LIBRARY SYSTEM INTEGRATED WITH SMART CARD FOR SK GELONG GAJAH'S LIBRARY

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DECLARERATION

I hereby declare that this project report entitle

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

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DEDICATION

To my beloved parent, your love and support are my greatest inspiration

To my friends, thanks for your encouragement, and sacrifices in the direction of project accomplishment. Without whom this text would not have been possible

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ABSTRACT

Library Automation System (LAS) is stand-alone system that will be provided to Sekolah Kebangsaan Gelong Gajah, Beruas's library. The system will be utilized by admin and the librarian of the school to manage their tasks more systematic. LAS is develop to implement concept of paperless in borrow and return the book. LAS focused on increasing the accuracy, correctness and efficiency while dealing with bulk of data. LAS also help the school's mission in preparing students for the applications of IT and multimedia in order to enhance IT literacy among the SK Gelong Gajah's community. Further more, the school is aim to promote the use of technology to students.

ABSTRAK

Library Automation System (LAS) adalah aplikasi system persendirian yang akan di beri kepada perpustakaan Sekolah Kebangsaan Gelong Gajah, Beruas. Sistem ini akan di gunakan oleh admin dan pustakawan untuk mengendali tugasan harian mereka dengan lebih sistematik. LAS di dirikan untuk melaksana konsep tanpa kertas dalam proses pemulangan dan peminjaman buku. LAS lebih memfokus pada meningkatkan kadar ketepatan dan effisyen semasa berurusan dengan data yang banyak dalam sesuatu masa. LAS juga membantu sekolah mencapai hasrat dalam mendedahkan pelajarnya kepada penggunaan IT dan multimedia untuk meningkatkan pengetahuan IT dalam komuniti sekolah. Selain itu, LAS dapat membantu hasrat sekolah untuk mempromosi penggunaan teknologi kepada pelajar.

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LIST OF ABBREVIATIONS

LAS – Library Automation System
ICT – Information and Communication Technology
HCI - Human Computer Interaction
RAD- Rapid Application Development
PSM – Projek Sarjana Muda
DBMS - Database Management System
PC – Personal Computer
VB – Visual Basic
WBS -Work Breakdown Structure
RAM – Random Access Memory
GB – Giga Byte
MB – Mega Byte
IT – Information Technology
IEEE - Institute of Electrical and Electronics Engineers

CHAPTER I

INTRODUCTION

1.1 Project Background

The general idea of this project is to develop a stand-alone system which is called Library Automation System (LAS) to administrate the SK Gelong Gajah's library as the current procedures is outmoded and not systematic. The system will encompass all the function required which will be utilized by librarian and admin to simplify their daily tasks at the library especially the circulation operation.

The system to be developed will use gadget which is infra red scanner to smooth the system flow by decreasing data inputting. In conjunction with that, students must have smart card with unique ID to use the system which the data will appear on screen.

1.2 Problem statements

Based on the research conducted by interviewing the librarian, the current procedures that the library applies using the manual way is too out-dated and yet very disorganized especially in data storing.

The paper based card is easily damage and tore will lead to incorrect and loss data and to borrow book, librarian needs to find the card manually by searching the card one-by-one or according to classes and this will takes time.

Besides, librarian is hard to track the students that overdue the return date. So, the late returnees are rigid to track and so, to give reminder or warning is problematical to be done.

Above and beyond, the late returnees will need to pay compound, the librarian only use calculator to count it.

Moreover, the school's library rewards students who are actively borrowed the most books from the library every month, so the librarian is having difficulty to track the active students.

Furthermore, the librarian is having complexity to track the popular books in order to add up the quantity as the book is popular among students' means that the book is always borrowed and always on demand.

Sometimes, students request a book straight from the library counter but the librarian not sure whether the book is borrowed or on the bookshelf. The librarian also needs to make weekly report on the books have borrowed for every week. Consequently, the librarian is having complication to prepare the report as it is hard to list all the borrowed books.

1.3 Objectives

Before starting the development for LAS, several drawbacks have been identified through the research conducted. Hence, the LAS is planned to develop to reduce drawbacks and ensuring a useful system is created that will meet predefined objectives and requirements.

The project aims are:-

i. To simplify librarian's daily tasks
ii. To increase accuracy, correctness and efficiency while dealing with data and To implement concept of paperless in borrow and return the book
iii. To make simpler in generating reports, compound calculation, help librarian to track late returnees, the most active students and the most borrowed book, the process of borrow, return and students/teachers/books registration using infra red scanner.

1.4 Scopes

The LAS system is a stand alone application which is develops to facilitate the SK Gelong Gajah's admin and librarian in helping them in the library operation. Thus, the LAS are only can be utilize and limited to admin and librarian in which the admin is the person who has full right to access the system and register librarian.

The admin usually set the setting and register the librarian. While the librarian handling user registration, book circulation and generate report.

In helping the librarian to calculate compound, the calculation function is also provided. Actually, the compound is auto calculates and it will appear on returning book screen when the student returns the books over the due date.

The calculation will be based on the setting that has been set by librarian in the compound setting. It is not only to set the compound but the in the setting function also have the setting for how many days the books can be borrowed and also the setting for total of books can be borrowed per person which teacher and student has differ total of books that can be borrowed.

In addition, the statistics or reports of the list of late returnees, the list of active student and the list of famous books can be generate daily, weekly or monthly. The librarian can select their desired date to get the statistic.

Last but not least, the LAS system is integrate with smart card in which will be used as transaction to borrow and return books. The smart card is scanned via infra red scanner which emitted with reading window.

1.5 Project significance

The delivery of this project will mainly contribute for internal use of SK Gelong Gajah's admin and librarian to help them in daily tasks. On the other hand, the librarians and students will familiar and expose with ICT and technology.

After careful consideration on the pros and cons of existing system, LAS is developed in such way that it will be equipped with the basic functions that are available in any existing system and enhance it with some additional features.

The most and main is the LAS will much helping the librarian in books circulation (returning and borrowing process) in more manageable and systematic way. Moreover, daily and monthly reports for active students, popular books and late returness are easy to generate.

1.6 Conclusion

At the final stage of this project, LAS is expected to be delivered as a stand-alone system application. The system is aimed to fulfill all the requirement needed and will administrate the library in more manageable way and data stored more properly.

In the next chapter, the review of current system will be examined and the project methodology selection will be discussed along wit the literature review research on the similar existing system all the research that related to the project.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

The chapter outlines techniques used for research and fact finding. Relevant cases studies carry out over the similar existing system are also will be documented in this section along with the analysis results observed. Theories and concepts that are related to the project development are also being studied here in order to petition for wise idea on construction of this project.

Moreover, this chapter also will discuss in depth on the proper project methodology in carrying out the project successfully. The project methodology will encompass development methodology and technique chosen along with hardware, software and network requirement.

2.2 Fact and finding

This section will converse on the fact finding techniques that have been adopted to collect relevant information to be used in project development. The significance and contributions of conducting research on the related survey areas are also outlined.

2.2.1 Fact Finding Techniques

System analysis is one of the imperative tasks in which it will contribute in system development. Research will be carrying out at this stage. Any related information is collected using the fact finding techniques to collect information on the system information, on the system problem, opportunities and directives. This information is very important to verify the business and functional requirement of the system at the early phase by hoping that the system is compatible to other existing system.

The fact finding techniques that used in this project are the interviewing the target user, sampling of documentation or article of existing similar system and observation on the current system.

Interviewing the target user that is the school's librarian is the most efficient way to collect user requirements and through this also, their expectation towards the new system also will be congregated.

Sample documentation or articles of similar system are also collected through searching on the internet. The documents are white papers, journal and thesis. Therefore, the documents will help in gaining more information of the system that will be develop and it is the most appropriate approach to analyze where the good practice will be relevant to be applied into this project.

2.2.2 The Importance of Research

The importance of the research of the existing system is to gathered more requirements with the intention that the development of this project will be delivered undoubtedly. Thus, all the way through the research and study, the objectives for developing the LAS is able to effortlessly collect.

In addition to the research importance, it will provide better ideas on developing the project that have business value and compatible to other similar system. All in all, to win the user requirements is one of those matters. The limitation or the special features/function of existing system will be analyze so that it can be the guideline to develop by adding appropriate function as the solution improve the current system.

2.3 Case studies

This section will clarify the research done on the theories and concepts related to the project development. The theory and concept that will be discuss and analyze is interface design concept, theory of Human Computer Interaction (HCI) and smart card usage.

2.3.1 Theories and Concepts

The main concepts and theories that will be apply in developing this project is interface design concept, smart card usage and theory of Human-Computer Interaction.

A proper and good interface design is necessitate in developing a user friendly and effective application. A good interface is important on perceive ease of use the LAS system.

The smart card usage is also will be investigated whether it is essential to be use by students and decision in choosing the most appropriate smart card also will be clarify as there are various type of smart card.

2.3.1.1 Interface Design Concept

An excellent interface design is important in perceive ease of use and perceive usefulness of the LAS system. Moreover, a good interface design will lead to friendly use and in understanding the flow of the system especially the system will be operate by primary schools' student.

Interface characteristics can be seen from clarity of terminology, screen design, and clarity of navigation; which can affect perceived ease (Lindgaard, 1994a). The three characteristics are important in designing a good interface. Therefore, interface characteristics refer to the interaction between the system and the users.

Terminology refers to the words, sentences, and abbreviations used by a system (Lindgaard, 1994b). Moreover, screen design is the way information is presented on the screen. Finally, navigation is the ease with which users can move around the system. On the other hand, Hong et al., (2002) indicated that interface characteristics were found to be significant determinant of perceived ease of use.

Terminology was discovered to be the most crucial characteristics. A clear terminology increases the ease of use through provided that effective communications of system directives and responses to users.

Moreover, terminology was discovered as a good descriptor of perceived ease of use Terminology had shown as the most important factor in determining interface characteristics (Hong et al., 2002).