DELIVERY NOTIFICATION SYSTEM USING WEB BASED

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ABSTRACT

Delivery Notification System is designed to enhanced the current system that already exist in Kolej Kediaman 1(KK1) in Universiti Malaysia Pahang by implementing a notification of incoming parcel/mail to the students' e-mail as well as to improve the management of mailing at the KK1 office. This system is developed by using web based technique where all the programming and data store are using Hypertext Preprocessor (PHP) and MySql respectively. Besides, barcode technology is applied which could enhance the security level of the system. The results of this implementation are the students of KK1 will get an e-mail notification when their parcel/mail is arrived at the university thus the problem of time wasting for unnecessary checking for the parcel that has not arrived has been solved. Furthermore, the management of the mailing system at the KK1 can be improved and save times to record the incoming parcels. Lastly, DNS is a system that could improve the existing mailing system in UMP and hope that the system could be enhanced in the future.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

1.0 Background

Delivery Notification System (DNS) is a system used in Residential College's office in University Malaysia Pahang that manages the mailing system. This system enables the students to get the notifications when their mail or parcel is arrived to university address via their e-mail. This system provides advantages to the users as the problem of time wasting for the mail/parcel that has not arrived as the students has to go to the residence college's office besides the management can be improved.

1.1 Problem Statement

Nowadays, the students who want to collect their mail or parcel need to go to the Residential College's office to check whether their mail or parcel has arrived or not. The problem of time wasting spent for unnecessary check is arise when the mail or parcel has not arrived yet to the office where the students do not know when their mail or parcel will be arrived.

Besides that, the manual system needs the staff to record all the parcels information. It takes time to record them thus delaying the process of the students to get their parcel. Sometimes, it takes a day to record all the parcels that just arrived at their

office. Thus, some urgent items cannot be collected by the students the day the parcel arrived and have to collect the item by tomorrow.

1.2 Objectives

1) To built a delivery notification system via students' e-mail.
2) To replace and improve the current mailing system in Kolej Kediaman 1 Universiti Malaysia Pahang.

1.3 Scopes

1) The programming language used is Hypertext Preprocessor (PHP).
2) The database used is MySQL.
3) The users of this system are:-
   - Students of KK1.
   - Staff at the KK1 Residential College's office.

1.4 Thesis Organization

Thesis organization is about how to organize the thesis and general introduction to what will be describe in all of the chapters in the thesis. The explanation about all of the chapters is briefly summarized. Chapter 1 covers the background, problem statement, objectives, scope, and thesis organization for the project.

Chapter 2 discuss about the literature review. This chapter contains research information that is related to the project to get the general overview about the techniques, its applications, and other approaches by doing online surveying.

Chapter 3 covers the methodology. In this chapter, all of the implementation, techniques that will be use, all of the process that involve, and the development phase will be discussed.

Chapter 4 will present about the expected result of the experimental result also about conclusion and contribution of the project. Also discuss suggestion about future works based on the analysis and recommendation of the proposed method for what need to be repair and enhance for the future.

Chapter 5 included of three sub topic which is the result analysis, project limitation, suggestion and enhancement. There is explanation about the result and data analysis that has been obtained. And for the last chapter which is conclusion that will clarify about overall of the system that has been done. The purpose of this chapter is to briefly summarize about the development of the project such as data gathered and review on how reliable is information with the objective and project problem.

1.5 Conclusion

In conclusion, Delivery Notification System (DNS) is a system that useful for student in KK1 to get notified via their e-mail each time they got a mail or parcel. This system could minimize the time when managing the mailing system besides enhance the current system that already exist in KK1.

CHAPTER II

LITERATURE REVIEW

2.0 Introduction

This chapter comprises of the study of research of this system. It includes the history of the postal system, web based application, email as connecting mechanism and comparison to the existing systems. Relevant sources from journal, articles and books are compiled and cited to complete this literature review.

2.1 Malaysia Postal service history

Pos Malaysia Berhad is established in the early 1800s with the establishment of postal services first in the Straits Settlements (Penang, Malacca and Singapore) and gradually, where it covered the whole Malaya in early 20th century. Pos Malaysia Berhad now consists of:

- PosMel

Managing an average of 4 million mail items every day, PosMel is focused in providing day-to-day mailing services both general public and retail customers.

- PosLaju

PosLaju is one of the oldest courier companies in Malaysia. It started in 1986 by delivering international mail under the Expedited Mail Service (EMS) banner for Pos Malaysia Berhad. Two years later in 1988, it began to offer domestic courier services under the PosLaju brand name.

After 20 years in the business, PosLaju now is a first leading courier and express mail service provider in the country. Every year Poslaju has shown an anonymous growth in volume which reflects the level of confidence and trust given by our valued customers. Nowadays there are many post/courier delivery private companies in Malaysia such as Air Asia Courier, DHL Worldwide Express, Express Systems Courier Service, Malaysian Express Worldwide, Nationwide Express, Poslaju EMS - National Courier Service and others. From all of this, we can say it become easier for people in Malaysia to make delivery for their package. There are so many company provided for the courier postage. Besides that it will become easier if there are delivery notification systems for each university in Malaysia. This will make student save time or even administrator to schedule time for this delivery system [1].

2.2 Web Based Application

Web based application is a when the data can be accessed through the Internet in the web browser. The database is place at the central server the application can be accessed all over the network. PHP is an example of programming language of developing web based application. In this system PHP and MySQL will be used. Web based application gives opportunity to access information from anywhere in the world at anytime with a computer connected with Internet service [2]. In a university, students can access through Internet thus this system is efficient to be implemented in UMP so that the process of notification of student's delivery parcels can be facilitate the university students and staff as well.

2.3 Advantages of using web based application

The web based application has more advantages other than the other systems that require contacting field as the usage of internet is high in these days. One of the major benefits is flexibility in generating and saving the output from reports. With some restrictions, output can be saved directly as html, Word, Excel, or PDF documents [4].

Besides that, in the aspect of security, web based application provides an effective solution as it can secure live data. Web based applications provide an added layer of security by removing the need for the user to have access to the data and back end servers [5]. Therefore, the data and back-end servers are difficult to be accessed by other unauthorized party.

Important than that, web based applications can reduce cost. Web based applications can dramatically lower costs due to reduced support and maintenance, lower requirements on the end user system and simplified architecture [5], as it is highly deployment. They are also ideal where bandwidth is limited and the system and data is remote to the user. At their most deployable, simply sending the user a website address to log in to and provide them with internet access [5].

2.4 Email As Connecting Mechanism

Delivery Notification System (DNS) using web based application is a system transforms the information management system from the stand-alone resources to an embedded email. Leveraging today's technology by practicing sending message via email is kind of applying one of the web based application that is webmail. A uniform extension language for email systems can radically extend the utility of electronic mail, simplifying the construction of mail-based services and permitting the delivery of active messages that interact with their recipients and take differential actions based on the recipients' responses [3]. Hence, this DNS system is suitable to be implemented in embedded email integrated with Hypertext Preprocessor (PHP) as a programming language producing an effective way to notify the postal or delivery memo to the students in UMP.

Other than that, email has many advantages such as it is easy to be managed and fast. In this context, it means that the data can be answered, revised, stored, and sent to others in just a few seconds, all without reams of paper involved [6]. This could save the paper for doing the documentation or parcel's record in the residential college's office.

2.5 The Technology of Barcodes

Barcode is a bar of black and white stripe image normally located in products, books, identification cards and postal mails. It is used as an identification of each of the item that has the barcode at it and contains information such as product ID, name, location and so on. The technology of barcodes nowadays is widely being used in all counties because of the cost effective way of identity an object in a secure way besides it offer an easy way to handle some jobs as an object can be identified automatically [10]. Barcode can be a readable data by which the computer can read what inside the barcode by using a barcode scanner. This electronic device consists of a light source, a lens and a light sensor translating optical impulses into electrical ones and this can read the barcode print to the readable format to the computer [11].

Figure 1: The example of barcodes [11]

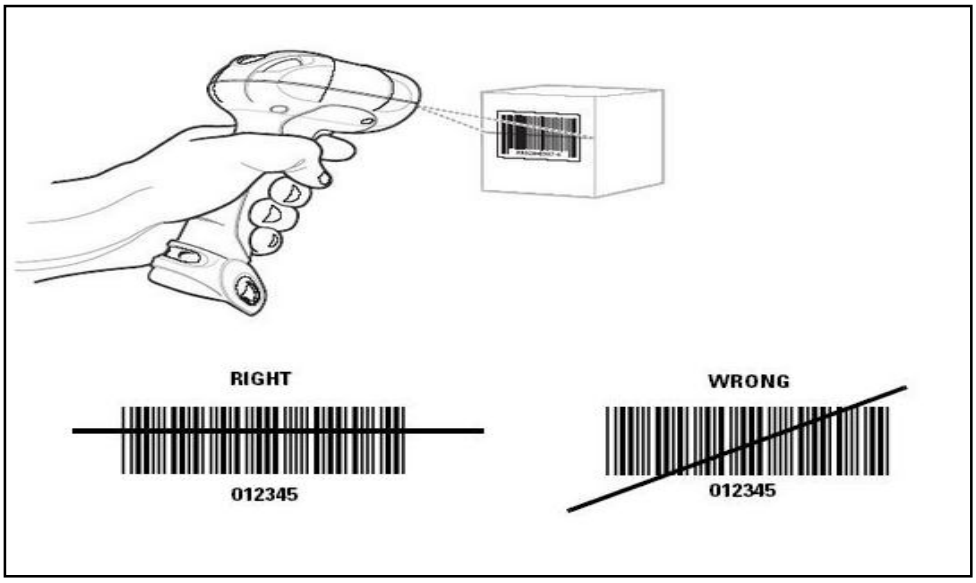

Figure 2: The barcode scanner [12]

2.6 Comparison to the existing systems

Delivery notification System is a system replacing the manual mailing system in UMP. Here, some of the existing postal systems are being studied to gain more knowledge regarding the postal system in different scope of study, objective, technology, function and the system process.

2.6.1 NFC Enabled Smart Postal System

Near Field Communication (NFC) Enabled Smart Postal System is a system practicing Radio Frequency Identification (RFID) technology in postal system in order to have a new mailing experience based on technology. At present, NFC is usually designed for payment and ticketing [8]. This new innovation has been developed to improve the postal service by using NFC enabled mobile and RFID technology. This paper intends to combine both to create a new cross media tangible mailing experience. Since RFID is printable, it is possible to integrate the RFID into an envelope, a stamp or a parcel package [7].

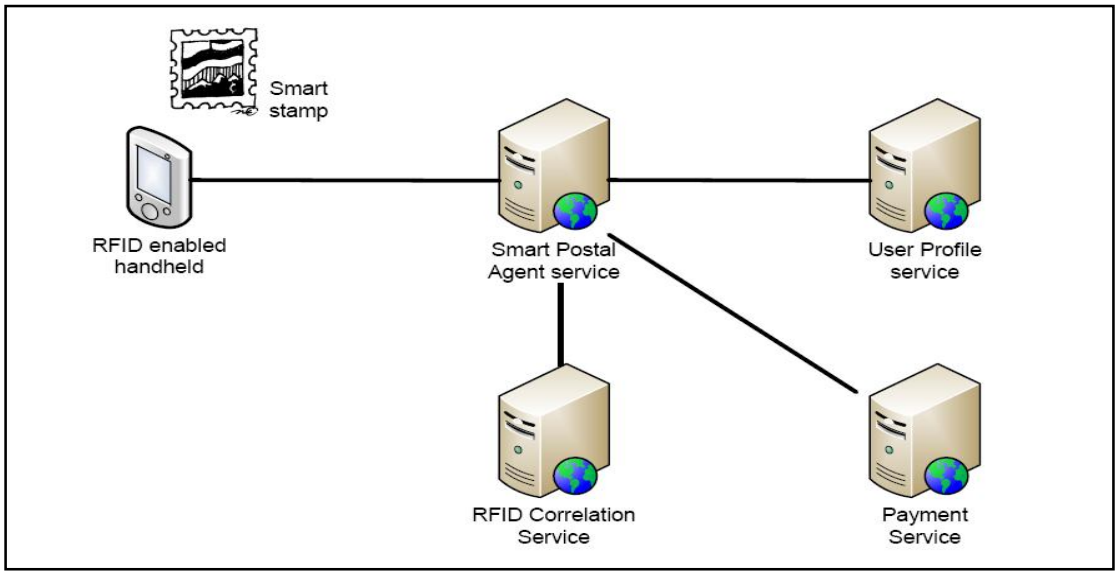

Figure 3: The Smart System Architecture [8]

The above figure shows the architecture design of the NFC smart postal system. This system functioned if a person who has a NFC enabled mobile wants to send a parcel to his friend, he does not need to write down the mailing address of his friend on the parcel. What he needs to do is search his friend's contact in the mobile and touch with RFID attached on the parcel. When an NFC enabled mobile handheld detects an RFID that is attached to a parcel, it sends the identity of the detected RFID together with the mobile identity to the smart postal system via the web interface [7]. Thus, the registration for the consignee is completed.

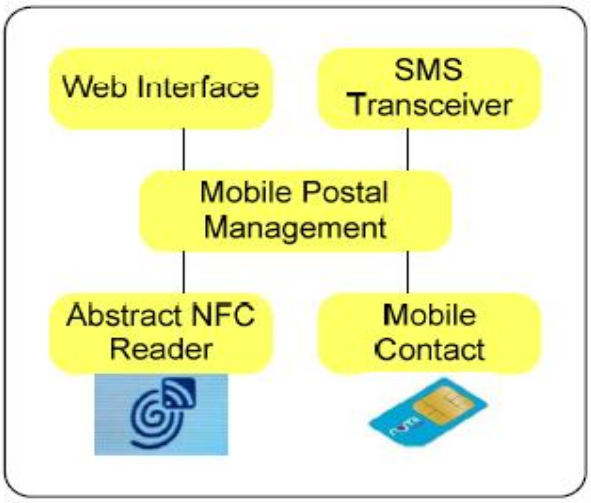

Figure 4: Mobile Application Building Blocks [7]

Figure above shows the building blocks of the mobile application system in payment service. It is responsible to charge the parcel according to several criteria includes distance, weight of the parcel, the way to transmit it and type if the parcel [7].

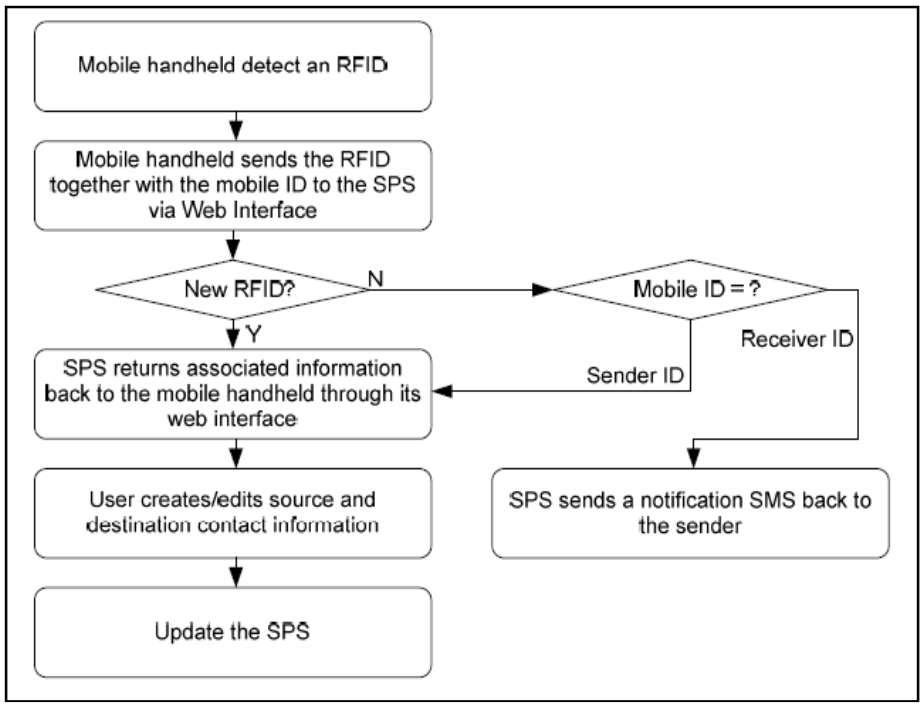

Figure 5: The system flow of mobile application [7]

Figure above illustrates the flow chart of the mobile postal application. When the NFC enabled mobile handheld detects the RFID attached on the parcel, the mobile handheld send the RFID together with the mobile ID to the smart postal system through web interface. The system returns associated information back to the mobile handheld through its web interface and the user can create the source and destination of the parcel's consignee. If the user is a new RFID user, they will request the mobile ID from the sender and a few minutes later, they will receive a notification from the system the mobile ID [7].

2.6.2 Development of Integrated E-Parcel Management System with GSM Network

In this paper, the system is about the management of the parcel system using GSM network. Since nowadays mobile phone is very popular device that almost everyone had it, the author wants to develop a mailing system that can notify the recipient once their parcel is arrived to their place. The whole system utilizes the barcode system, Microsoft Visual Basic 6.0 and Active Server Pages 3.0 as the interface, and mobile network to realize the intended purpose [8]. This system is developed in Universiti Tun Hussein Onn Malaysia (UTHM).

Figure 6: The architecture of the system [8]

The system's objective is to avoid the parcel from being loose during the process of delivery to the addresses stated on the parcel within UTHM. Therefore, by using barcode system, every parcel is tagged with barcode contains the information of the staff. Then the staff will receive a notification of the parcel's location from their mobile phone for taking direct action to deliver the parcel.

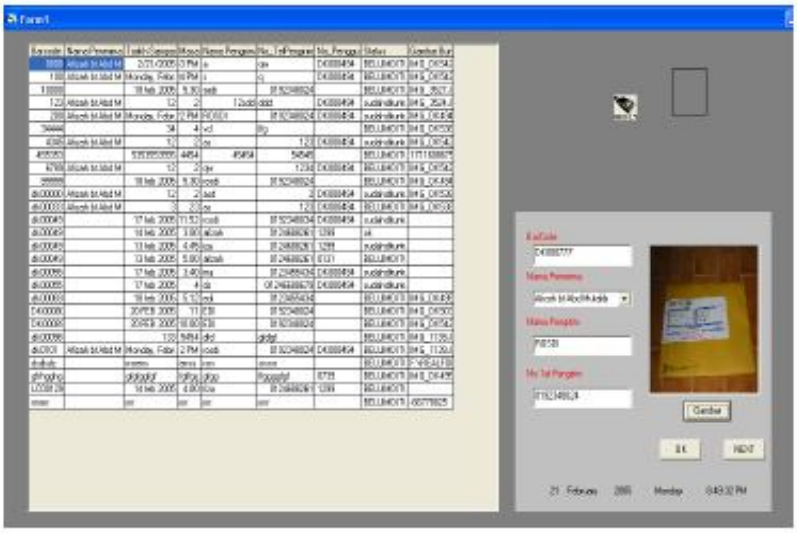

Figure 7 (A): Parcel record upon arriving

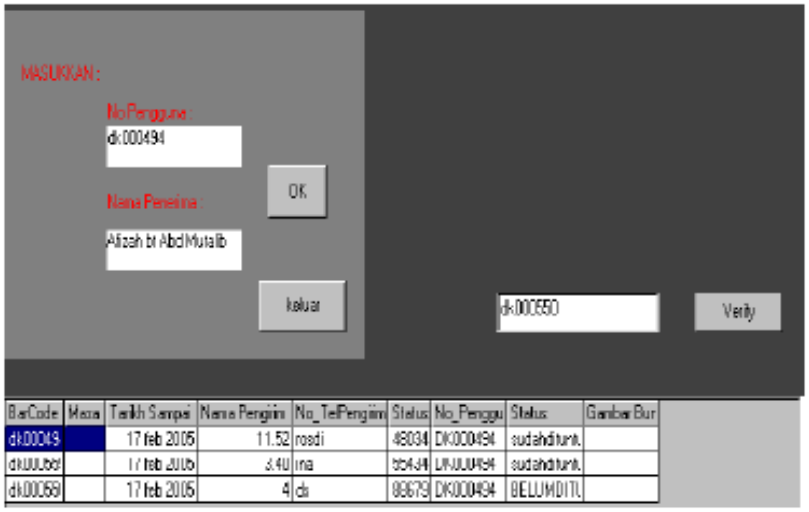

Figure 7(B): Interface of parcel collection

Figure 7(A) illustrates the data of the parcel collection associated with the system database of the system. Figure 7(B) shows the system interface when the parcel is ready to be distributed to the particular addresses. It will require the staff ID to verify whether the parcel is already collected or not. The verified parcel will be checked as 'claimed' [8].

2.6.3 The current mailing system in UMP

Basically, the mailing system in UMP to be specific, in KK1 is using the manual system. Every day, the staff works in the Residence College's office will get the parcel in the HQ office at 9.30am. After that, they record the student's parcel information manually in the log book. The parcel information needs to be typed and printed for the purpose of student's stamps after they get their parcel.

Otherwise, the student mails such as letter are not being recorded in the log book. They will be stored in the mailbox alphabetically sorted. The problem are facing by the students nowadays is that they are not notified each time their parcel or letter are arrived to the KK1 Residence College's office. Sometimes, they need to go to the Residence College's office for a few times to check their parcel thus this problem could waste time for unnecessarily check for unavailable parcel.

Features	**NFC Enabled Smart Postal**	**E-Parcel Management System using GSM**	**KK1 current mailing system**	**Delivery Notification System**
User	Users who register to the system	Staff, students in UTHM	KK1 residents, KK1 staff	KK1 residents, KK1 staff
Technology	NFC, RFID	GSM, e-mail, barcode	-	SMS Gateway Integration, e-mail, barcode
Notification	Yes	Yes	No	Yes
Aim	To improve the postal service by using NFC enabled mobile and RFID technology.	To avoid the parcel being lost during the process of delivery	To provide a mailing service to KK1 residents	- To notify the student when their parcel are arrived. - To improve KK1 mailing

				system
Technique used	Web-based	Visual Basic	Manually record to log book	Web-based
Login session	Yes	Yes	No	Yes

Table 1: The comparison of DNS with several similar existing systems

CHAPTER III

METHODOLOGY

3.0 Introduction

This chapter comprises the method of developing the Delivery Notification System (DNS). It will discuss on every process involved to develop the project. System Development Life Cycle (SDLC) is a methodology design that has been chosen to form the system framework for planning and controlling the creation of this information system. The SDLC methodology of the system will be discussed in this chapter.

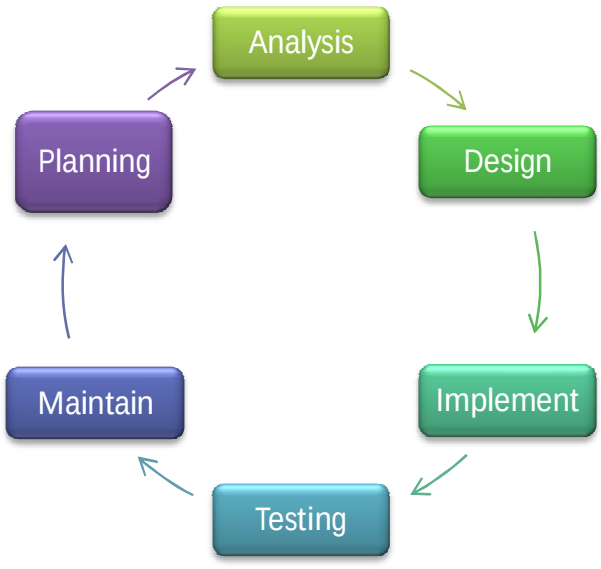

Figure 8: Phases in System Development Life Cycle (SDLC)

3.1 Justification of choosing SDLC

System development life cycle (SDLC) define as a conceptual model that describes the phases involved in an information system development project, from the initial step of the project until the maintenance of the completed application. There are various SDLC methodologies of system development including waterfall model, rapid application development (RAD), joint application development (JAD), the fountain model, the spiral model, build and fix, and synchronize and stabilize. The phases in SDLC include planning, analysis, design, implementation, testing, and maintenance of the system.

3.2 The flow of the system

The flows of the Delivery Notification System (DNS) are explained according to the stages of SDLC; planning, analysis, design, testing, implementing and maintenance of the system.

3.2.1 Planning

Planning is the beginning phase of the system development. This phase include the process of discover the problems, collecting data from various sources and do research related to the system proposed. Firstly, an interview was held with Kolej Kediaman 1 (KK1) staff to collect some information regarding the current mailing system.

Next, the data are collected and gathered from various sources. Some researches from internet are done to find out the solution of those problems. Some articles and journals related are studied to gain more knowledge in proposing a new system that could enhance the existing information system. Lastly, having discussions with supervisor and friends are done to gain more ideas and opinions hoping to enhance and built this system completely.