

**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.

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# **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 countries 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]



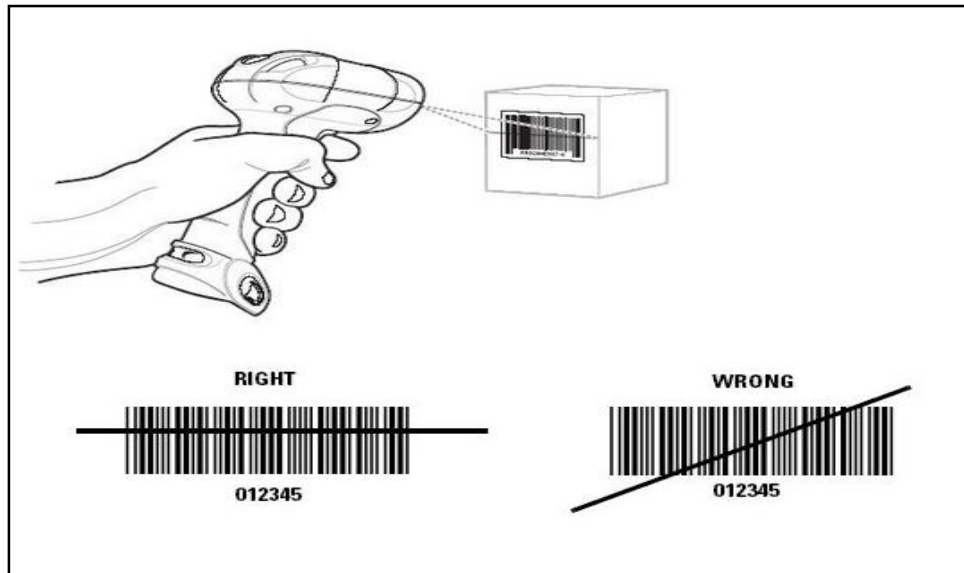


Figure 2: The barcode scanner [12]

## 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].

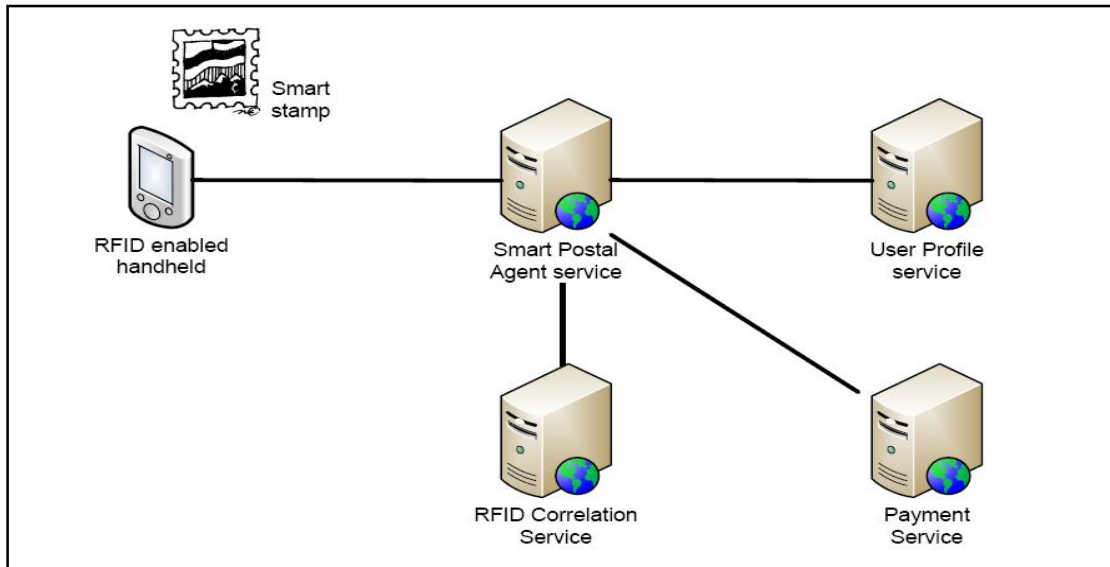


Figure 3: The Smart System Architecture [8]

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.

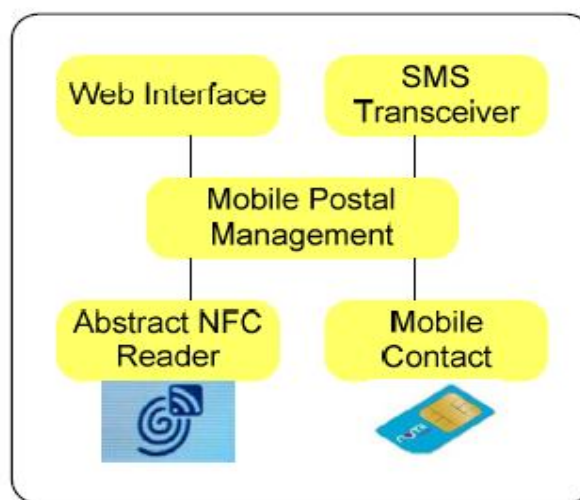


Figure 4: Mobile Application Building Blocks [7]

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].

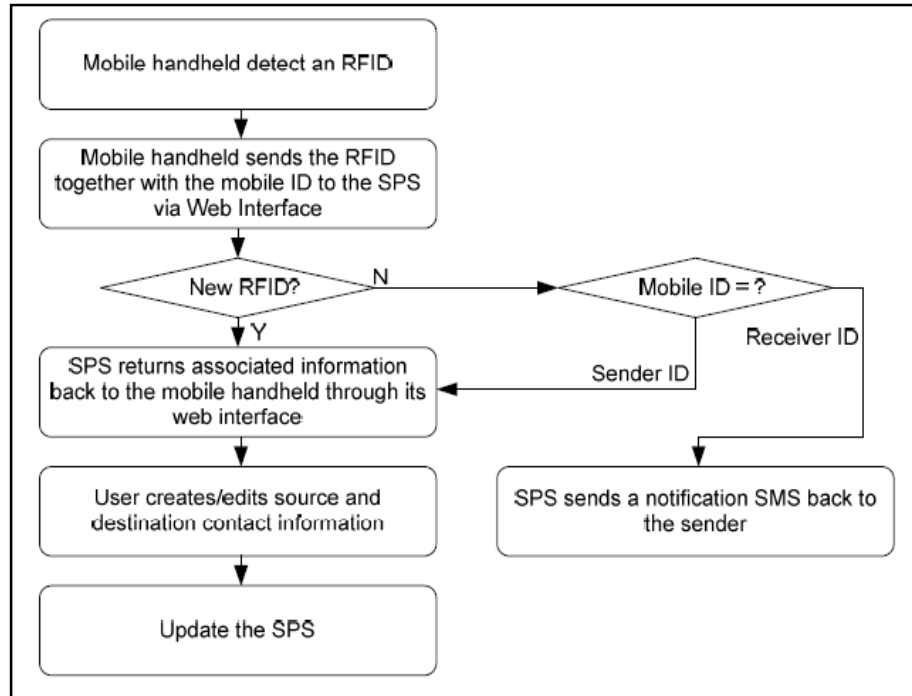


Figure 5: The system flow of mobile application [7]

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).

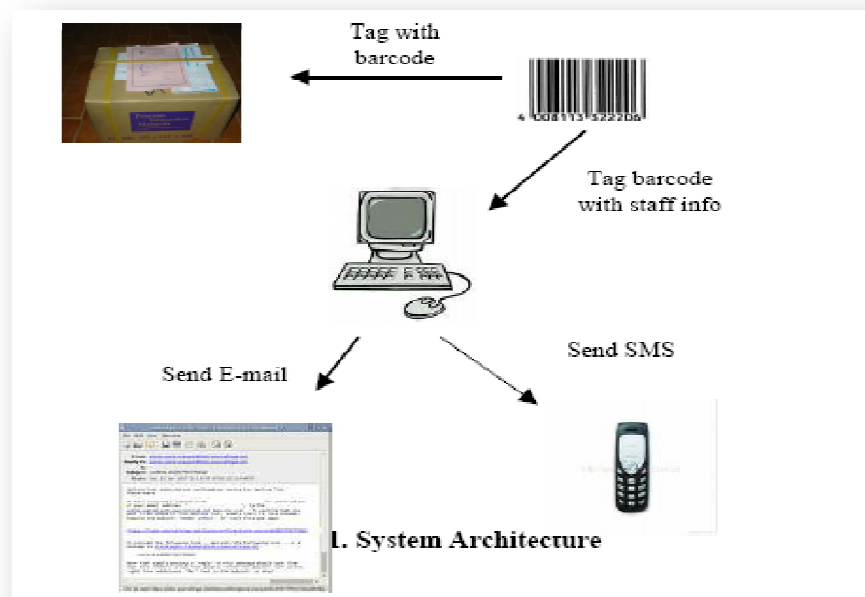


Figure 6: The architecture of the system [8]

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.

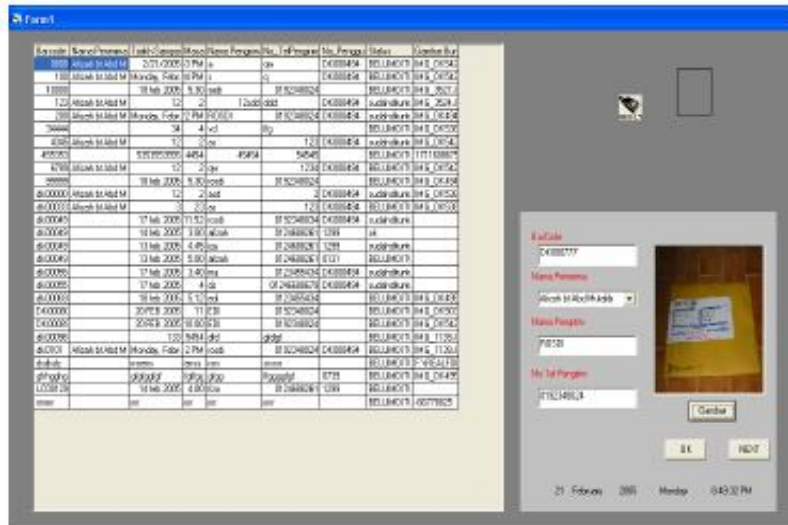


Figure 7 (A): Parcel record upon arriving

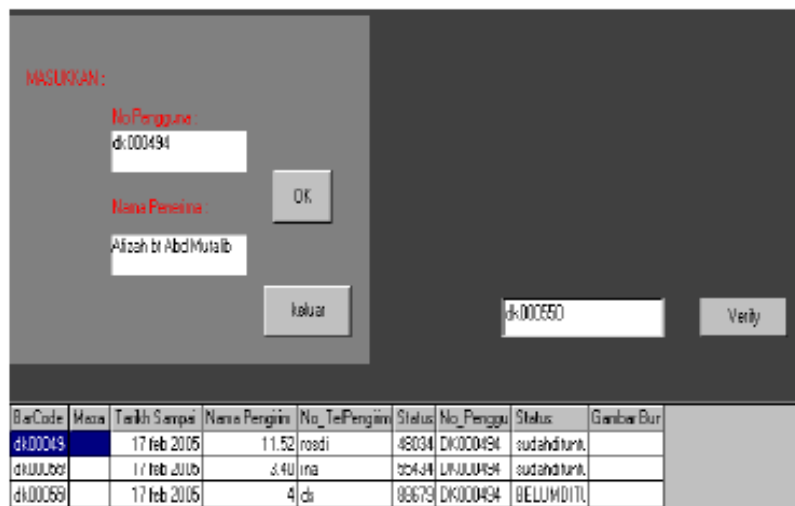


Figure 7(B): Interface of parcel collection

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.

<b>Features</b>	<b>NFC Enabled Smart Postal</b>	<b>E-Parcel Management System using GSM</b>	<b>KK1 current mailing system</b>	<b>Delivery Notification System</b>
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.

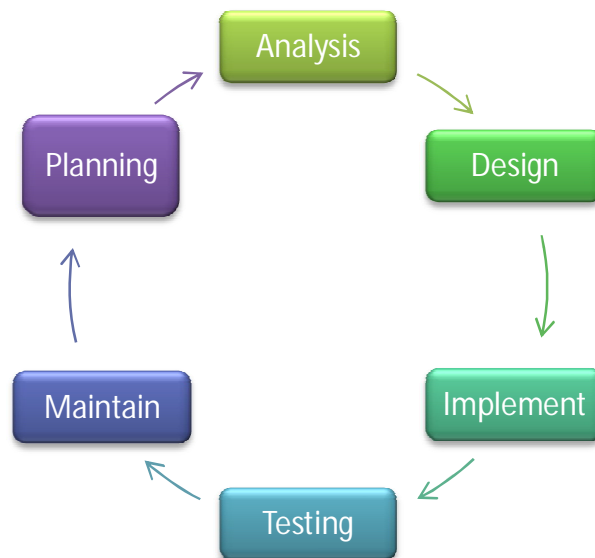


Figure 8: Phases in System Development Life Cycle (SDLC)



### **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.

### 3.2.2 Analysis

After complete interviewing KK1 staff, some information are collected and those information will be used in developing Delivery Notification System. The user requirements that had been gathered are;

- In the HR (main mailing office), the staff will collect the students parcels at every 9.30-10.00 am everyday and sign the record.
- The parcels will be brought to KK1 office and will be recorded manually in log book.
- The entities that in the log book are student name, ID number, phone number and parcel's tracking number.
- The students' letters are not record in the log book but sorted alphabetically in the office's mailbox.
- The parcels that not been claimed for three months will be terminated.
- The problem faced in the current system is the student does not know their incoming parcel in the office.

In the current system, some problems arise such as the student does not know whether their parcel or letter has arrive to the KK1 office thus this makes they need to go there for a few times. Besides, an automatic system to record the students parcel is more efficient to be implemented compared to the manual current system that practice record the student's parcel into the log book which could trigger data loss and inaccurate data.

After making some research, it is found that using web-based application is the best way to solve this problem. By using PHP.NET as the programming language and MySQL as a database to store all the data, this system could enhance the current system as the students just need the internet connection to view their parcel record in the system. The staff can make their job much easier to record the entire parcel where they just need to key in all the parcel records into the system and notify the students just by click on the system. By using SMS gateway integration, the notification will be sent to the student's mobile phone.

### 3.2.3 Design

Designing is the next step after planning and analyzing the Delivery Notification System (DNS). This phase involves of how the implementation of the system are designed. It includes the system flowchart, data flow diagram (DFD), structure and the Graphical User Interface (GUI) that represents the structure of the entire system.

#### 3.2.3.1 System Flowchart

The system flowcharts of this system are explained according to the users who are using this system which are the admin, staff and students.

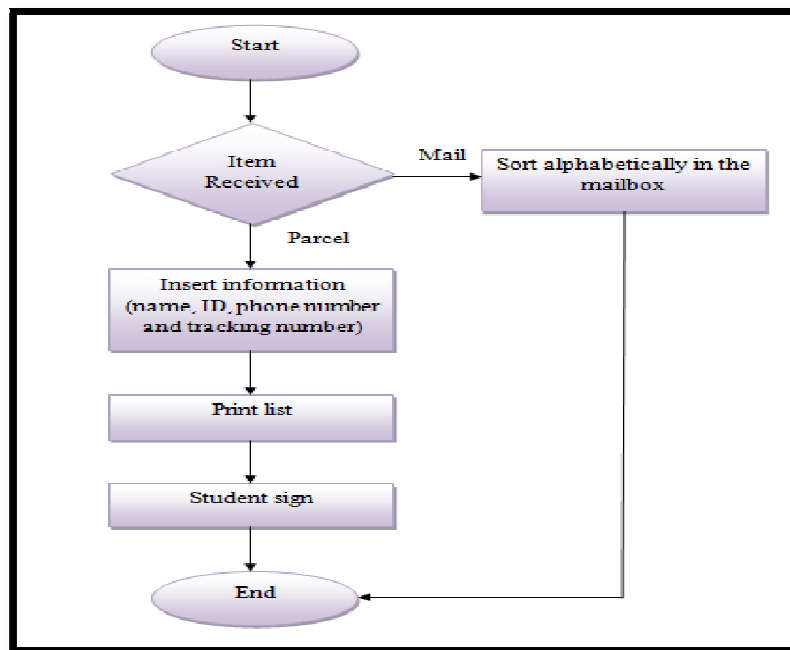


Figure 9: The flowchart for the current system in KK1

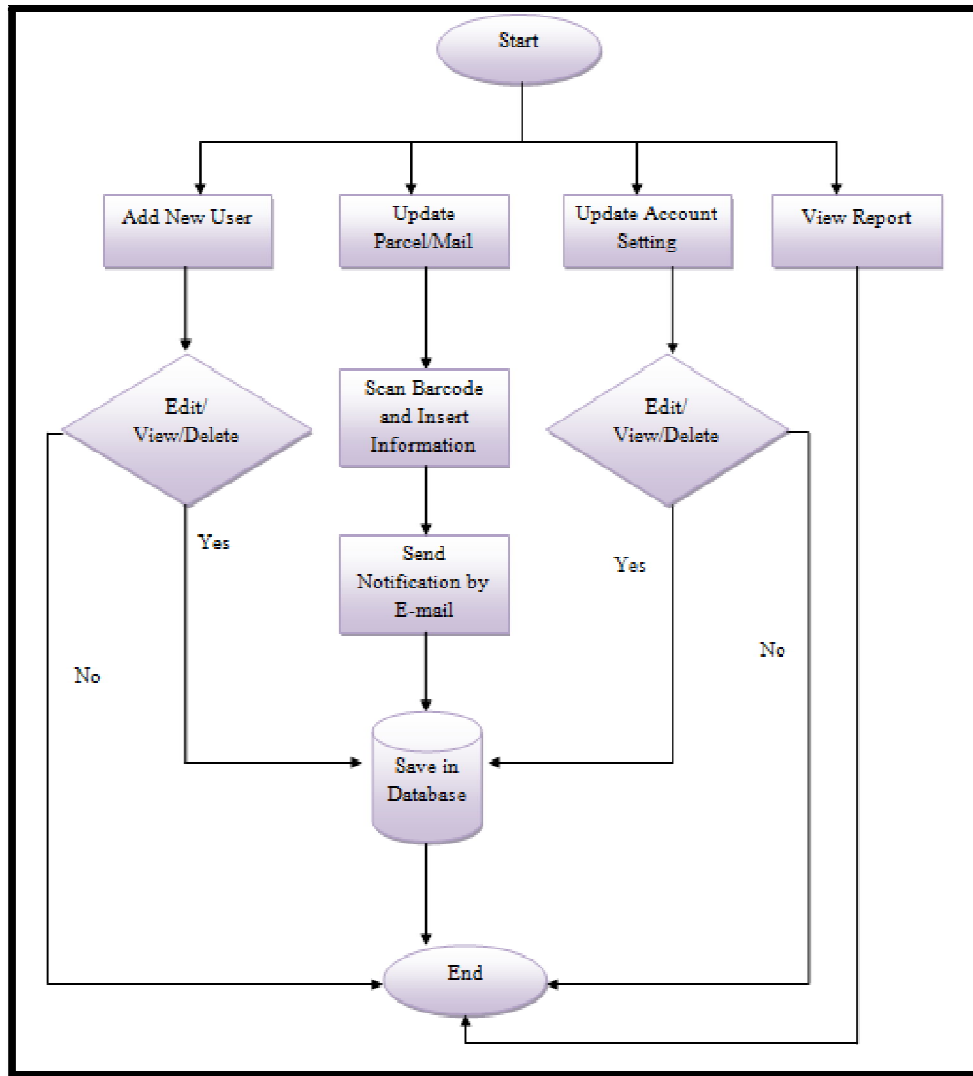


Figure 10: The flowchart for admin in Delivery Notification System (DNS)

From figure 3.2.3.1.1 above, the admin's functions in this system are to add new staff, managing the students' parcel and mails, updating account setting and view the report. The first function of admin is adding new staff is set by the admin. The record of the staff can be viewed, edited and deleted by admin. The second function is updating the parcels and mails. When the parcel is arrived to the KK1 office, the admin is able to scan the barcode at the parcel and fill in the student details to the system. All the information such as name, ID, phone number and parcel's tracking number will be saved to the system database. After that they can send the notifications to the students' mobile phone and e-mail so that the student can come to get their parcel. The third function is the admin

can update account setting and save the one they have edited. The last function is viewing the record of the parcel.

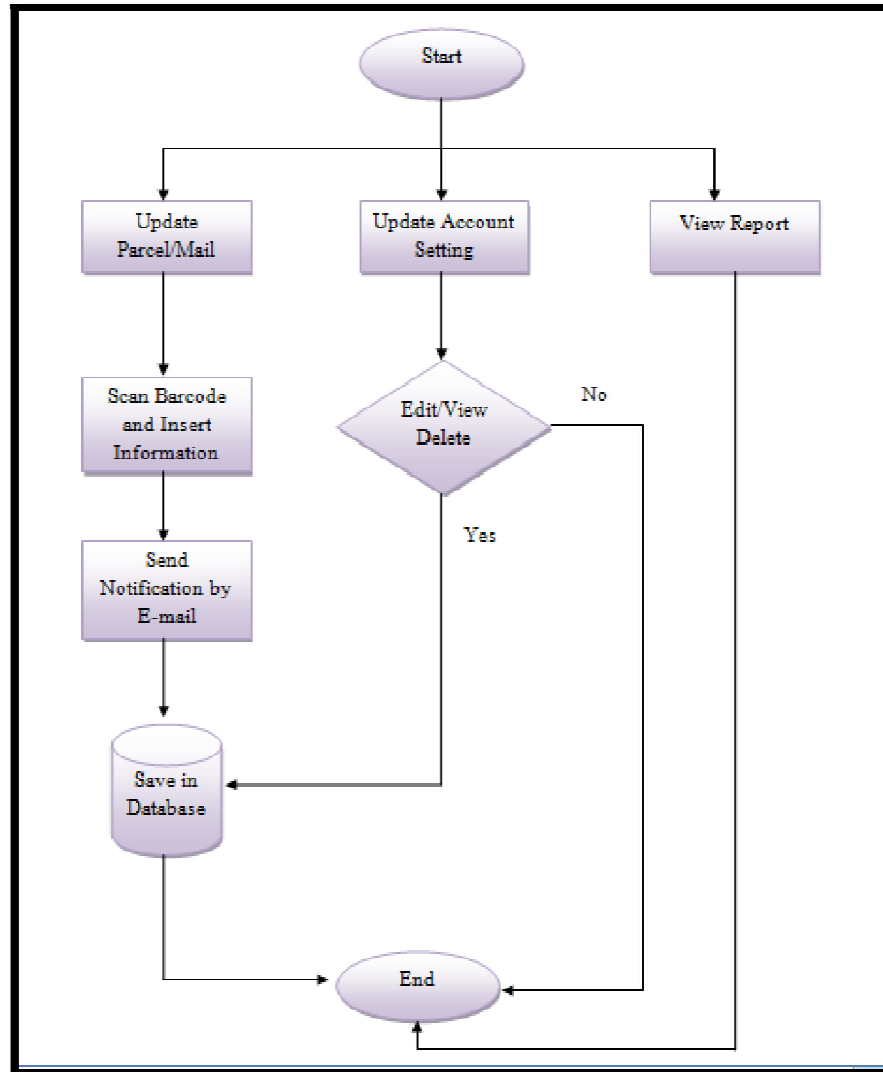


Figure 11: The flowchart for staff in Delivery Notification System (DNS)

The figure above shows the functions of the staff works in the KK1 office as the user of this system. They are able to manage the students' parcels and mails, updating their own account setting and view the record of the parcel. Compared to the admin, staff cannot add the new user to this system. Their legibility of using this system is set by the admin. Staff is able in updating the parcels and mails. When the parcel is arrived to the KK1 office, the admin is able to scan the barcode at the parcel and fill in the student

details to the system. All the information such as name, ID, phone number and parcel's tracking number will be saved to the system database. After that they can send the notifications to the students' mobile phone and e-mail so that the student can come to get their parcel. The third function is the admin can update account setting and save the one they have edited. The last function is viewing the record of the parcel.

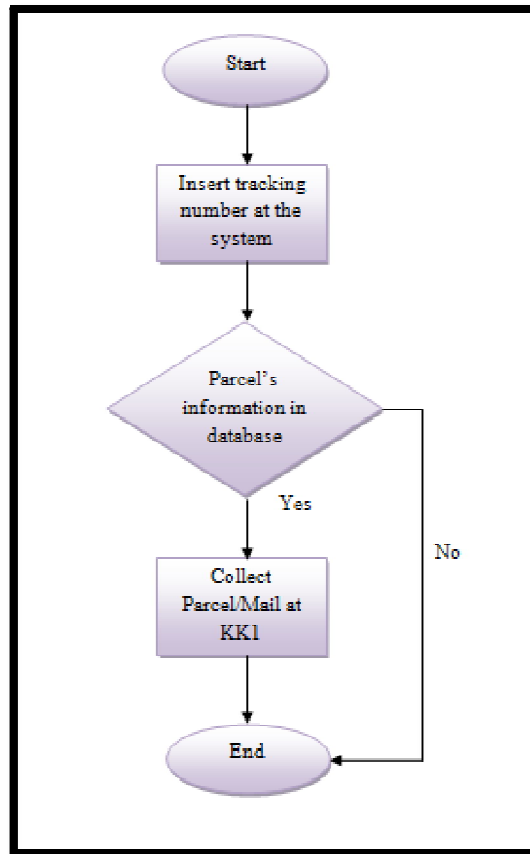


Figure 12: The flowchart for student in Delivery Notification System (DNS)

In this system, the students will receive the notification to the phone and email. But the students can view in the system also whether their parcel or mail is at KK1 or not. The searching function is applied. If their parcel or mail is there, they can go to the KK1 office to collect their parcel.

### 3.2.3.2 Data Flow Diagram

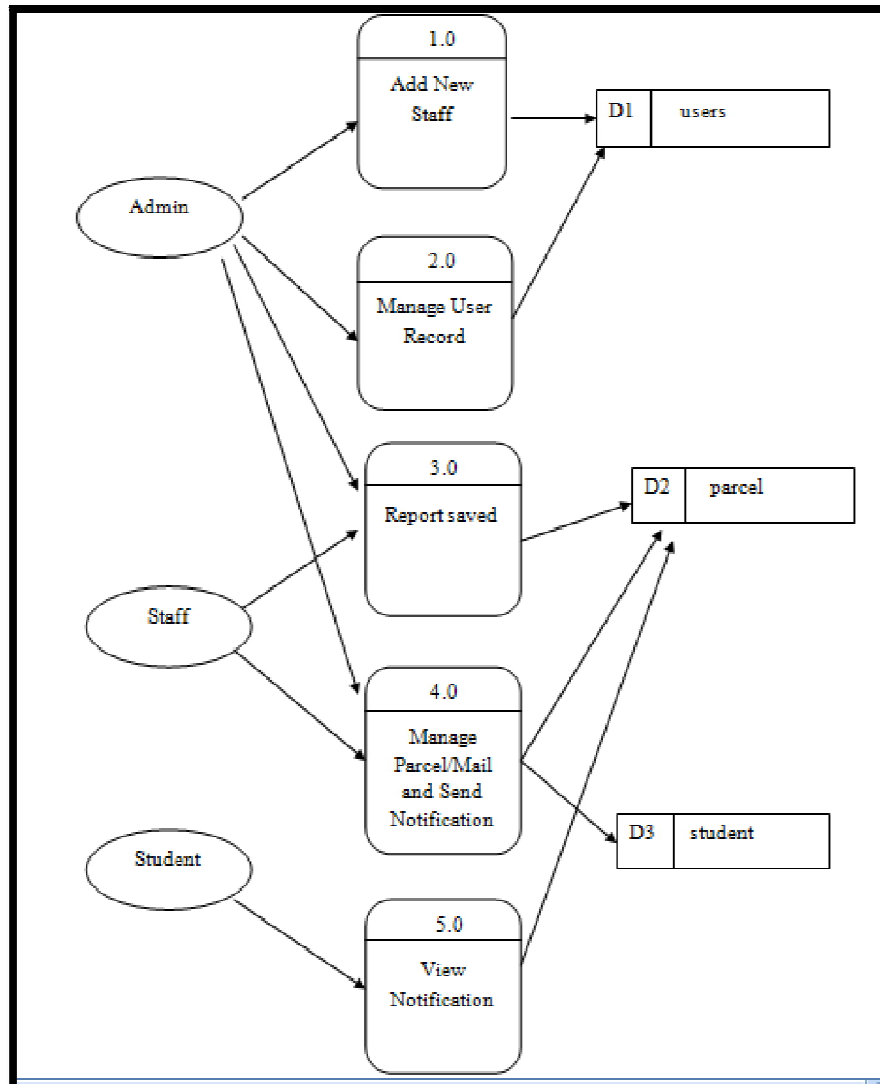


Figure 13: Data Flow Diagram for Delivery Notification System

### 3.2.3.3 System Interface

STAFF REGISTRATION FORM	
Full name :	<input type="text"/>
Mailing Address :	<input type="text"/>
State :	<input type="text"/>
Phone Number :	<input type="text"/>
Staff ID :	<input type="text"/>
Email :	<input type="text"/>
Password :	<input type="text"/>
Re-type password :	<input type="text"/>
Category :	<input type="text" value="Staff"/> <input type="button" value="v"/>
<input type="button" value="Add User"/>	

Figure 14: Interface of staff registration form

The figure above shows the interface of staff registration form of the system. The staffs who work in the KK1 office must register the form and their information will be stored into the system database.



MAIN	TRACK															
<table border="1"> <tr> <td>ID</td> <td></td> </tr> <tr> <td>PASSWORD</td> <td></td> </tr> <tr> <td>RE-TYPE PASSWORD</td> <td></td> </tr> <tr> <td>NAME</td> <td></td> </tr> <tr> <td>ADDRESS</td> <td></td> </tr> <tr> <td>EMAIL</td> <td></td> </tr> <tr> <td>PHONE</td> <td></td> </tr> </table>			ID		PASSWORD		RE-TYPE PASSWORD		NAME		ADDRESS		EMAIL		PHONE	
ID																
PASSWORD																
RE-TYPE PASSWORD																
NAME																
ADDRESS																
EMAIL																
PHONE																
<input type="button" value="SUBMIT"/>																

Figure 15: Interface of admin update form

### 3.2.3.4 System Structure

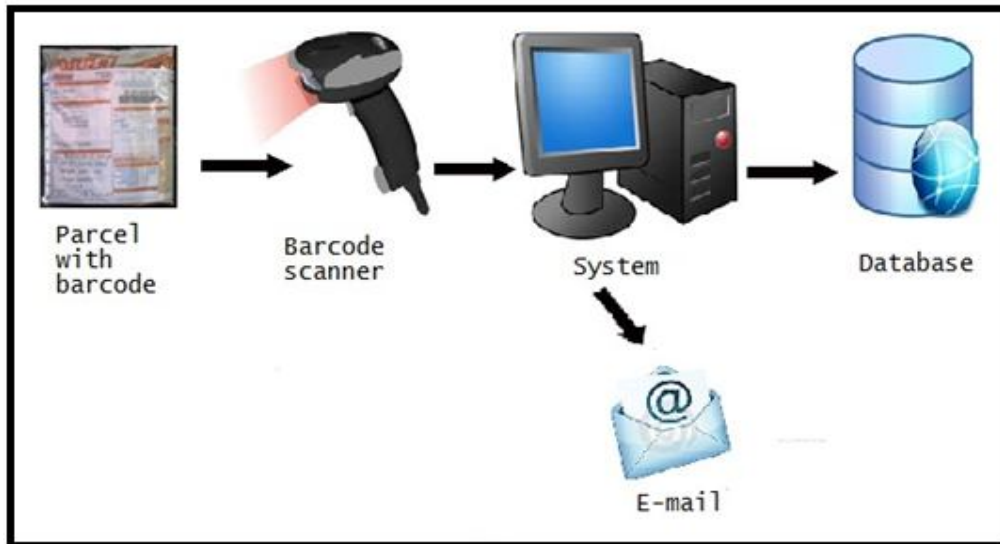


Figure 16: The system structure

Refer to the system structure above, the tracking number at the parcel will be scanned using the barcode scanner and the information will be key in into the system. All the information will be saved in the system database. The notifications will be sent to students' mobile phone and email.

### **3.2.4 System Implementation**

Once the system is agreed design, the implementation phase should make few changes to the system design. In this phase, the system is created, installed, and codes with appropriate training program. To create a system, programming can be done by writing lines of codes. The language that being use to implement this system is PHP.net. Besides that, the server that been chose to store the data is Structured Query Language (SQL). SQL is a standard interactive and programming language for querying and modifying data and managing databases.

### **3.2.5 System Testing**

System testing will be done when the system has implemented. Error solving will be done in this phase to get the complete system development.

### **3.2.6 System Maintenance**

System maintenance is the last phase of SDLC in this system. It describes various forms of computer required to keep a computer system running properly. It also states network maintenance which could mean that servers are being physically repaired, replaced, or moved. This delivery notification system is needed to be ensuring under well maintenance so that the system can be used in a long time.

### 3.3 Project Requirement

#### 3.3.1 Software requirement

No.	Software	Version	Description
1.	Window 7 Ultimate	2009	Operating system that will be used for system maintenance and development
2.	Microsoft Word	2007	Report and documentation
3.	Adobe Photoshop	CS5	Interface/Photo editing
4.	Microsoft Dreamweaver	CS5.5	Interface design
5.	MySQL		Database system development

Table 2: Software required for the system

#### 3.3.2 Hardware requirement

No.	Hardware	Description
1.	Laptop	Documentation and Development
2.	Printer	Documentation printing
3.	Barcode scanner	Scan barcode information
4	CD Writer	Backup data and files

Table 3: Hardware required for the system

## **CHAPTER IV**

### **IMPLEMENTATION AND TESTING**

#### **4.0 Introduction**

In this chapter, implementation of the system will be done. All the development process includes the database creation, Graphic User Interface (GUI), coding implementation and system test case will be documented in this chapter.

#### **4.1 The Implementation of DNS**

The Delivery Notification System (DNS) implementations consists of several process that are the creation of MySQL database, designing the interface, generate programming codes by using PHP and lastly testing every function of the system. Implementation is very important in order to produce the system that will be enhanced the existing system as well as to fulfill the user's requirements.

### 4.1.1 Database Design

For this system, the type of database used is MySQL. Basically, it is used for web-based program to store all information that is required for certain programs or applications that had been developed. MySQL is very useful instead of storing the information on the paper. It is able to add new information, update and delete. In this system, there are three tables contain in one database. There are table for student, table for staff and admin and table for parcel.

		noid	idstudent	name	phone	email	faculty	
<input type="checkbox"/>			2	CB09098	Nur Syakila	0127865689	nur@yahoo.com	Fskkp
<input type="checkbox"/>			7	CA09101	MOHD ZAKUAN HISYAM	0191119910	zack@gmail.com	Fskkp
<input type="checkbox"/>			5	KE09223	Mohd Azfar Rino	0139665421	nikel_84@yahoo.com	Fkksa
<input type="checkbox"/>			8	CA09129	Alyah binti Khairudin	0192211889	alyah@gmail.com	Fskkp

Figure 17: The table for student in the database

In the above figure, the table is functioned as to store the details of the students of Kolej Kediaman 1. The details required are student ID, name, phone, email and faculty.

			Idno	Iduser	Name	Noic	Password	Email	Phone	Address	State	Category
<input type="checkbox"/>			4	najibah	admin	800409039892	fatin101	echo@yahoo.com	0198848888	terengganu	Selangor	Admin
<input type="checkbox"/>			5	ca09129	mcdonald		ca09129	faizis@yahoo.com	1999282627	indera mahkota kuantan	Pahang	Admin
<input type="checkbox"/>			6	CA09111	Md Faiz		ca09111	web@hotmail.com	192222222	NO 09 Jln tunku 12345 Johor	Johor	Staff
<input type="checkbox"/>			12	mdfaiz	Md Faiz	900110120093	mdfaiz	joker_170@yahoo.com	0199336865	Kemaman, Terengganu	Terengganu	Staff
<input type="checkbox"/>			11	CA09100	ISRAR	900110135672	ca09100	fateenajibah@gmail.com	0199336865	UNIVERSITI MALAYSIA PAHANG, LEBUHRAYA TUN RAZAK, P...	Pahang	Admin

Figure 18: The table for staff/admin in the database

The above figure displays the table for staff and admin. It includes the ID user, name, IC number, password, email, phone address, state and category of the users.

			idparcel	codeparcel	name	phone	email	datereceived	statusparcel
<input type="checkbox"/>			1	LE127953808MY	Nur Syakila	0127865689	nur@yahoo.com	21-10-2012	Received
<input type="checkbox"/>			3	BN88794LM98	Mohd Azfar Rino	0139665421	nikel_84@yahoo.com	21-10-2012	Received
<input type="checkbox"/>			4	EM0393483483MY	MOHD ZAKUAN HISYAM	0191119910	zack@gmail.com	02-11-2012	Received
<input type="checkbox"/>			5	EM6272916217MY	MOHD ZAKUAN HISYAM	0191119910	zack@gmail.com	05-11-2012	Sent

Figure 19: The table for parcel in the database

The table above is functioned for record of the parcels. It includes the code parcel, name of the student, phone, email, date received and parcel status.

#### 4.1.2 Interface Design

In DNS, the graphic user interface (GUI) is designed by using PHP. Interface in DNS is designed understandable, clear, fulfill the user requires, user friendly and most importantly, well-functioned.

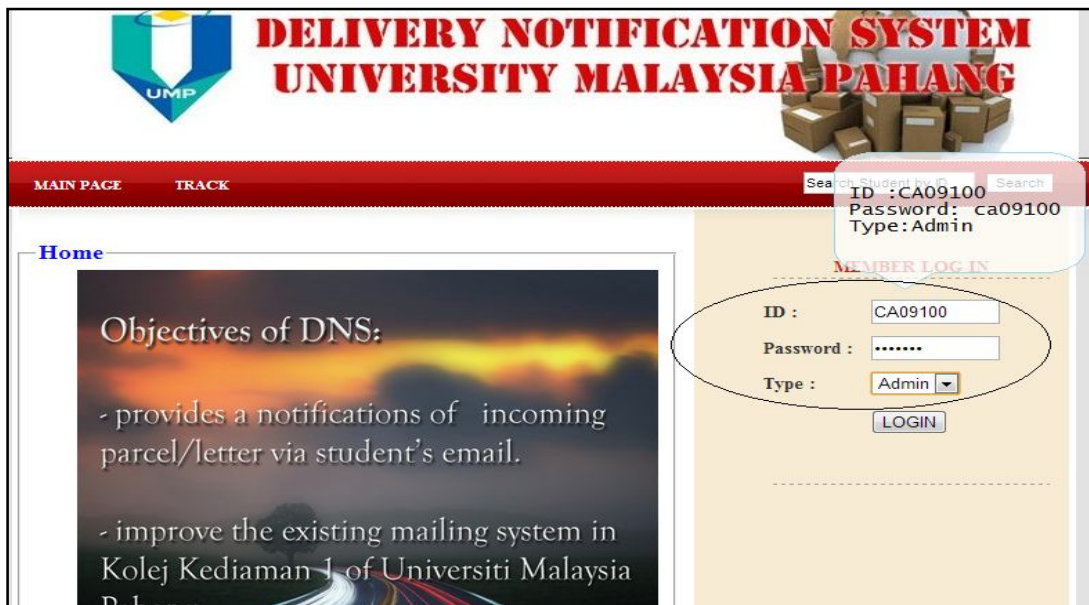


Figure 20: Login Form

Figure 20 shows the login form for user (admin/staff). Only valid ID and password can be logged in to the system. This login function could increase the security of this system.

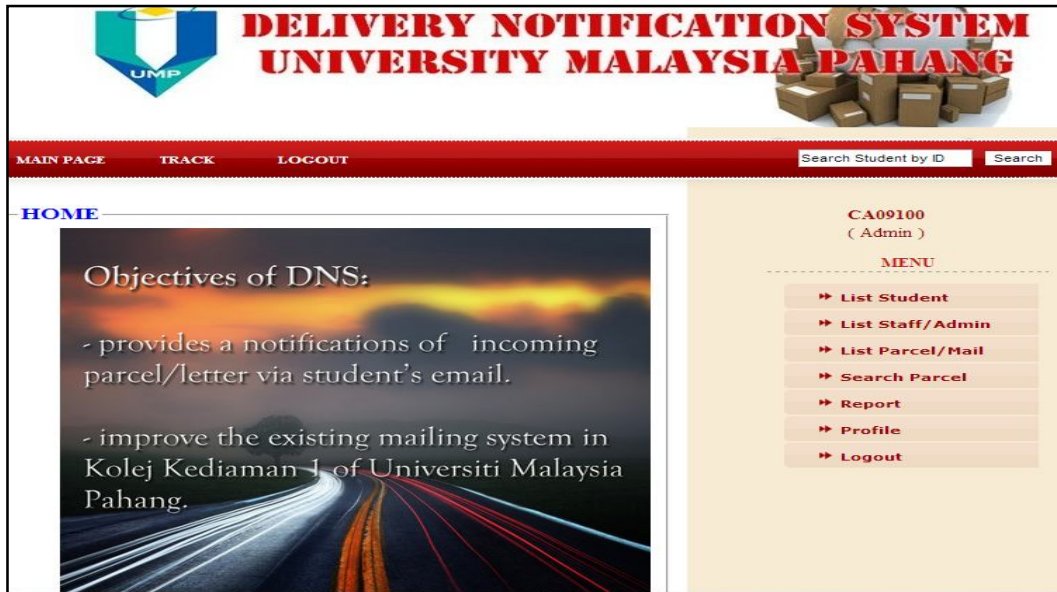


Figure 21: User Page

The above page is the page after the admin or staff is successfully logged in. For admin, there are six menus that functions in the Delivery Notification System (DNS). Whereas staff, all functions above are available except for list staff/admin.



Figure 22: List Student Page

In this page, the staff and the admin are able to add new student, update the student details and delete the students. All residence in KK1 will be recorded to this system to make the mailing system in KK1 much easier and convenience.

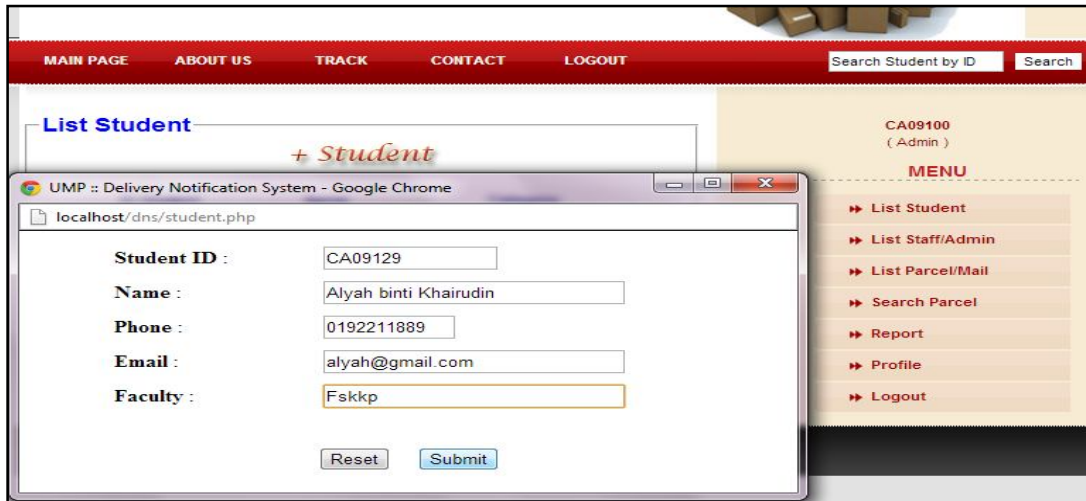


Figure 23: Add Student Form

Refer to the figure 23, the student of KK1 will be added to the system. All information such as student ID, name, phone number, email and faculty will be recorded and save to the database.



Figure 24: Add Student Success

The student is successfully added to the system. The student list can be viewed at the list student page.



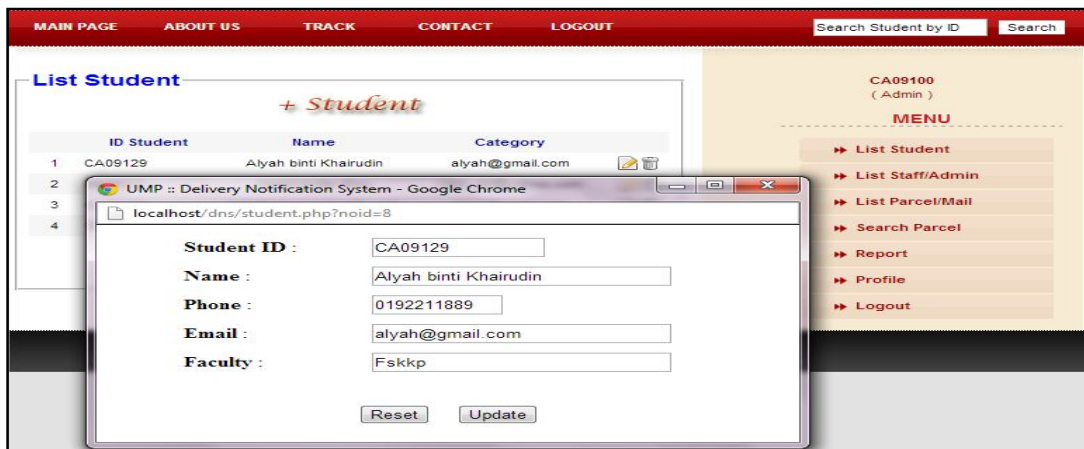


Figure 25: Update Student Form

The above figure is the form for staff and admin updating the details of the student. Update function is important for example if the student change their email. Therefore, the management will be much easier for the admin and staff to notify the students' parcel.

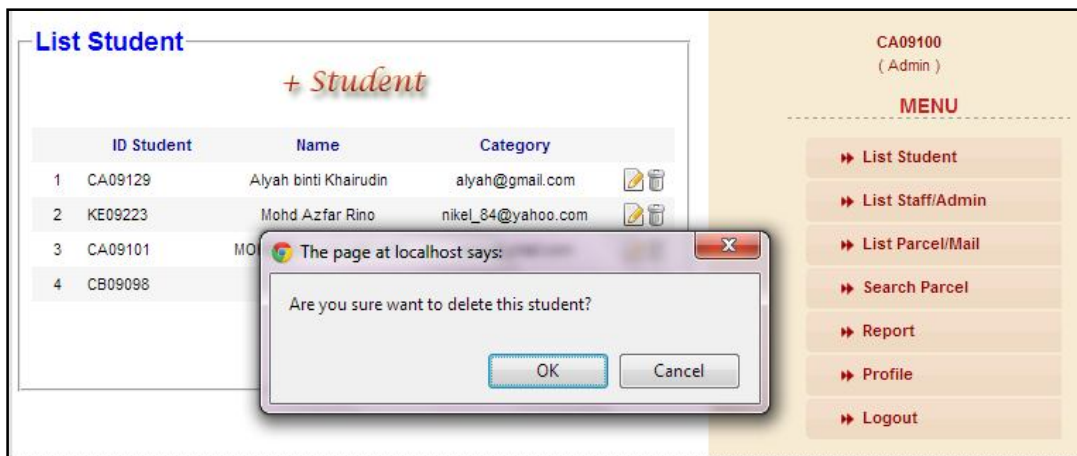


Figure 26: Delete Student Form

The above figure shows the delete function of the student. The staff and the admin are able to delete the students who are not applicable for KK1.

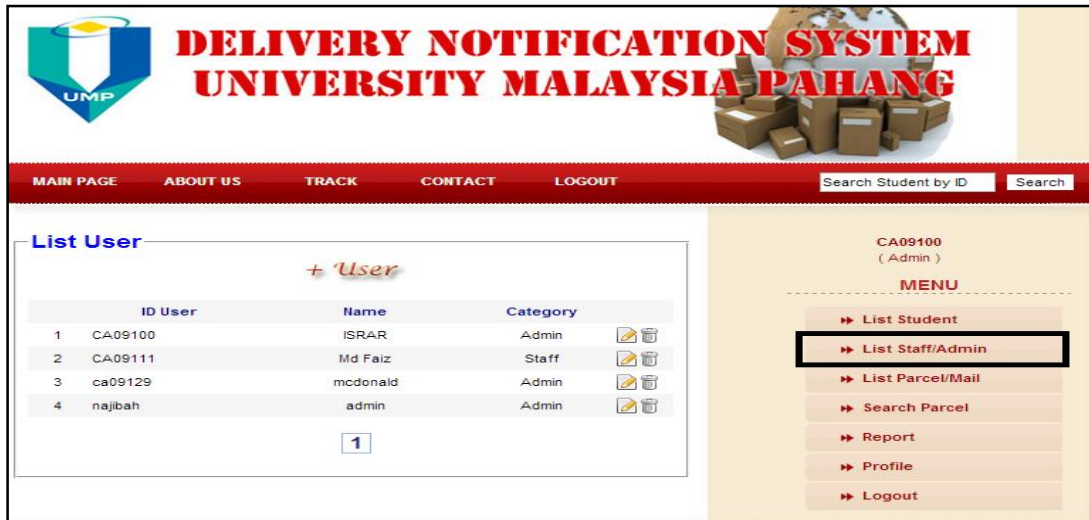


Figure 27: List staff and admin

Figure 27 shows the list of the user (admin/staff) of the system. In this page, only admin can view, add new user, update and delete the user.

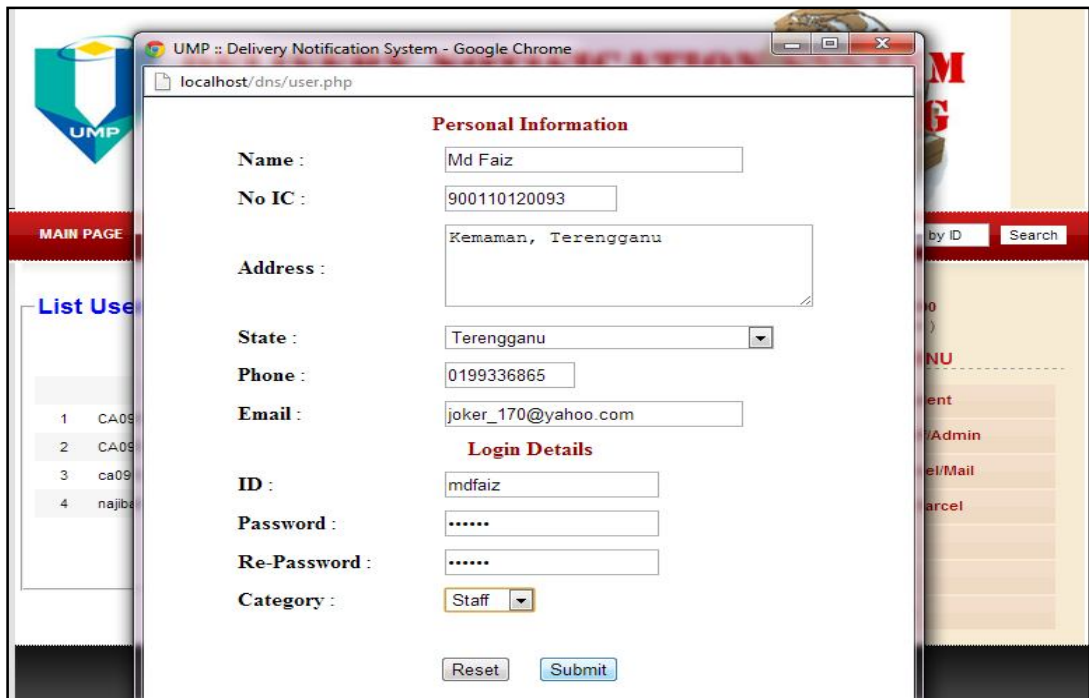


Figure 28: Add new user form

The above figure displays the form for admin to add new user. The requirements will be key in and save to the system database.



Figure 29: List staff and admin successfully added

The figure above shows new staff is successfully added by the admin. Admin can view the user's detail such as user's Id, name and category at the list user page. The admin are also able to update the user's details and delete the user.

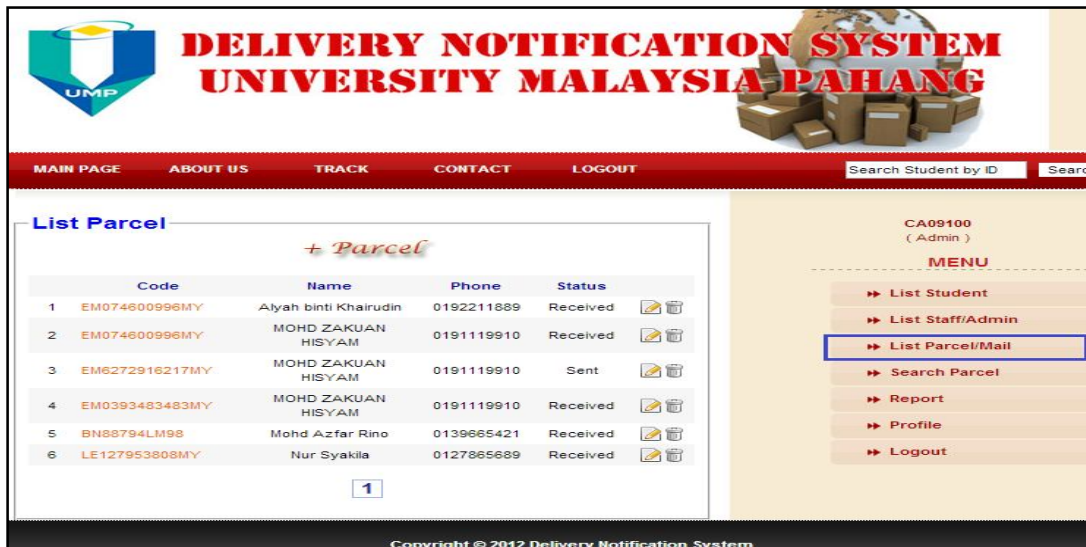


Figure 30: List Parcel/Mail Page

Figure 30 shows the list parcel/mail page. In this page all incoming parcel and mail will be recorded to the system. Once the parcel arrived to KK1 office, the admin/staff are responsible to add the parcel by clicking '+Parcel' then insert the parcel's code before notify to the students.

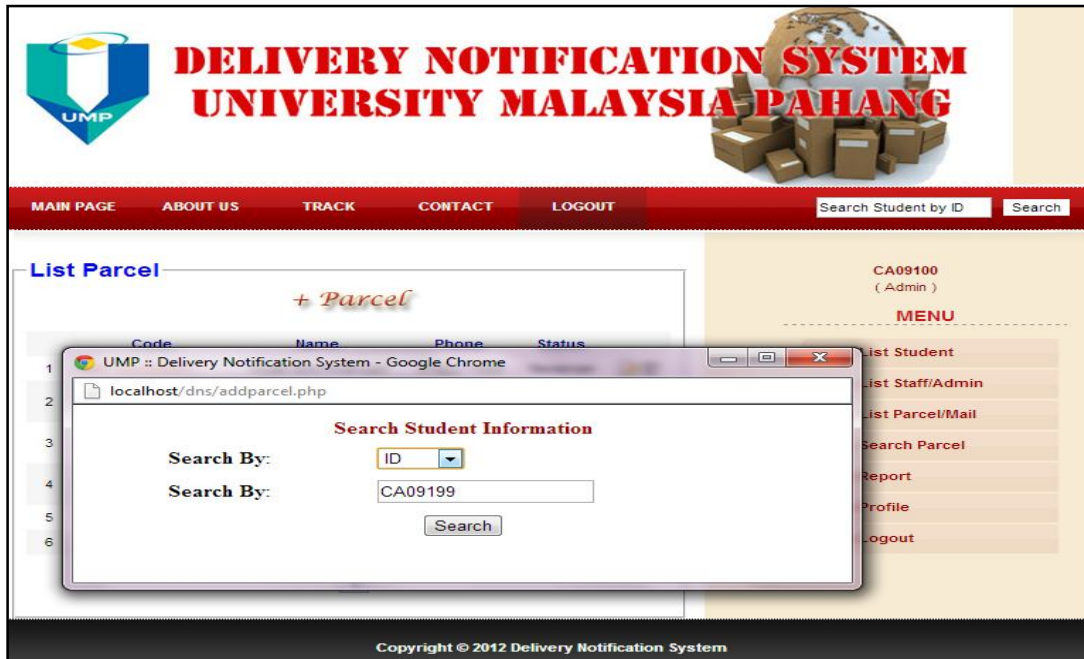


Figure 31: Search student by ID

The above figure shows the student should be search first in the system before add new parcel. The student can be searched by their name or ID. Figure 31 display the form of searching the student by using ID. After the student's ID is inserted, button search is clicked.

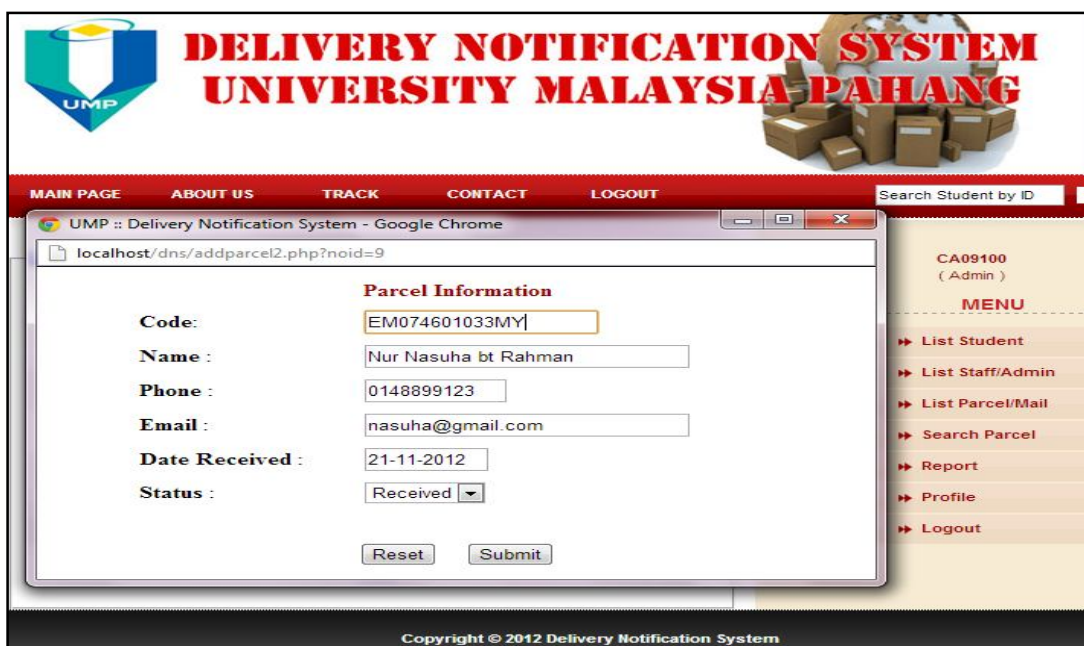


Figure 32: The parcel information form

After the student is found by searching using ID, the admin/staff are required to use the barcode scanner to read the barcode on the parcel then transmit the code to the system. Now, the notification will be sent automatically to the student's email.

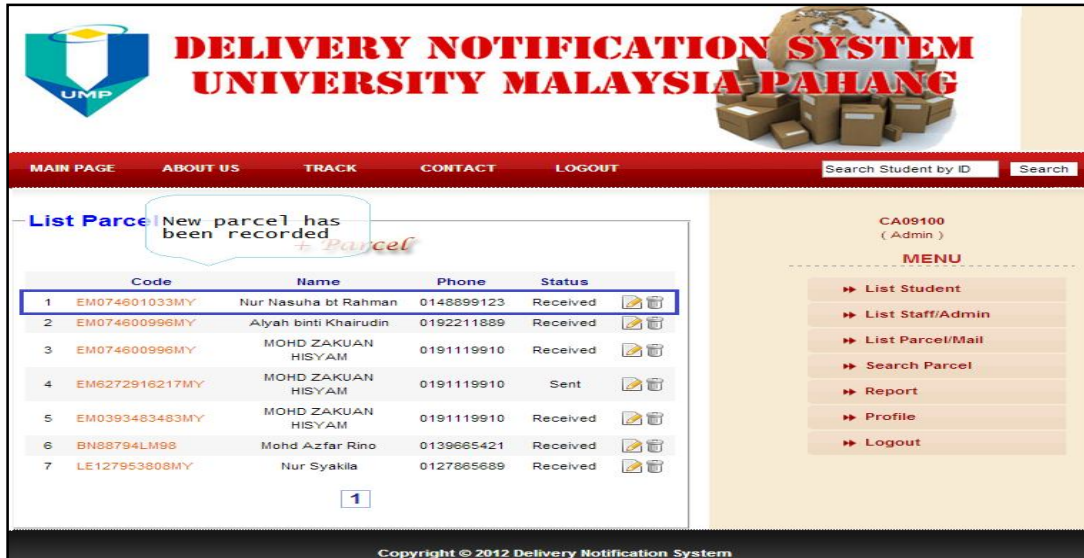


Figure 33: The parcel information display

Figure above shows the new parcel that has been recorded displayed at the list parcel page. The admin and staff can view, update and delete the parcel information.

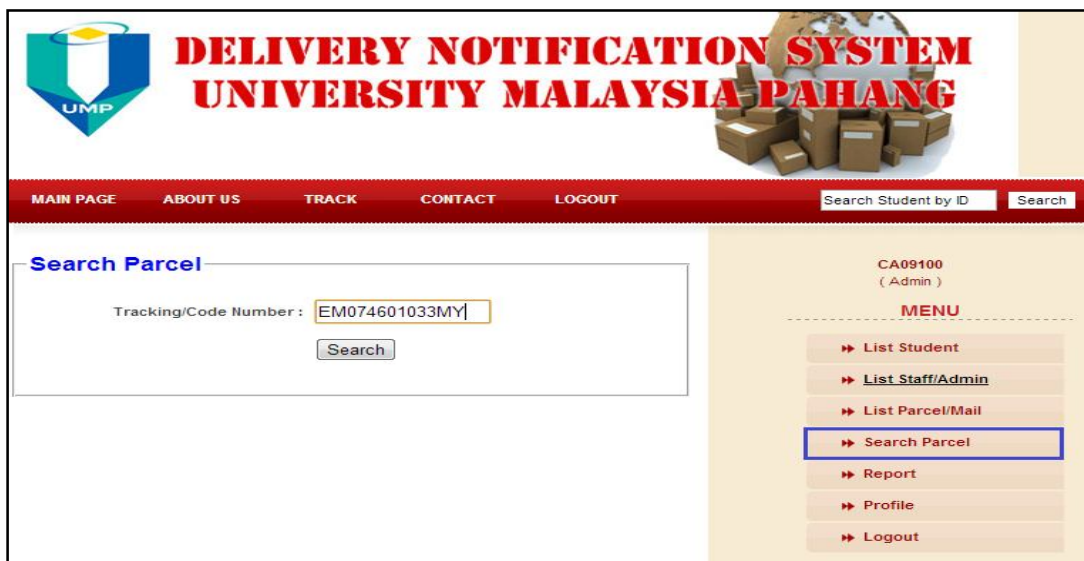


Figure 34: The search parcel page

The above figure shows the search parcel page. The admin/staff can use the barcode scanner to read the tracking number on the parcel or type the parcel's code on the text box provided to search the student who owned the parcel. This search function is useful if the student do not claim their parcel for a long time as the admin/staff can re-send the email notification to the student.

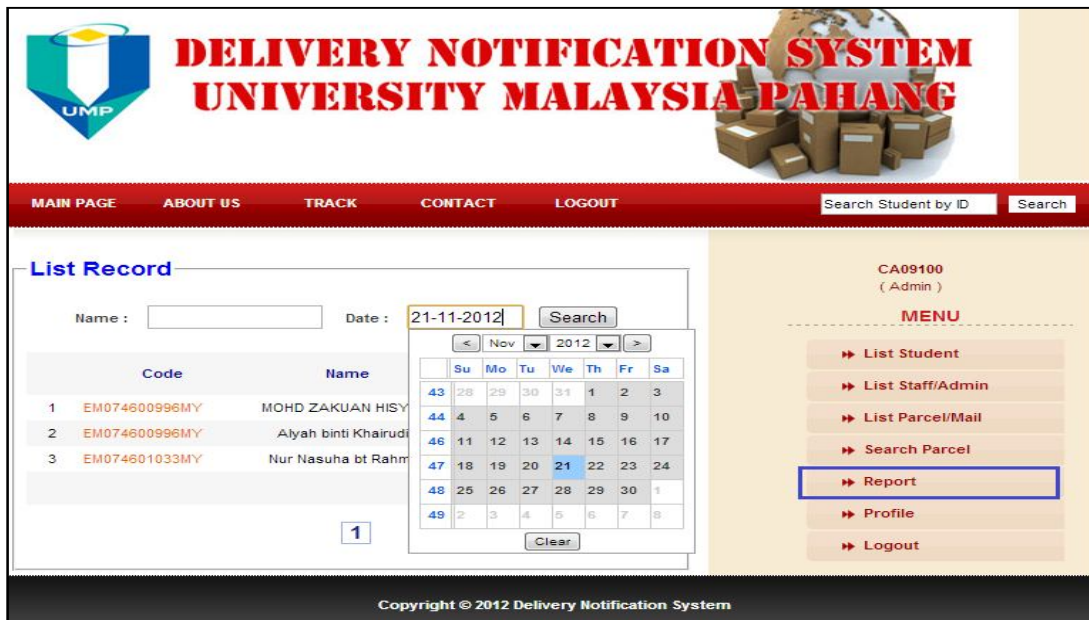


Figure 35: The report page

Figure 35 shows the report page of DNS. By improving the present system, this report does not require the admin/staff to record again the parcel for print out purposes. By choosing the date, the admin/staff can view the report of the parcel and print out the daily report for the student's reference purpose.

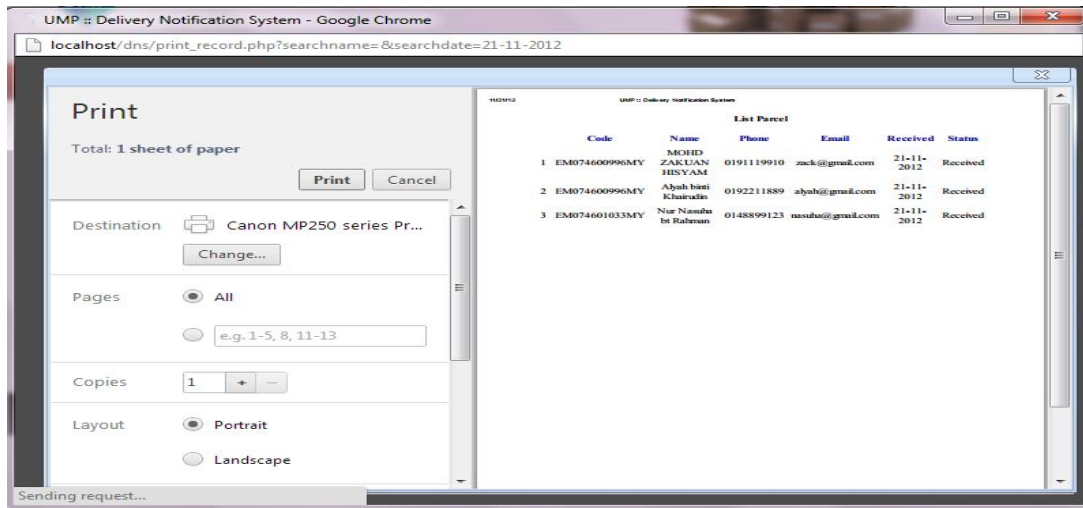


Figure 36: The parcel's daily report

In this figure, the daily report is printed out by the admin/staff for the students' reference.

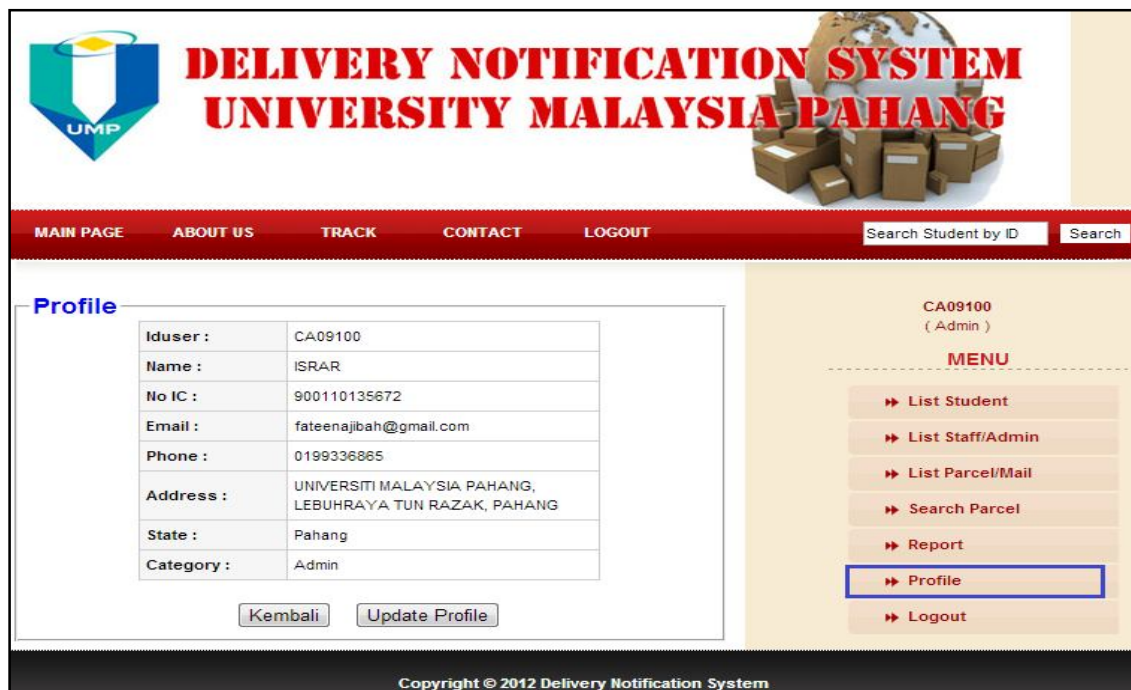


Figure 37: The profile page

The figure above displays the profile page of the user. The user (admin/staff) can view and update their own profile's details include name, IC, address, state, phone, email and password for login.

## 4.2 Programming Structure (Coding)

By using PHP, the codes below show how the sending notifications to email and barcode are functioning.

### 4.2.1 Sending E-mail

```
$mail->SetFrom('pejabatkk1@gmail.com', 'Admin DNS');
$mail->AddReplyTo("pejabatkk1@gmail.com", "Admin DNS");

$address = $dParcel['email'];
$mail->AddAddress($address, $dParcel['name']);

$mail->Subject = "Parcel received";

$body = "<table width='80%' border='0' align='center' cellpadding='0' cellspacing='2' bordercolor='#3399FF' bgcolor='#FFFFFF'
style='color:#000000'>

    <!--<tr>
        <td class='maincbbg'>
            <table width='97%' border='0' align='center' cellpadding='3' cellspacing='0'-->
    <tr>
        <td align='center'><p><b>Good day, your parcel/mail is already at KK1 office. Kindly collect it during office hour. Here your
parcel information. Thank you.</b>

```

```
<br />
<TABLE border='0' cellSpacing='0' cellPadding='3' width='75%'>
  <TR>
    <TD width='21%' align='left'><b>Code :</b></TD>
    <TD width='69%' align='left'>". $dParcel['codeparcel']. "</TD>
  </TR>
  <TR>
    <TD align='left'><b>Name :</b></TD>
    <TD align='left'>". $dParcel['name']. "</TD>
  </TR>
  <TR>
    <TD align='left'><b>Phone :</b></TD>
    <TD align='left'>". $dParcel['phone']. "</TD>
  </TR>
  <TR>
    <TD width='21%' align='left'><b>Email :</b></TD>
    <TD width='69%' align='left'>". $dParcel['email']. "</TD>
  </TR>
  <TR>
    <TD align='left'><b>Date Received :</b></TD>
    <TD align='left'>". $dParcel['datereceived']. "</TD>
  </TR>
  <TR>
    <TD align='left'><b>Status :</b></TD>
    <TD align='left'>". $dParcel['statusparcel']. "</TD>
  </TR>
</TABLE>
</td>

```



```

</tr>
</table>";

$body= eregi_replace("[\]",'', $body);

$mail->AltBody    = "To view the message, please use an HTML compatible email viewer!"; // optional, comment out and test
$mail->MsgHTML($body);

//utk attach file
//$mail->AddAttachment("images/phpmailer.gif");      // attachment
//$mail->AddAttachment("images/phpmailer_mini.gif"); // attachment

if(!$mail->Send()) {
    echo "Mailer Error: " . $mail->ErrorInfo;
} else {
    echo "Message sent!";
}
?>

```

### 4.2.1 Barcode coding

```

mysql_query("INSERT INTO parcel (idparcel , codeparcel, name, phone, email, datereceived, statusparcel) VALUES ('', '$codeparcel',
'$name', '$phone', '$email', '$datereceived', '$statusparcel')");

    $idparcel=mysql_insert_id();
$idParcel= mysql_fetch_assoc(mysql_query("SELECT * FROM parcel WHERE idparcel ='".$idparcel.""));

    include_once "sendemail.php";

    $str_msg = 'Parcel information has been added';
    echo "<SCRIPT language=JavaScript type=text/javascript>
    alert('".addslashes($str_msg)."');
    window.opener.document.location.reload(); self.close();</script>";

```

### 4.3 Testing

Testing is the part after the development is done. Every function in the system will be tested and recorded. If there are errors in the system implementation, the corrections will be done to avoid the problems faced in the future.

The testing of the Delivery Notification System (DNS) run smoothly with the Kolej Kediaman Staff, Miss Noraini bt Hamzah on 22nd November 2012. The staff satisfied with the system developed as it improved the existing mailing system in UMP. She tested the system's functions one by one and did not questioned much. In conclusion, the testing is succeed and fulfill the user's requirements.

### 4.3.1 Test Case

#### PSM TITLE: DELIVERY NOTIFICATION SYSTEM USING WEB-BASED

**Table 4: Test Case (Admin)**

<b>No.</b>	1
<b>Test Case</b>	Login as Admin
<b>Description</b>	Test the Login button with valid user name and password.  <u>Prerequisite:</u> <ol style="list-style-type: none"><li>Admin ID and password must be in database.<ul style="list-style-type: none"><li>Login ID : CA09100</li><li>Password: ca09100</li><li>Category: Admin</li></ul></li></ol>
<b>Test Steps</b>	<ol style="list-style-type: none"><li>Enter valid user ID, Password, and select the Admin category.</li><li>Click login button.</li></ol>
<b>Expected Results</b>	<ol style="list-style-type: none"><li>Admin can login into menu page successfully.</li><li>The main menu page should be displayed.</li></ol>
<b>Result: (Pass✓ /Fail ✗)</b>	<b>Pass</b> , 22 November 2012, 10.00am

<b>No.</b>	2
<b>Test Case</b>	Menu Page
<b>Description</b>	<ol style="list-style-type: none"><li>Test all the buttons in menu page.</li></ol> <u>Prerequisite:</u> <ol style="list-style-type: none"><li>All the buttons must be code and function.</li></ol>
<b>Test Steps</b>	<ol style="list-style-type: none"><li>Click the entire button one by one.</li></ol>

<b>Expected Results</b>	<ol style="list-style-type: none"> <li>1. The menu page should be displayed.</li> <li>2. After admin clicked List Student button, the following page should be displayed.</li> <li>3. After admin clicked List User/Admin button, the following page should be displayed.</li> <li>4. After admin clicked List Parcel/Mail button, the following page should be displayed.</li> <li>5. After admin clicked Search Parcel button, the following page should be displayed.</li> <li>6. After admin clicked Report button, the following page should be displayed.</li> <li>7. After admin clicked Profile button, the following page should be displayed.</li> <li>8. After admin clicked Logout button, the following page should be displayed.</li> </ol>
<b>Result: (Passv /Fail ×)</b>	<b>Pass</b> , 22 November 2012, 10.08am

<b>No.</b>	3
<b>Test Case</b>	List Student Page
<b>Description</b>	<ol style="list-style-type: none"> <li>1. Test add new student</li> <li>2. Test update student's profile</li> <li>3. Test delete student</li> </ol> <p><u>Prerequisite:</u></p> <ol style="list-style-type: none"> <li>1. Student's details must be available in database</li> </ol>
<b>Test Steps</b>	<ol style="list-style-type: none"> <li>1. Click the +Student in the list student table</li> <li>2. Insert all student's details and submit</li> <li>3. Click the update button at the student's list name</li> <li>4. Click delete button at the student's list name</li> </ol>

<b>Expected Results</b>	<ol style="list-style-type: none"> <li>1. The new student will be added</li> <li>2. All student's details should be updated</li> <li>3. Students can be deleted</li> </ol>
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.16am

<b>No.</b>	4
<b>Test Case</b>	List Staff/Admin Page
<b>Description</b>	<ol style="list-style-type: none"> <li>1. Test add new user</li> <li>2. Test update user's profile</li> <li>3. Test delete user</li> </ol> <p><u>Prerequisite:</u></p> <ol style="list-style-type: none"> <li>1. User's details must be available in database.</li> </ol>
<b>Test Steps</b>	<ol style="list-style-type: none"> <li>1. Click the +User in the list student table</li> <li>2. Insert all user's details and submit</li> <li>3. Click the update button at the user's list name</li> <li>4. Click delete button at the user's list name</li> </ol>
<b>Expected Results</b>	<ol style="list-style-type: none"> <li>1. The new user will be added</li> <li>2. All user's details should be updated</li> <li>3. User can be deleted</li> </ol>
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.20am

<b>No.</b>	5
<b>Test Case</b>	List Parcel/Mail Page
<b>Description</b>	<ol style="list-style-type: none"> <li>1. Test add new parcel</li> <li>2. Test search student by ID or</li> </ol>

	<ol style="list-style-type: none"> <li>3. Test search student by name</li> <li>4. Test submit notification via student's e-mail</li> <li>5. Test the parcel info can be displayed</li> <li>6. Test update parcel</li> <li>7. Test delete parcel</li> </ol> <p><u>Prerequisite:</u></p> <ol style="list-style-type: none"> <li>1. Student's details must available in the database Student's ID: CA09199 Student's name: Nur Nasuha bt Rahman</li> </ol>
<b>Test Steps</b>	<ol style="list-style-type: none"> <li>1. Click +Parcel at the List Parcel page</li> <li>2. Choose to search the student by ID then enter valid ID or</li> <li>3. Choose to search the student by name then enter valid name</li> <li>4. Insert the parcel's tracking number by using barcode scanner</li> <li>5. Click on the parcel code at the code column of the page</li> <li>6. Click update button at the parcel's list</li> <li>7. Click delete button at the parcel's list</li> </ol>
<b>Expected Results</b>	<ol style="list-style-type: none"> <li>1. Function of add parcel button is well functioned and the following page is displayed</li> <li>2. The student's profile is found if search using ID</li> <li>3. The student's profile is found if search using name</li> <li>4. The notification should be sent to the student's email</li> <li>5. The information of the parcel should be displayed</li> <li>6. The parcel can be updated</li> <li>7. The parcel list can be deleted</li> </ol>

<b>Result :(Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.30am

<b>No.</b>	6
<b>Test Case</b>	Search Parcel Page
<b>Description</b>	<p>1. Test the parcel can be found in the system</p> <p><u>Prerequisite:</u></p> <p>1. Student's parcel must be available in database</p>
<b>Test Steps</b>	1. Insert parcel's code
<b>Expected Results</b>	1. The parcel information is found in the system
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.02am

<b>No.</b>	7
<b>Test Case</b>	Report Page
<b>Description</b>	<p>1. Test the report of the parcel/mail according by date</p> <p>2. Test print the report by date</p> <p>3. Test display the parcel information</p> <p><u>Prerequisite:</u></p> <p>1. The parcel's information must be available in database Date: 21-10-2012</p>
<b>Test Steps</b>	<p>1. Choose the date of the parcel's record</p> <p>2. Click the print button at the bottom of the page</p> <p>3. Click the parcel's code at the code column of the page</p>
<b>Expected Results</b>	1. The parcel's report should be printed according to

	<p>selected date.</p> <p>2. The parcel information can be displayed</p>
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.35am

<b>No.</b>	8
<b>Test Case</b>	Profile Page
<b>Description</b>	<p>1. Test update profile</p> <p>2. Test reset profile</p> <p><u>Prerequisite:</u></p> <p>1. The user's information must be available in database</p>
<b>Test Steps</b>	<p>1. Click update profile button</p> <p>2. Insert new information then click update</p> <p>3. Replace the information with other information</p>
<b>Expected Results</b>	<p>1. The page should be displayed update profile page</p> <p>2. The profile should be updated</p> <p>3. The profile should be reset</p>
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.37am

<b>No.</b>	9
<b>Test Case</b>	Logout Page
<b>Description</b>	1. Test the function of logout
<b>Test Steps</b>	1. Click the logout button on the menu bar
<b>Expected Results</b>	1. The page will be returning at the homepage where

	login ID and password is necessary to login back.
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.39am

**Table 5: Test Case (Staff)**

<b>No.</b>	1
<b>Test Case</b>	Login as Staff
<b>Description</b>	<p>1. Test the Login button with valid user name and password</p> <p><u>Prerequisite:</u></p> <p>1. Staff ID and password must be in database.</p> <ul style="list-style-type: none"> <li>• Login ID : ca09111</li> <li>• Password: faiz</li> <li>• Category: Staff</li> </ul>
<b>Test Steps</b>	<p>1. Enter valid user ID, Password, and select the Staff category.</p> <p>2. Click login button.</p>
<b>Expected Results</b>	<p>1. Staff can login into menu page successfully.</p> <p>2. The main menu page should be displayed.</p>
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.42am

<b>No.</b>	2
<b>Test Case</b>	Menu Page
<b>Description</b>	Test all the buttons in menu page.



	<u>Prerequisite:</u> 1. All the buttons must be code and function
<b>Test Steps</b>	Click the entire button one by one.
<b>Expected Results</b>	1. The menu page should be displayed. 2. After admin clicked List Student button, the following page should be displayed. 3. After admin clicked List Parcel/Mail button, the following page should be displayed. 4. After admin clicked Search Parcel button, the following page should be displayed. 5. After admin clicked Report button, the following page should be displayed. 6. After admin clicked Profile button, the following page should be displayed. 7. After admin clicked Logout button, the following page should be displayed.
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.46am

<b>No.</b>	3
<b>Test Case</b>	List Student Page
<b>Description</b>	1. Test add new student 2. Test update student's profile 3. Test delete student  <u>Prerequisite:</u> 1. Student's details must be available in database

<b>Test Steps</b>	<ol style="list-style-type: none"> <li>1. Click the +Student in the list student table</li> <li>2. Insert all student's details and submit</li> <li>3. Click the update button at the student's list name</li> <li>4. Click delete button at the student's list name</li> </ol>
<b>Expected Results</b>	<ol style="list-style-type: none"> <li>1. The new student will be added</li> <li>2. All student's details should be updated</li> <li>3. Students can be deleted</li> </ol>
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.50am

<b>No.</b>	4
<b>Test Case</b>	List Parcel/Mail Page
<b>Description</b>	<ol style="list-style-type: none"> <li>1. Test add new parcel</li> <li>2. Test search student by ID or</li> <li>3. Test search student by name</li> <li>4. Test submit notification via student's e-mail</li> <li>5. Test the parcel info can be displayed</li> <li>6. Test update parcel</li> <li>7. Test delete parcel</li> </ol> <p><u>Prerequisite:</u></p> <ol style="list-style-type: none"> <li>1. Student's details must available in the database Student's ID: CA09101 Student's name: MOHD ZAKUAN HISYAM</li> </ol>
<b>Test Steps</b>	<ol style="list-style-type: none"> <li>1. Click +Parcel at the List Parcel page</li> <li>2. Choose to search the student by ID then enter valid ID or</li> <li>3. Choose to search the student by name then enter valid</li> </ol>

	<p>name</p> <ol style="list-style-type: none"> <li>4. Insert the parcel's tracking number by using barcode scanner</li> <li>5. Click on the parcel code at the code column of the page</li> <li>6. Click update button at the parcel's list</li> <li>7. Click delete button at the parcel's list</li> </ol>
<b>Expected Results</b>	<ol style="list-style-type: none"> <li>1. Function of add parcel button is well functioned and the following page is displayed</li> <li>2. The student's profile is found if search using ID</li> <li>3. The student's profile is found if search using name</li> <li>4. The notification should be sent to the student's email</li> <li>5. The information of the parcel should be displayed</li> <li>6. The parcel can be updated</li> <li>7. The parcel list can be deleted</li> </ol>
<b>Result :(Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.55am

<b>No.</b>	5
<b>Test Case</b>	Search Parcel Page
<b>Description</b>	<ol style="list-style-type: none"> <li>1. Test the parcel can be found in the system</li> </ol> <p><u>Prerequisite:</u></p> <ol style="list-style-type: none"> <li>1. Student's parcel must be available in database</li> </ol>
<b>Test Steps</b>	<ol style="list-style-type: none"> <li>1. Insert parcel's code</li> </ol>
<b>Expected Results</b>	<ol style="list-style-type: none"> <li>1. The parcel information is found in the system</li> </ol>
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.57am

<b>No.</b>	6
<b>Test Case</b>	Report Page
<b>Description</b>	<ol style="list-style-type: none"> <li>1. Test the report of the parcel/mail according by date</li> <li>2. Test print the report by date</li> <li>3. Test display the parcel information</li> </ol> <p><u>Prerequisite:</u></p> <ol style="list-style-type: none"> <li>1. The parcel's information must be available in database Date: 21-10-2012</li> </ol>
<b>Test Steps</b>	<ol style="list-style-type: none"> <li>1. Choose the date of the parcel's record</li> <li>2. Click the print button at the bottom of the page</li> <li>3. Click the parcel's code at the code column of the page</li> </ol>
<b>Expected Results</b>	<ol style="list-style-type: none"> <li>1. The parcel's report should be printed according to selected date.</li> <li>2. The parcel information can be displayed</li> </ol>
<b>Result: (Passv /Fail x)</b>	Pass, 22 November 2012, 10.59am

<b>No.</b>	7
<b>Test Case</b>	Profile Page
<b>Description</b>	<ol style="list-style-type: none"> <li>1. Test update profile</li> <li>2. Test reset profile</li> </ol> <p><u>Prerequisite:</u></p> <ol style="list-style-type: none"> <li>1. The user's information must be available in database</li> </ol>
<b>Test Steps</b>	<ol style="list-style-type: none"> <li>1. Click update profile button</li> </ol>

	<ol style="list-style-type: none"> <li>2. Insert new information then click update</li> <li>3. Replace the information with other information</li> </ol>
<b>Expected Results</b>	<ol style="list-style-type: none"> <li>1. The page should be displayed update profile page</li> <li>2. The profile should be updated</li> <li>3. The profile should be reset</li> </ol>
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 11.00am

<b>No.</b>	8
<b>Test Case</b>	Logout Page
<b>Description</b>	<ol style="list-style-type: none"> <li>1. Test the function of logout</li> </ol>
<b>Test Steps</b>	<ol style="list-style-type: none"> <li>1. Click the logout button on the menu bar</li> </ol>
<b>Expected Results</b>	<ol style="list-style-type: none"> <li>1. The page will be returning at the homepage where login ID and password is necessary to login back</li> </ol>
<b>Result: (Passv /Fail x)</b>	<b>Pass</b> , 22 November 2012, 10.02am

**Table 6: Test Case (Student)**

<b>No.</b>	1
<b>Test Case</b>	Tracking Parcel page
<b>Description</b>	<ol style="list-style-type: none"> <li>1. Test the parcel tracking</li> </ol>
<b>Test Steps</b>	<ol style="list-style-type: none"> <li>1. Click Track button at the home page</li> <li>2. Insert parcel's tracking number and click the Track button</li> </ol>
<b>Expected Results</b>	<ol style="list-style-type: none"> <li>1. If the tracking number is in the database, then the</li> </ol>

	parcel is already arrived 2. If the tracking number is not in the database, the result is 'record not found'
<b>Result: (Passv /Fail x)</b>	<b>Pass, 22 November 2012, 11.06am</b>

# **CHAPTER V**

## **RESULT AND DISCUSSION**

### **5.0 Introduction**

In this chapter, the result, constraints, critical analysis comparisons and future works will be discussed. Since the DNS is successfully tested by the end user, the result of the system is clearly achieved the system's objectives. The system constraints are the limitations during the system development and future works explains how the system could be enhanced in the future.

### **5.1 Analysis Result**

After analyzing the results, the system objectives are achieved. Refer back from chapter 1, the system objectives are;-

- 3) To built a delivery notification system to KK1 via students' e-mail.
- 4) To replace and improve the current mailing system in KK1.

The notification system is successfully done when the system is tested to notify the new coming parcel and letter by student's e-mail. Now, the students does not have to come to the KK1 office to collect their incoming parcel/letter. The problem of time wasted for unnecarry checking for the parcel that has not arrived yet is solved.

Besides that, the staff in KK1 can improve their mailing system by terminating the use of log book and the manually record the parcel's information for student's reference purposes. It is because this system is automatically record the parcel's information according to the student's information as well and print out the parcel daily report just by selecting the date. Therefore, the problem of time wasting for record the parcel information is solve as well as the mailing system can be improved.

## **5.2 Constraints**

There are few constraints during the implementation of this system from the beginning until the system is done. The constraints include the time management, limitation of knowlegde in programming and the device that being used in this system.

### **5.2.1 Programming languange constraint**

As a networking students, it is a big attempt for doing a software system especially when it include the web. The thechnique that being used to implement this system is not in our syllibus therefore, self-study of the programming technique is need to be done. All guides and the knowledges of PHP and MySQL are studied by internet, journal, articles, forum and asking some friends and lecturers. It is surely that there was a lot of errors during the testing session and therefore, seeking for the coding problems and ways to improve them require a lot of efforts.

### **5.2.2 Device constraint**

In this system, barcode scanner is the device that being used to improve the existing mailing system as well as to increase the security level of the system. The barcode scanner that available at the computer's lab is limited and the student who wants to use it for their project needs to return the barcode on certain time. It is quite difficult to



test the system if the device is only can be borrowed for a certain time only. Therefore, by buying my own barcode scanner, it can solve the problem eventhough the cost of the device is quite high for a student level.

### 5.3 Comparison of Critical Analysis DNS with Existing Mailing System

The comparison of critical analysis of DNS is compared with KK1 current mailing system and E-Parcel Management System using GSM, two of the systems implemented for mailing purposes.

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

The critical analysis comparison of DNS and KK1 current mailing system are :-

- i) The system in KK1 nowadays does not provide a notification system for the students. The students need to go to the KK1 office to check whether their parcel has arrived or not. Compared to DNS, it automatically sent the notification by using e-mail before picking up their parcels.
- ii) KK1 system records the parcel's daily report by key in the information manually such as the parcel's tracking number, student name and phone number whereas DNS uses barcode scanner to read the tracking number at the parcel. It also provides more user-friendly function and interface to ease the staff to print out the daily report.

The critical analysis comparison of DNS and E-Parcel Management System using GSM are :-

- i) The system of E-Parcel Management is developed to avoid the parcel of being lose during the delivery session at the university. Therefore, barcode is being used to solve this problem as the each of the barcode that tagged to the parcel contains the details of the receipient and the staff will get the notification of the location of the parcel. Similar with DNS, the technology of barcode is also being applied. On the other hand, DNS applied it with different usage of providing the notifications service. The barcode in DNS will scan the code on the parcel and automatically send the notification via the student's e-mails.
- ii) In the aspect of the system's interface, E-Parcel Management System using GSM is using Visual Basic as the interface creator. Visual Basic is a stand alone application and does not come with variant interfaces while DNS can be designed in more user-friendly and interesting interfaces.

## **5.4 Future Enhancement**

Firstly, in the future, DNS can be enhanced by using other device in the purpose of notification such as mobile phone. Therefore, the students does not need to get through their email to see the notification. Secondly, the scopes of user of this system should be expanded to replace traditional mailing system in other residence colleges in UMP, other universities or colleges. Thirdly, building mailing application for smartphones so that student can track their parcel and get notified everywhere in internet access places. Lastly, a well maintenance should be most considered to ensure the system can be used in a long period of time in the future with less of problems.

## **CHAPTER VI**

### **CONCLUSION**

As a conclusion, chapter 1 to chapter 5 compiled the whole documentation of the development of Delivery Notification System (DNS). From the beginning, the idea of this project is coming out when the student in UMP always facing the problem of noticing their parcel and mails to UMP. Therefore, this system is developed as to notify the students their incoming parcels and mails as well as to help the management of the staff in the Kolej Kediaman 1. This proposed system is studied and all the information that related is gathered and synthesized to make a good literature review in chapter 2. By using web based technique, this system has specified its networking value as it can be used if the internet connections are available. It is because the notifications of the parcels will be generated via e-mail. Besides that, the technology of barcode is applied into this system as every parcel has its own unique code and it is much easier to manage the mailing system by using the barcode scanner.

Most importantly, a precise plan in order to develop a system is very necessary in order to produce a quality system. A user-friendly interface, moderate cost, well-functioned system and fulfill the user's requirements are the aspects that should be considered to yield a quality and valuable system. Although there are some constraints in building this system, in the contrary, it is worth when the system runs smoothly when it tested by the end user. 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.

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# APPENDICES

## Turnitin

The screenshot displays the Turnitin interface for a submission titled "psm draft" by "FATIN NAJIBAH RADUAN". The similarity score is 11% (OUT OF 8). The document content is as follows:

**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

**Match Overview**

Match Number	Source	Similarity
1	Submitted to Universit... Student paper	5%
2	Zhe Lou. "NFC Enabled" Publication	2%
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