TLSDS is build for make the management in ministry of Malacca education is smooth and easy to conduct. With SPBT Enterprise all management will complete in fast and have a tight security, such as every user must login to enter the system.

© Universiti Teknikal Malaysia Melaka

ABSTRAK

SPBT Enterprise adalah sebuah projek yang menjalankan pengurusan skim pinjaman buku teks di Jabatan Pendidikan Melaka. Skim pinjaman buku teks ini meliputi sekolah di seluruh melaka ,pejabat daerah dan jabatan pendidikan negeri. SPBT Enterprise ini boleh di capai dengan menggunakan internet. Dengan adalah SPBT Enterprise, ini akan memudahkan lagi pengurusan diantara sekolah, pejabat daerah dan negeri dijalankan. Fungsi utama bagi sistem ini adalah bahagian stok iaitu stok yang di pegang oleh pejabat daerah. Segala maklumat yang berkaitan dengan stok akan dikawal oleh bahagian pejabat daerah. Untuk menjadikan sistem ini mempunyai keselamat yang bagus, segala data yang berkaitan dengan SPBT Enterprise akan disimpan di dalam "server".

Pembangunan SPBT Enterprise ini adalah bertujuan untuk menyenangkan pihak pengurusan untuk menyelesaikan masalah mengenai pengurusan skim buku teks. Dengan adanya SPBT Enterprise ini pengurusan buku teks ini akan berjalan dengan lancer dan mudah.

© Universiti Teknikal Malaysia Melaka

Table of contents

Project Title

Tesis Approval Status Form

Admission ii

Dedication iii

Acknowledgement iv

Abstract v

Abstrak vi

Table of Contents vii

List of Figures xi

List of Tables xii

List of Acronyms xv

List of Appendix xvii

Introduction

1.1 Overview 1

1.2 Problem Statement(s) 2

1.3 Objective 2

1.4 Scopes 3

1.5 Contributions 3

1.6 Expected output 4

Literature Review

2.1 Introduction 5

2.2 Fact and Finding 6

2.3 Case Study 9

2.4 Conclusion 10

Project Planning and Methodology

3.1 Introduction 12

3.2 High-Level Project Requirements 14

3.2.1 Project Facilities Requirement 14

© Universiti Teknikal Malaysia Melaka

3.2.2 Software Requirement 14
3.2.3 Hardware Requirement 15
3.3 System Development Approach 17
3.3.1 Problem Solution Suggestion 17
3.4 Project Schedule and Milestones 18
3.4.1 Project Work Planning 19
3.4.2 Gantt Chart 20
3.5 Conclusion 20
Analysis
4.1 Introduction 21
4.2 Analysis of Current System 22
4.2.1 Business Study 22
4.2.2 Organization Chart 23
4.2.3 Mission 23
4.2.4 Objective 23
4.2.5 SPBT Responsibility 24
4.2.6 Business Flow 25
4.3 Problem Analysis 25
4.3.1 School Level 25
4.3.2 District Office 26
4.3.3 State (Ministry of Malacca Education) 27
4.3.4 Problem Statement 28
4.4 Analysis of To Be System 29
4.4.1 Functional Requirement 29
4.4.2 Technical Requirement 30
4.4.2.1 Software Requirement 30
4.4.2.2 Hardware Requirement 31
4.4.2.3 Implementation / Deployment 31
4.5 Detailed Design 32
4.5.1 Software Specification 32
4.5.1.1 Conceptual 32

© Universiti Teknikal Malaysia Melaka

4.5.1.1.1 Functionality 33
4.5.1.2 Logical 35

Design

5.1 Introduction 38
5.2 Preliminary/High-Level Design 39
5.2.1 Raw data 39
5.2.1.1 Form 39
5.2.1.2 Interview and Research 40
5.3 System Architecture 40
5.3.1 Package and Subsystem Layering 41
5.4 User Interface Design 43
5.4.1.1 Navigation Design 43
5.4.1.1.1 Main 43
5.4.1.1.2 *(Link Sekolah)* 44
5.4.1.1.3 *(Link Sekolah)* 44
5.4.1.1.4 *(Login Negeri)* 45
5.4.1.1.5 Main School 45
5.4.1.1.6 *(Maklumat Pelajar)* 46
5.4.1.1.7 *(Stok)* 47
5.4.1.1.8 *(Pesanan Buku Teks)* 47
5.4.1.1.9 *(Serahan Buku Teks)* 48
5.4.1.1.10 Main District 49
5.4.1.1.11 Stock Controlling 50
5.4.1.1.12 School Information 50
5.4.1.1.13 Delivery Order 51
5.4.1.1.14 Main State 52
5.4.1.1.15 *(Selenggara Buku)* 52
5.4.1.1.16 *(Selenggara Judul)* 53
5.4.1.1.17 *(Selenggara Penerbit)* 54
5.4.1.1.18 *(Laporan)* 54
5.4.2 Input Design 55
5.4.2.1 Login 55
5.4.2.2 Student Information 56

© Universiti Teknikal Malaysia Melaka

5.4.2.3 School Information 57
5.4.2.4 Order Textbook 57
5.4.2.5 Return Textbook 58
5.4.2.6 Maintenance Title 58
5.4.2.7 Stock Controlling 59
5.4.2.8 School Stock 59
5.4.3 Output Design 60
5.4.3.1 Alert Message 60
5.4.3.2 Display alert message 61
5.4.3.3 Display alert message (order) 62
5.4.3.4 Report 63
5.4.4 Database Design 64
5.4.4.1 Physical Database Design 66

Implementation

6.1 Introduction 72
6.2 Software Development Environment Setup 73
6.2.1 Client Software 73
6.2.2 Server 73
6.2.3 Hardware 74
6.2.4 Network Environment 74
6.3 Implementation Status 75
6.3.1 School Module 75
6.3.2 District Office Module 75
6.3.2 State Module
76

Testing

7.1 Introduction 77
7.2 Test Plan 78
7.2.1 Hardware 78
7.2.2 Test Schedule 79

© Universiti Teknikal Malaysia Melaka

7.3 Test Strategy 79
7.4 Test Design 82
7.5 Test Case Result 82

Project Conclusion

8.1 Observation on Weaknesses and Strengths Test Plan 84
8.2 Propositions for Improvement 85
8.3 Conclusion 85

References 87
Appendix 88

© Universiti Teknikal Malaysia Melaka

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
Figure 3.1	Solution suggestion	17
Figure 4.1	Organization Chart	23
Figure 4.2	School level	26
Figure 4.3	District office	27
Figure 4.4	State	28
Figure 4.5	Implementation / Deployment	29
Figure4.6	TLSDS use case diagram	32
Figure 4.7	School Collaboration	33
Figure 4.8	District Collaboration	34
Figure 4.9	State Collaboration	34
Figure 4.10	School Sequence Diagram	35
Figure 4.11	District Sequence Diagram	36
Figure 4.12	State Sequence Diagram	37
Figure 5.1	TLSDS architecture	41
Figure 5.2	TLSDS package & subsystem layering	42
Figure 5.3	Main interface	43
Figure 5.4	*Link Sekolah*	44
Figure 5.5	*Link Daerah*	44
Figure 5.6	*Login Negeri*	45
Figure 5.7	Main School	45
Figure 5.8	*Maklumat PelajarInterface*	46
Figure 5.9	School Stock Interface	47
Figure 5.10	Order Textbook Interface	47
Figure 5.11	Return Textbook	48
Figure 5.12	Main District Interface	49
Figure 5.13	Stock Controlling	50

© Universiti Teknikal Malaysia Melaka

Figure 5.14	School Information	51
Figure 5.15	Delivery Order	51
Figure 5.16	Main State	52
Figure 5.17	*Selenggara Buku*	53
Figure 5.18	*Selenggara Judul*	53
Figure 5.19	*Selenggara Penerbit*	54
Figure 5.20	Login input	48
Figure 5.21	Laporan	55
Figure 5.22	Login input	55
Figure 5.23	School information input	57
Figure 5.24	Order input	57
Figure 5.25	Return input	58
Figure 5.26	Maintenance input	58
Figure 5.27	Stock Controlling	59
Figure 5.28	Stock input	59
Figure 5.29	Alert message output	60
Figure 5.30	Display textbook output	61
Figure 5.31	Display textbook output	62
Figure 5.32	SPBT Enterprise use case diagram	64
Figure 5.33	Deployment view	65
Figure 6.1	Environment architecture	73

© Universiti Teknikal Malaysia Melaka

LIST OF TABLES

TABLE NO.	TABLE TITLE	PAGE
Table 3.1	Software requirements	15
Table 3.2	Server side environment	15
Table 3.3	Client side environment	16
Table 3.4	List of architecture for Project 1 and project 2	19
Table 4.1	Software requirements	30
Table 4.2	Hardware requirements	31
Table 4.3	Implementation / Deployment	31
Table 5.1	Main Interface	43
Table 5.2	*School Interface*	46
Table 5.3	*District Interface*	49
Table 5.4	Negeri	66
Table 5.5	*Daerah*	66
Table 5.6	*Sekolah*	66
Table 5.7	*Kataluan Sekolah*	67
Table 5.8	*Katalaluan Daerah*	67
Table 5.9	*Katalaluan Negeri*	68
Table 5.10	*S_judul*	68
Table 5.11	*S_buku*	68
Table 5.12	*Stok Daerah*	69
Table 5.13	*Stok Sekolah*	69
Table 5.14	*Maklumat sekolah*	70

© Universiti Teknikal Malaysia Melaka

Table 5.15	*Maklumat Pelajar*	71
Table 6.1	Implementation status of school	75
Table 6.2	Implementation of district office	75
Table 6.3	Implementation of state	76
Table 7.1	Test schedule	79
Table 7.2	Test Data	117
Table 7.3	Test case result	83

© Universiti Teknikal Malaysia Melaka

LIST OF ACRONYMS

ACRONYM	DESCRIPTION
[A]	
AUT	Application Under Test
[F]	
FTMK	Information Technology and Communication Faculty (Fakulti Teknologi maklumat dan Komunikasi)
[G]	
GUI	Graphical User Interface
[L]	
LAN	Local Area Network
[O]	
ODBC	Open Database Connectivity
[P]	
PC	Personal Computer
PSM I	Bachelor Project 1 (Projek Sarjana Muda 1)
PSM II	Bachelor Project 2 (Projek Sarjana Muda 2)
[S]	
SPBT	Skim Pinjaman Buku Teks

© Universiti Teknikal Malaysia Melaka

[T]

TLSDS	Textbook Loan Scheme Distributed System

[U]

UDP	User Datagram Protocol

[W]

WAN	Wide Area Network

© Universiti Teknikal Malaysia Melaka

LIST OF APPENDIXES

APPENDIX NAME	ADDRESS TO	PAGES
APPENDIX A	Chapter III : Project Planning and Methodology	87
APPENDIX B	Chapter V : Design	94 - 108
APPENDIX C	Chapter V : Design	109 – 113
APPENDIX D	Chapter VII : Testing	114 – 116
APPENDIX E	USER MANUAL	118

© Universiti Teknikal Malaysia Melaka

CHAPTER I

INTRODUCTION

1.1 Overview

Project Sarjana Muda or PSM, is a compulsory for all student to internship the requirement of the degree at KUTKM. For the internship the requirement, TLSDS system will be the title for my final project. TLSDS will handle a scheme of textbook in whole school in Malacca. TLSDS system will focus on school, district office of Malacca and ministry of Malacca education. All data or database which related with TLSDS is located at server ministry of Malacca education. TLSDS is a network between schools to others school, school to district office, and school to ministry of Malacca education. In general, all data is control by ministry of Malacca education. Although for maintain the system, ministry of Malacca education will conduct and monitor the system. The example of maintain system is maintenance the book code and book title.

From the observation, TLSDS is including for the whole administration at ministry of Malacca. Consequently this system is suitable for online system. With online system all schools, district office, ministry of education can access all information in immediately. The main function of this system is to solve problem about textbook management. Module for the TLSDS is textbook application, stock control textbook, report and system maintenance. This module will help the management soft and uncomplicated.

© Universiti Teknikal Malaysia Melaka

Now days all school has a big problem in distributed the textbook. It's because all the management is made by manual system. The main purpose of TLSDS is to help the administrator to make simpler management and change the management which is manual system to computerize system.

1.2 Problem Statement

After conducted the research, I found a few problem at ministry of textbook scheme, especially in management. As common, department of management has a problem with store and record the data. The flow of current system is using form and filling.

So, TLSDS is build for solve the ministry problem. With the new system, all the data can be stored in secure database storage with proper security features.

1.3 Objective

Below are the several objectives that have to achieve:

- To increase production in managing the stock of textbook.
- To provide online enquiring on textbook status. For example stock balance.
- To provide online system in managing the textbook distribution.
- To reduce workload by providing an efficient online and enterprise textbook control system.
- To make the management is soft and easier.
- To change manual system to computerize system.
- To produce quality of textbook scheme.
- To support the user on their daily works.

© Universiti Teknikal Malaysia Melaka

1.4 Scopes

TLSDS will be focus to all school in Malacca. TLSDS is dividing by three classes. Its will be use by committee of SPBT in school, SPBT management in district office and SPBT management in ministry of Malacca education. The main function in the TLSDS is school, district office and ministry of education.

Scope of school are divided by four function, this is include student information, stock, textbook order, and return textbook. Student information is a function to record data of student. This function is use for school management and administrator. While, function stock is for store the information about textbook in school level. Textbook order function is for order a deficient book. Return textbook function is for return the extra textbook.

Scope of district office is divided by three functions, which is stock, distributed textbook, school information and delivery order. While, scope of ministry of Malacca education is maintenance and report.

1.5 Contributions

Advantage for TLSDS is, it's will make the management is success and easy to manage. TLSDS will use by all school in Malacca, which is primary school and secondary school. With the existing of this project it can reduce paper, such as form of distributed textbook. It is because earlier than all the management is using the paper which is form. With this system all the process of the textbook will be done in just one week or less. With the old system it will take a long time, it will be disturb the student concentration in

© Universiti Teknikal Malaysia Melaka

their studies. They also may be will backward the lesson. The main purpose of the TLSDS is to make the user easy to doing their daily work.

1.6 Expected Output

For the result, TLSDS will come out with efficient system and user-friendly. This system is build for staff that does not have any experience witl information technology. In overall, this system is flexible for any type of user.

For the main purpose is to help the management of SPBT department to manage their administrator.

© Universiti Teknikal Malaysia Melaka

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

Literature review is a information regarding the research, which is related with the PSM project. Literature review is doing in observation, interview and investigation. In generally, SPBT (*Skim Pinjaman Buku Teks*) are using a manual. With investigate, we will know the weakness of the current system and know the function correctly because functionality is required in new system.

SPBT (*Skim Pinjaman Buku Teks*) is a scheme under the Ministry of Education in textbook department. Therefore, all information about SPBT (*SkimPinjaman Buku Teks*) is found out at Selangor Ministry of Education, Malacca Ministry of Education and web site Ministry of Education (www.moe.gov.my). SPBT (*Skim Pinjaman Buku Teks*) is responsibility under the HEP (*Hal Ehwal Pelajar*) department.

After research of related system, the most problem usually occur when develop the system realized and solution of the problems also found. The best methodology should be used, the process of the related system that can be share with will also realized by compare and study about the system before. New and best technology for TLSDS also can be use compare to the other existence systems.

© Universiti Teknikal Malaysia Melaka