

**Internship Programme Online System using SMS
(IPOS SMS SYSTEM)**

by

Nurhayu Binti Rusdi

Dissertation submitted in partial fulfilment of
the requirements for the
Bachelor of Technology (Hons)
(Business Information System)

MAY 2012

Universiti Teknologi PETRONAS
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CERTIFICATION OF APPROVAL

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A project dissertation submitted to the
Computer and Information Science Programme
Universiti Teknologi PETRONAS
in partial fulfilment of the requirements for the
BACHELOR OF TECHNOLOGY (Hons)
(BUSINESS INFORMATION SYSTEM)

Approved by,

(Ms Penny Goh Kim Nee)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

MAY 2012

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

NURHAYU BINTI RUSDI

ABSTRACT

Internship Programme has been introduced as part of the curriculum for most of higher learning institutions worldwide. Its main purpose is to expose students to a real working environment and relate theoretical knowledge with applications in the industries. The purpose of this project is to develop a portal for PETRONAS Internship Programme. Internship Programme Online System Using Short Message Service Technology (IPOS SMS System) has been developed to automate the currently manual business processes. This portal is act as a one stop centre for students, trainee and administrator. By login to this website, it allows online internship application, internship bulletin, forms downloading, resume checker and result notification via short message service system. It is a web-based internship application system which allows data centralization. In order to achieve this objective, the author will do a lot of research in order to have a deep understanding about online internship application, resume checker, notification via short message service and how to design and develop a website. The methodology used for designing and developing this website is Rapid Application Development (RAD) which consists of four core phases which are planning, analysis, design and development and implementation. Apart from that, the author also included the results and findings from the survey carried out. The website interface designs are also included based on the comparison of existing website and user feedback. Last but not least the author concludes with few recommendations in developing this website.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Education and Sponsorship Unit (ESU) is in charge of industrial application of internship of PETRONAS. As mentioned above, ESU handles lots of database regarding the internship applications from students. Currently, the system is working manually. It is a manual and time consuming process for administrator to updates the status of the applications and to view the data. Manual internship application process from students require staff to key-in the students particular and contact details in to the excel spread sheet. This poses problems such as data error due to human error as well as too time consuming,

As an alternative to overcome the problem, the author had come out with the proposal of Internship Programme Online System Using Short Message System (SMS) Technology (IPOS SMS). This system will replace the manual existing system. This new system is specifically being developed for the administrator which consists of unit's personnel from departments, application students and intern students. By implementing this system, student will be able to apply the internship application online. The data about candidates will automatically save in the database, thus reduce the time taken to update the applicant's details. The message notification of approval will be send to the student via short message services (SMS).

1.2 PROBLEM STATEMENT

Currently, the system is works manually. However, number of problems and pitfalls has been increasingly arising and causing some deficiencies in the system. Some of the problems in the current manual system are:

- i. Manual and time consuming process of updating the student's internship applications.
- ii. Loss of students' internship applications, resume and other important documents.
- iii. There are no efficient ways to notify the status of placement, post announcement.
- iv. There is a need of one stop center or portal for the intern students in PETRONAS.

1.3 OBJECTIVES

The objectives of this project are as follows:

- i. To revise the current internship application system in PETRONAS.
- ii. To study the problem arises from the current internship application system.
- iii. To develop an Internship application website that will act as one stop centre for the students, interns and administrator.

1.4 SCOPE OF STUDY

1.4.1 The Relevancy of the Project – Scope of Work

Scope of study for this project involves current research paper and book to develop a deep understanding about Internship applications, SMS notification, resume checker and what current issue related to IPOS SMS a precise and up to date website. It is crucial to identify functionalities and features of existing Internship Programme website in order to make its one of its kind. The fact-finding techniques such as observing potential users will be conducted to ensure what they want the website to be and to have.

The project does not focus entirely on the research are but also focuses on designing and developing IPOS SMS website. The development will operate under the project schedule and timeline with the aim to complete the project on time. IPOS SMS is will be develop as a website because it will be assessable. Much preferable language to develop IPOS SMS is by using PHP, HTML and XML. MySQL will be used as database storage medium. The author needs to study and get familiarize with above mechanism tools used in this project.

1.4.2 The Feasibility of the Project

- **Technical Feasibility**

The decision to develop IPOS SMS System is practical since the author is proficient of designing and developing a website. The author is familiar with PHP, HTML and XML language.

- **Operational Feasibility**

The proposed website is believed to be an internship programme website for PETRONAS where students can get all information about internship programme and at the same time can apply for internship placement. User need to sign up for a personal account that will give access to user to apply for internship placement.

- **Economic Feasibility**

This project is cost effective because all the process is computerized. User does not need to buy or install anything to access IPOS SMS System (IPOS SMS) since this website is free to be access anywhere under any situation as long as users have an internet connection. Author only use the Ozeki-NG SMS server.

- **Schedule Feasibility**

This project will be operating under the project timeline and schedule given to ensure the research will be completed during these 14 weeks. Due to this time limit, the author needs to do continuous research to ensure author get as much information as possible.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The project is about developing a website (Internship Programme Online System using SMS) that focuses to help ESU unit to automate currently manual business process. IPOS SMS will act as one stop centre for students, interns and administrator. IPOS SMS will become the medium for students outside PETRONAS, intern students in PERTONAS and administrator to apply for internship, download the forms and check for internship bulletin, to search the details of applicants. The author will do several researches and review in order to ensure IPOS SMS will be one of the new innovative internship application website in Malaysia.

2.2 Web Based System

According to Samsudin (2006), web based means an application that is accessed with a web browser over a network such as the Internet or an intranet. The web-based system is also called the 'automated' system. The web-based provides a far more efficiency in processing any task domain especially for a system that involves a lot of data collections and retrievals (Bimbo, 2008). According to Bimbo (2008), web-based systems should meet its users' requirements and expectations. Thus, web-based applications should be developed on-top of a carefully studied business process of the organization in which the system will be deployed. The research project will apply the similar strategy that is to create a web-based system built based on the current business process of STS unit. A web portal would be the most appropriate web-based system for STS unit. According to Salameh et.al (2011) there is an example of a web based system has been developed to ensure pregnant mothers be notified regarding their pregnancy progress by sending SMS message. The design and development of the system which is named Pregnancy Progress System (PregProSyst) are outlined.

2.3 Existing websites available for Internship Programme

There are many website that offer internship information and providing internship application for students, the author chooses three best website. They are

1. SHELL Internship Programme (<http://www.shell.com.my/>)

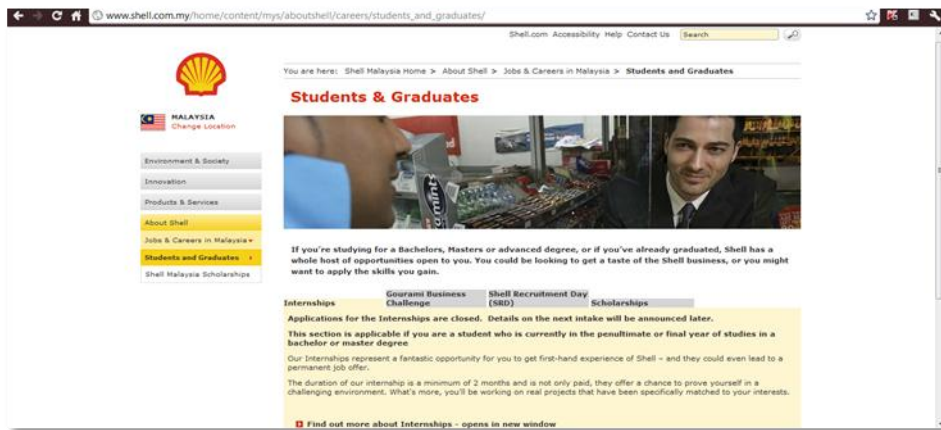


Figure 1: Homepage of SHELL Internship Programme

2. Price Waterhouse Cooper (PWC) Internship Programme (<http://www.applytopwc.com>)

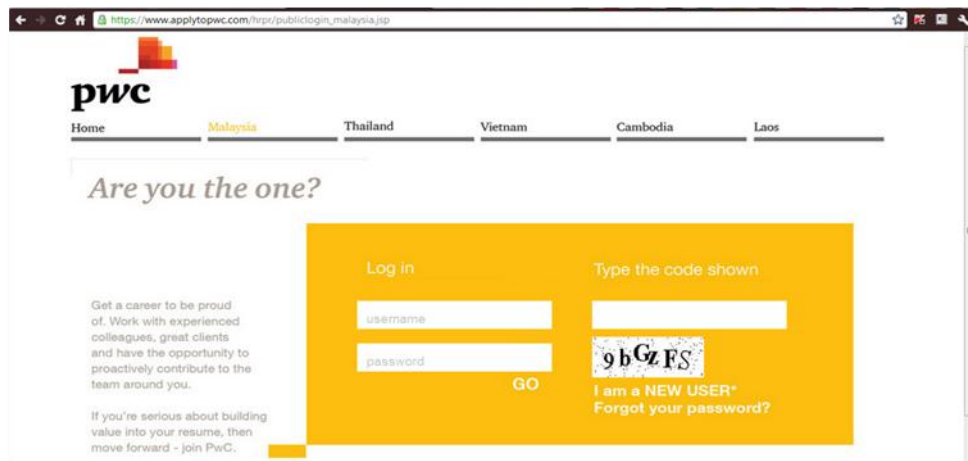


Figure 2: Homepage of Internship Programme in PWC

3 Otak-Otak Internship Programme (<http://www.otak2.com/apply>)

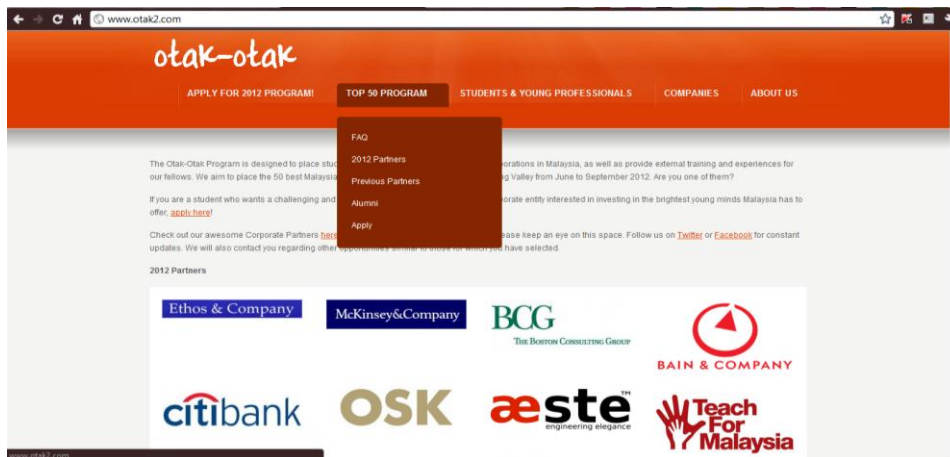


Figure 3: Homepage of Otak-otak Internship Programme

2.3.1 Design and content

Referring to SHELL website and Otak-otak website, they are using many wording. Apart from that, the paragraphs and texts are small which make a little bit harder to user to read the content especially for user with poor vision. Example simple and concise information will easiest to read PWC webpage design.

SHELL:

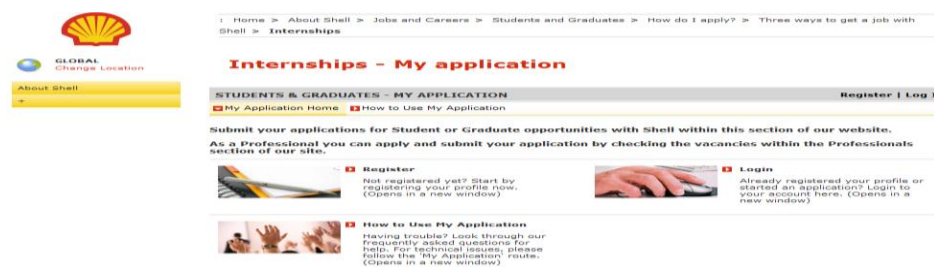


Figure 4: Screenshot of SHELL Internship Programme website

Otak-otak:

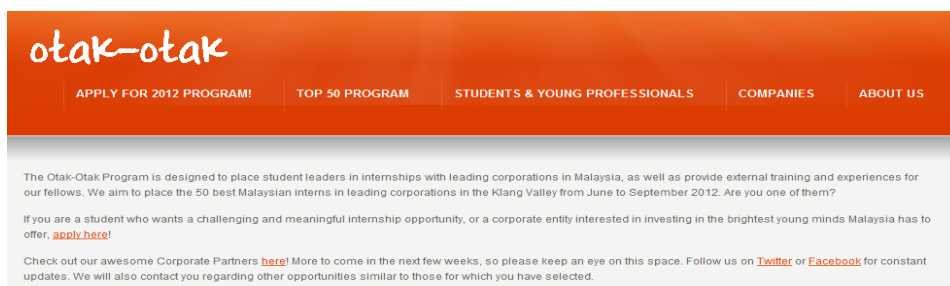


Figure 5: Screenshot of Otak-otak Internship Programme website

PWC:



Figure 6: Screenshot of PWC Internship Programme website

User that need to apply for internship application needs to register and enter the required data in the customize forms provide in the website. The login page is the most important for each user to apply and edit their application after submitted It takes time for user to enter data but it make easiest for the admin to catch the data updated automatically into the database once the user submit the application. For Otak-otak website, there is no login page and user just uploads the resume and enters a simple data in a simple form. The content of website should not be a simple because it is referring to the significant name of each company offered the internship programme. Thus, author realizes that the project conducted should not be a simple website because it will be referring to PETRONAS Internship Programme.

Otak-otak:

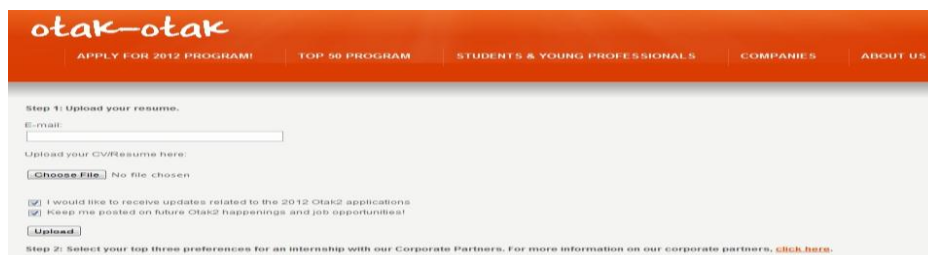


Figure 7: Screenshot of Otak-otak Internship Programme website

SHELL:

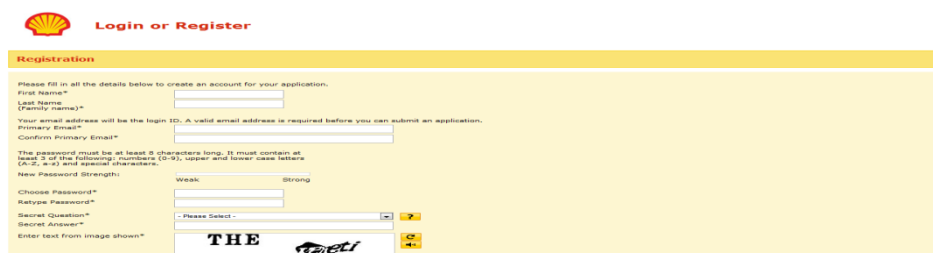


Figure 8: Screenshot of SHELL Internship Programme website

PWC:

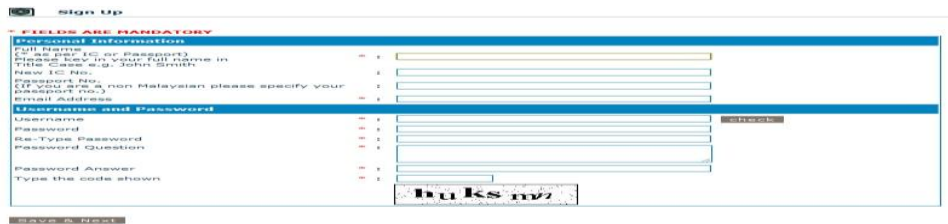


Figure 9: Screenshot of PWC Internship Programme website

According to Hammerich and Harrison (2002), credibility, clarity, conciseness and coherence of content in websites contribute to web ability to persuade a reader that has the right stuff. Credibility is the quality, capability or power to elicit belief is depend on the eye of the beholder. Clarity can be defined as ability to write and exit texts that are clear and easily readable by users. Example like keep paragraphs short and discuss only one topic per paragraph. Next is conciseness, concise means able to present topic in the most economical manner possible, be brief but tough. Last is contents of website must be coherence, by minimizing users cognitive work, all parts of text must be connect together in clear and logical ways.

| Content | SHELL Website | Otak-otak Website | PWC Website |
|-------------|---------------|-------------------|-------------|
| Credibility | Good | Average | Good |
| Clarity | Average | Good | Average |
| Conciseness | Good | Average | Good |
| Coherence | Good | Average | Good |

* Based on author view.

Table 1: Website content

2.3.2 Attractiveness of Website

Attractiveness of a websites refers to degree, to which a user believes that the websites is aesthetically pleasing to the eye, Hammerich and Harrison (2002). Basically website that contain graphic rather that only words will be more attractive to user. Both references websites that author choose, content less graphic that will make user feel bored when their

notification through short message service is compatible for the applicants since students nowadays use hand phone as their medium to communicate and receive information.

According to Stone and Briggs (2002) study showed that an experiment was undertaken at Kingston University (UK) to research the effectiveness of a two-way SMS campaign in the university environment. A system that sends SMS to students, registered to the service, about their schedule, changes in it, examinations dates and places, student's marks and etc had been developed. After registering, the students were divided into five groups. One group was receiving announcements via e-mail, other three groups via SMS and the last group is via web. The conclusions of the experiment were that the students in certain scenarios where a certain type of response is required preferred SMS as a medium to e-mail or web-based announces. They feel the data is more personal and they like this. SMS could be efficiently used in education (m-learning) as a complementary media, Trifonova (2003).

At the University of Helsinki the LIVE (Learning in Virtual Environment) experiments, made with SMS system and with WAP phones, were very positive, Seppala (2002). The project went on by introducing digital imaging and sharing photo between the participants (teachers). The conclusions were that it is very possible that the introduction of MMS and the other 3G services in the large scene will lead to more and more possibilities for m-learning.

Research made by Garner, Francis & Wales (2002) tells about a project on evaluation of a Short Messaging System (SMS) to support undergraduate students was done at Sheffield Hallam University. The experiment was with 67 undergraduate psychology students. The implemented system was again not for learning, but for managing learning activities (to guide, prompt and support the students in their learning). The findings were overwhelmingly positive, with students perceiving the system to be immediate, convenient and personal.

2.5 Resume Parser

Author has done some research on the resume parser which contributes to discovering of many resume parser software offers in the market. According to Daxtra Technologies (2012) (<http://www.daxtra.com/parsing.html>), resume parser or normally known as resume extractor is the conversion of free-form resume into structured information which enable for storage, reporting and manipulating of data by a computer. According to Akken (2012) (<http://www.akken.com/solutions/resume-parsing/>), resume parsing is a technology allows the

processing of resumes by extracting data in an intelligent way. Resume parser helps recruiter or HR personnel to efficiently manage electronic resume documents sent via Internet. Resume parser is being measured in terms of accuracy and coverage. Below are the snapshots examples of resume parser software from Rchilli Company which author takes as references in research on the resume checker for this project.



Figure 11: Resume Parser Software by Rchilli

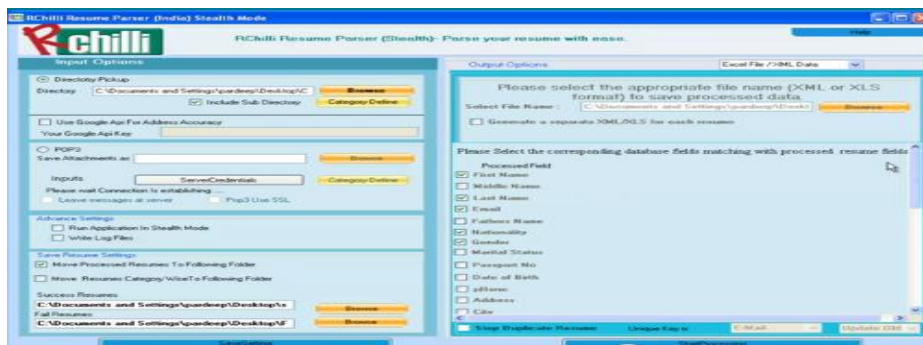


Figure 12: Extraction process using software

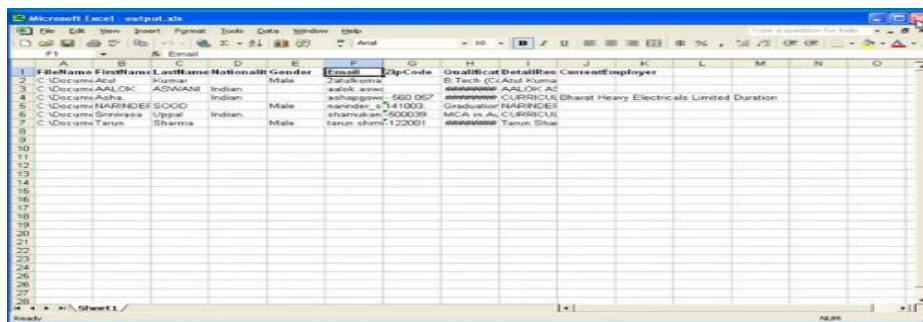


Figure 13: Data extraction in Excel

2.6 Features Comparison of Existing Websites

Author chooses three website to compare the features that been provided by the existing Internship Application Programme websites, in order to make IPOS SMS one of its kind. Unfortunately, there is no official website about Internship Programme in Malaysia which notifies the result of application in short message service, that make IPOS SMS will be the first Malaysia official website that has the SMS ability and resume checker.

2.6.1 SHELL Internship Programme

Feature available in SHELL website is information about internship programme. This website enables user to register as new user, login column and as well as the quick reference guide for user, refer Figure 14.

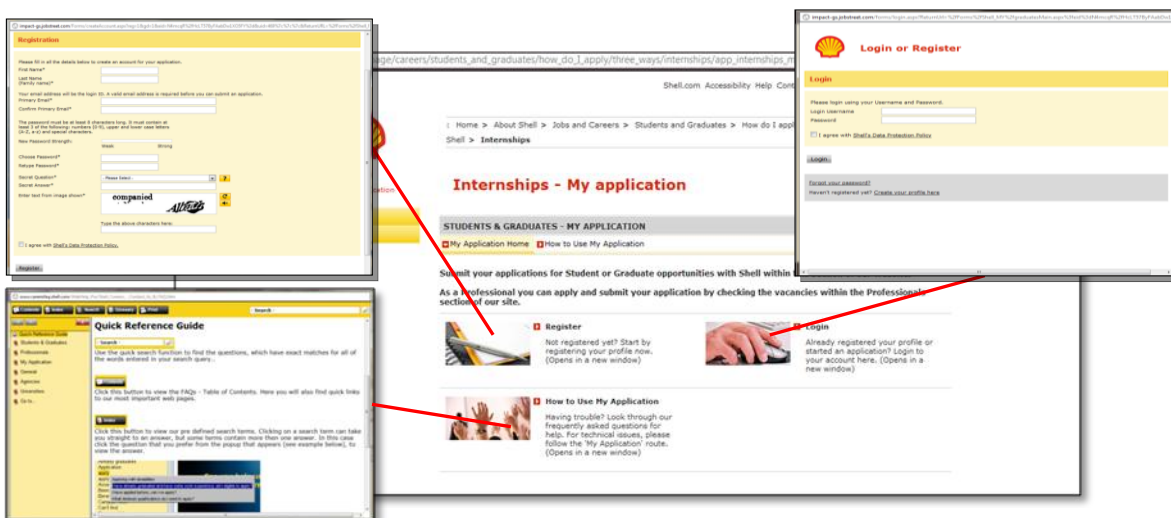


Figure 14: SHELL Internship Programme website

Moreover, SHELL website provides the quick links to ease user in an interactive design. Apart from that, the website has the advertisement of SHELL ongoing competition and bulletin at the header of the website.

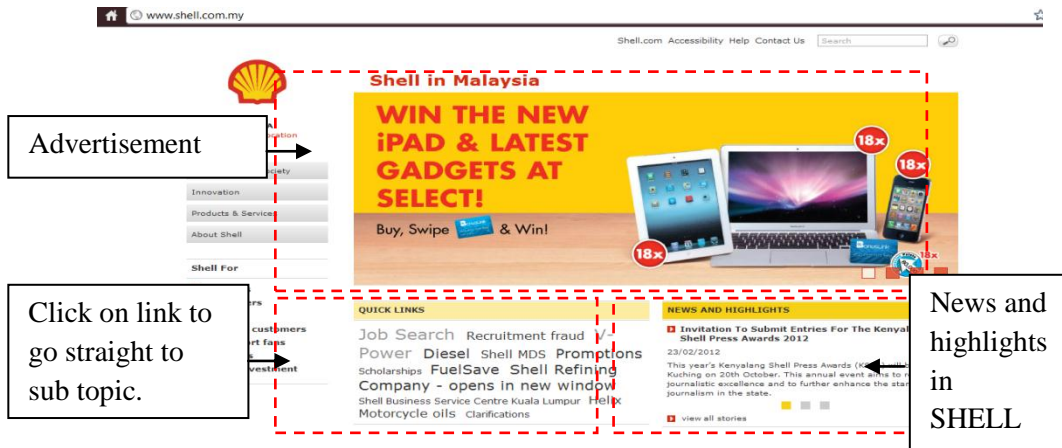


Figure 15: SHEL website

2.6.2 Otak-Otak Internship Programme

Based on Figure 15, Otak-otak website more focus in providing details about the list of companies involved in offering the internship placement.

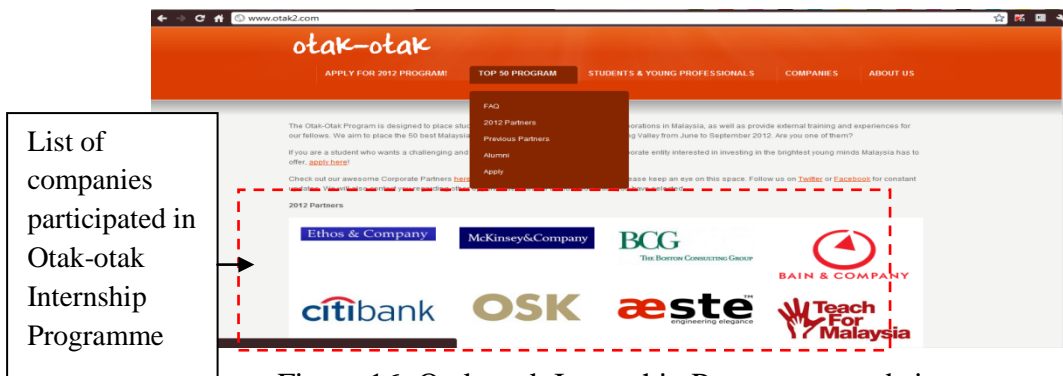


Figure 16: Otak-otak Internship Programme website

Moreover, Otak-otak Internship Programme website also provides the user to follow their updates on Facebook and Twitter, refer Figure 16, where user can ask for advice from the admin, which will help them find companies suits their preferences if they are looking for help.



Figure 17: Facebook and Twitter Link

2.6.3 PWC Internship Programme

PWC website contains information about the internship programme in different countries. User can choose the place where they would like to do their internship such as Malaysia, Thailand, Vietnam, Cambodia and Laos.

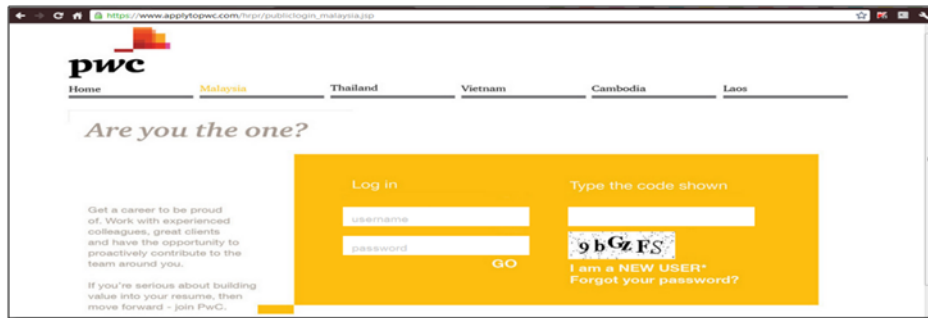


Figure 18: PWC website

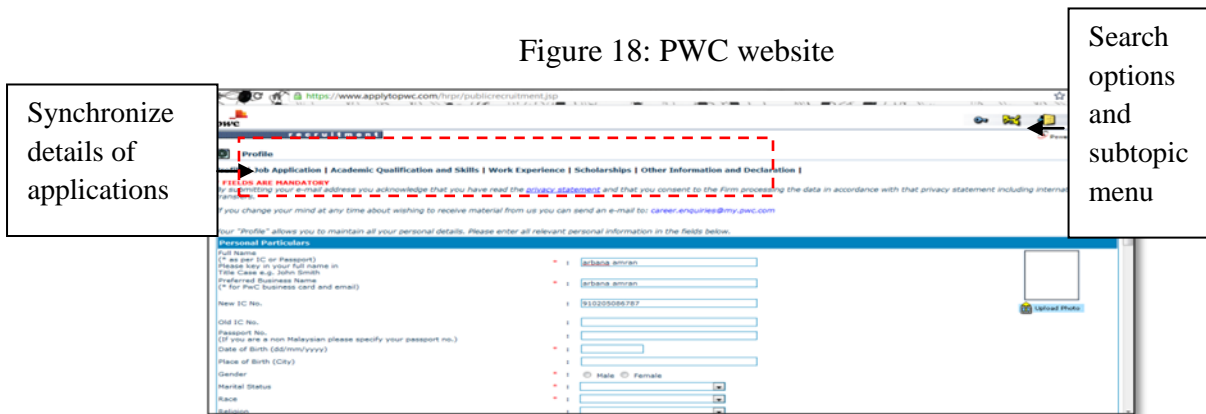


Figure 19: Details of application

PWC also offers the systematic and synchronize website offer user to provide their details of applications. Apart from that, these website provide search option features, which user can search other related page based on keyword that been provided by user. User can directly go to sub topic they want to view by click on sub topic related under in this article header.

2.7 Ozeki NG – SMS Gateway

Based from the Ozeki NG main website, <http://www.ozekisms.com> (2012), The Ozeki NG – SMS Gateway is a software product that will help maximize productivity of IT by reducing the complexity of creating, deploying, and managing mobile communication application.

The software introduce two-way of service, its E-mail and SMS gateway. This service allows developers to forward an incoming e-mail as an SMS message to a specified phone number

and an incoming SMS message as an e-mail to a specified e-mail address. The figure below illustrates the system architecture of the service.

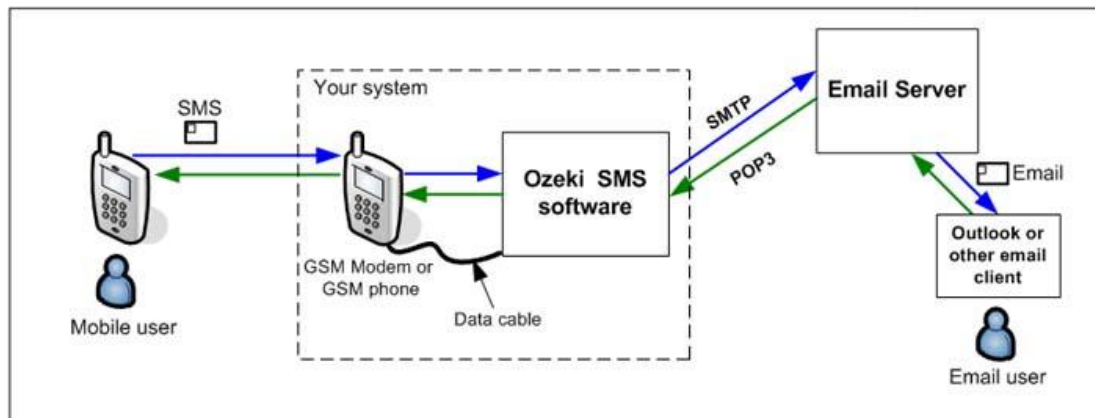


Figure 20: System Architecture of the Ozeki Server

The Ozeki Server is the open source application which is being used to develop the system. There is a GSM Modem from a Sony Ericson phone which will facilitate the sending of message in the system. GSM Modem will connect with the Ozeki Server in order to send a message.

CHAPTER 3

METHODOLOGY

3.1 Rapid Application Development (RAD) Methodology.

Rapid application development (RAD) is a development methodology that attempts to address weakness of structured design methodologies; waterfall and parallel development. Since author has limited time in developing this project, RAD is a best methodology to be used because RAD have ability to adjust system development life cycle (SDLC) phases to get some part of system been develop quickly, Dennis, Wixom and Tegarden (2005). RAD involves iterative development, quick construction of prototypes by using techniques and computer tools such as CASE tools. CASE tools makes tasks are much faster to complete and alter, development information is centralized and information is illustrated through diagram, which typically is easier to understand. Example of CASE tools is functional modelling; activity diagram and use case diagram.

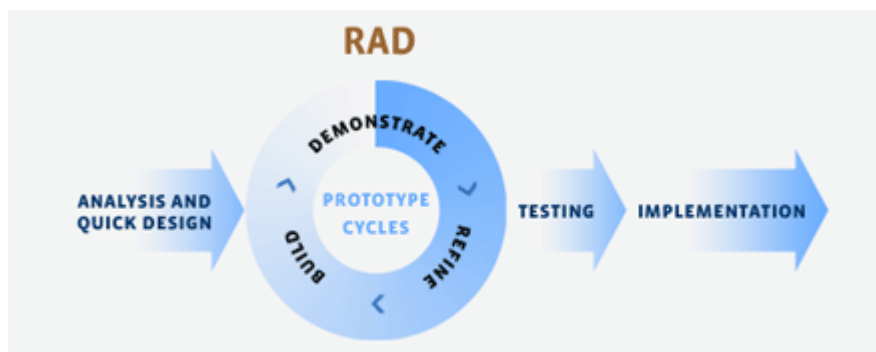


Figure 21: RAD Model

Under prototype cycle, build, demonstrate and refine phase will be performed repeatedly. Usually first prototype will be shown to user who will provide comments, which are used to re-analyze, re-design and re-implement a second prototype that provide a few more features. After the user is satisfied with the prototype, author will move to testing and implementation process.

3.2 Project Activities

3.2.1 Planning

Planning phase is the fundamental process of understanding why should this be build and determining how to build it. First thing to do in planning phase is defined the suitable topic that will be developed. After the topic has been approved, author will move on to gather data related to this topic that will be used in analysis phase. There are several techniques that been used to gather data, there are by reading article and journal, and requirement gathering by using questionnaires and observation techniques. Information about available development tools will be defined during this planning phase.

3.2.2 Analysis

Data that has been collected during planning phase will be analyzed during this analysis phase. From questionnaires, author will come out with requirement determination in order to determine knowledge level of user about internship application and their expectation. From observation, author will analyze others website content and functionality that will be used in design phase. The development tools to be used in developing this project also will be finalized.

3.2.3 Design

The previous section discussed the requirement-gathering used to develop the author's project which is using questionnaires and observation techniques. Now, at design phase functional modelling like activity diagram and use case diagram will be developed. Activity diagram support the logical modelling of business process and workflows. Use cases are used to describe the basic functions of the information systems. Both diagrams will be used during development phase. During this phase, user interface also will be designed and determined. The content of application will be finalized. The design phase must be carefully developed to ensure this website will meet the requirement mentioned in the analysis phase.

3.2.4 Development and Implementation

Application will be developed based on diagram and user interface that has been designed and determined. Coding will be generated in way to develop the application. After finishing with the development phase, this application will be tested and be delivered as a final product. Below are the figures on the development of the IPOS SMS system for both semesters.

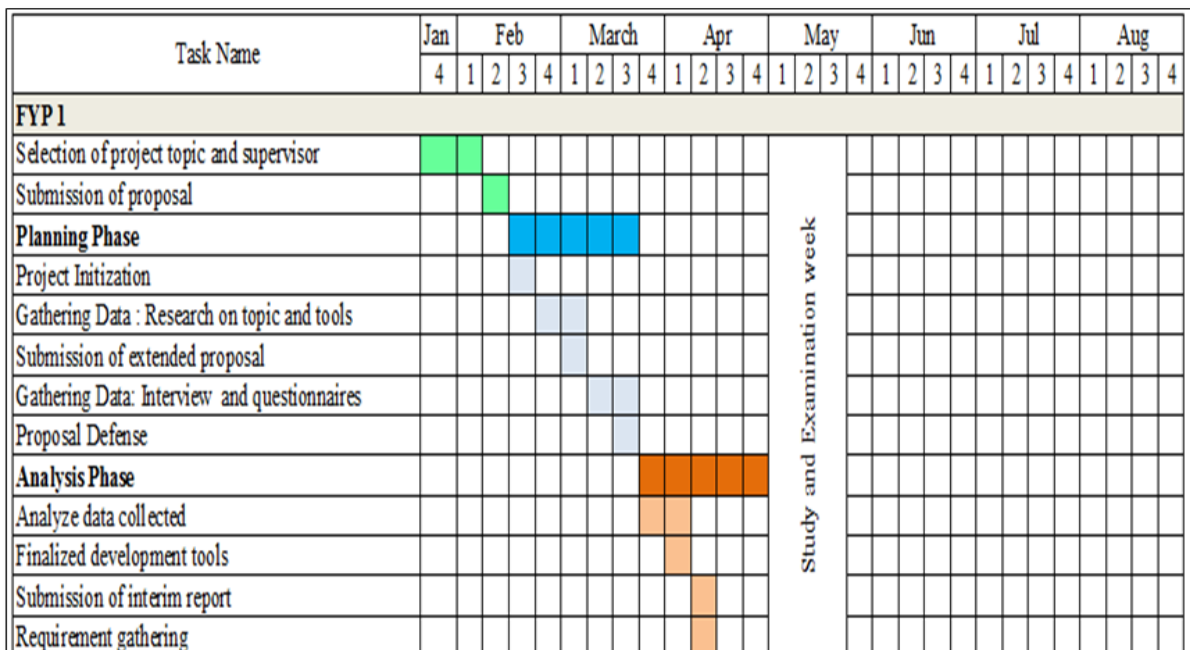


Figure 22: FYP I Gantt Chart

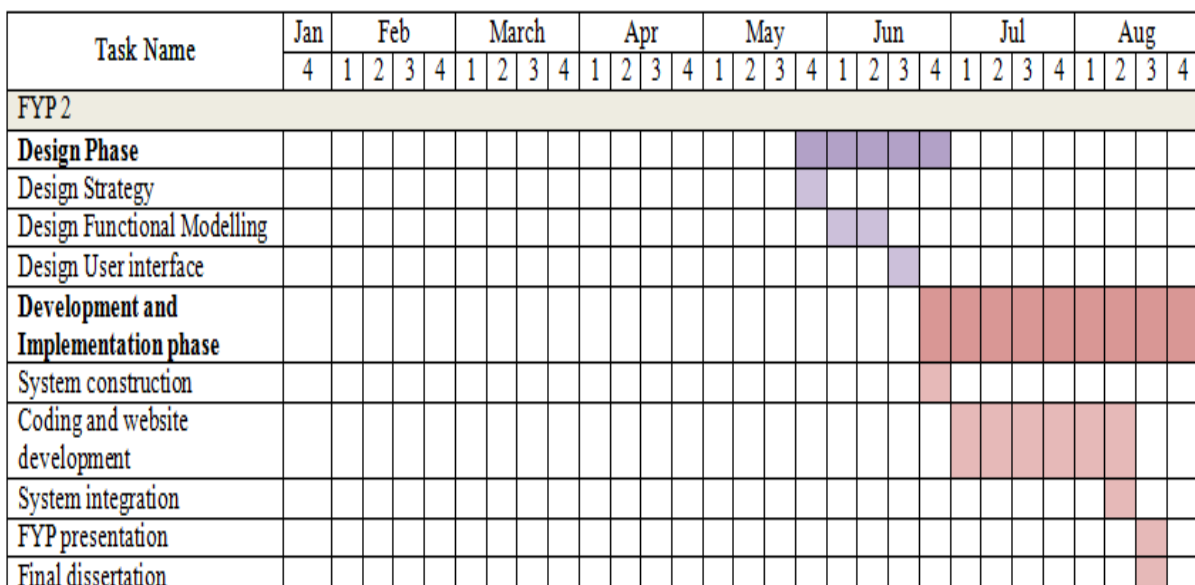


Figure 23: FYP II Gantt Chart

3.3 System Tools

- PHP,HTML and XML
 - Language that been used to develop IPOS SMS.

- phpMyAdmin
 - As MySQL database.

- Macromedia Dreamweaver.
 - Tools that will be use to make IPOS SMS more attractive.

- Microsoft office tools.
 - For documentation purposes.

- Ozeki NG-SMS Gateway
 - SMS server for notification of message

- Ozeki NG-SMS Modem
 - Sony Ericson Mobile Phone

CHAPTER 4

RESULTS AND DISCUSSION

4.1 OBSERVATION

In this context, author use observation as a technique to observe existing internship website in order to compare the content and feature available, to ensure IPOS SMS is one of its kind. Author observes three website; SHELL, PWC and Otak-otak Internship Programme. For website comparison details, refer to Chapter 2 section 2.6, Features comparison of existing websites. From the comparison author summarize that below section need to be included in IPOS SMS:

- Home
- Internship Area
- User Guideline
- Login and Register
- Search and Checking data
- Contact Us

Author also observed the current practice for internship application in PETRONAS. The process flow can be summarized as below.

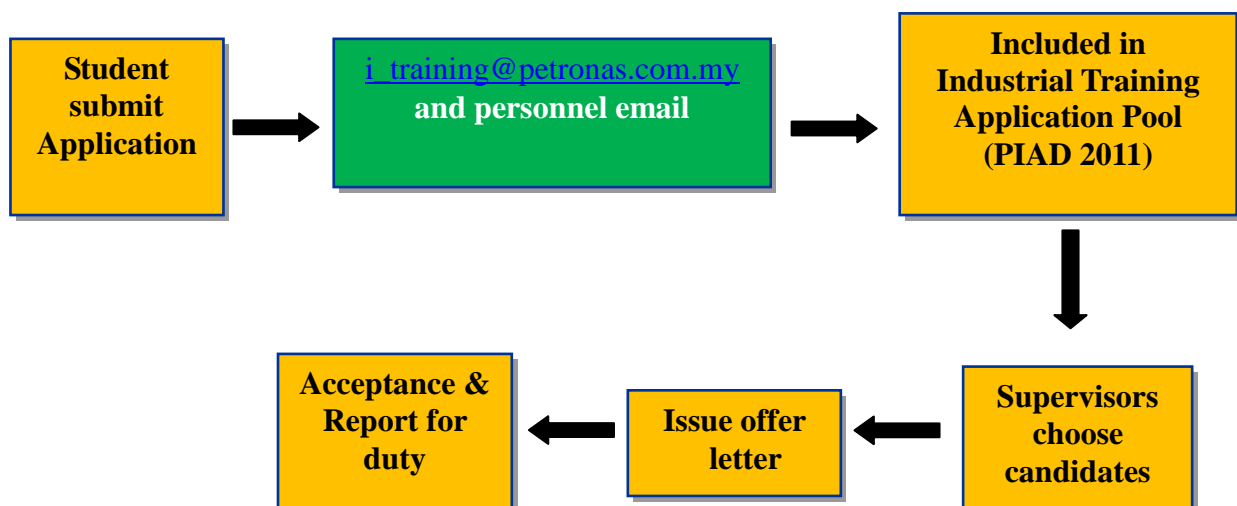


Figure 24: Current practice of Internship Application

As per current practice, student needs to submit their application to the email of i_training@petronas.com and personnel email of the internship officer. After that, the internship officer needs to enter all the data and information of each application in an Excel database.

| NO | IC / PASSPORT NO. | NAME | UNIVERSITY | SPONSORSHIP | SCHOLAR NO. | INTERNSHIP DURATION | |
|--------------------------------|-------------------|-----------------------------------|-----------------------------------|-------------|-------------|---------------------|-----------|
| | | | | | | START | END |
| 489 | | LAU LIK WONG | CURTIN | NON | | 1-Dec-11 | 1-Jun-12 |
| 490 | | AZLIN RAMLEE | UPM | NON | | 9-May-11 | 17-Jul-11 |
| 491 | | CHIN GIA HUI | CURTIN | NON | | 14-Nov-11 | 3-Feb-12 |
| 492 | | SOON SIAU WEN | UTHM | NON | | 4-Jul-11 | 9-Sep-11 |
| 493 | | MUHAMAD AMIRUDIN ABD JALAL | UITM | NON | | 4-Jul-11 | 20-Nov-11 |
| 494 | | FARHANA ABDUL HALIM SHAH | UITM | NON | | 4-Jul-11 | 18-Nov-11 |
| 495 | | LIM WEI JUN | UTAR | NON | | 23-May-11 | 8-Oct-11 |
| 496 | | MUHAMAD NOR IZZAT ZAHARI | | | | | |
| 497 | | HEPHIZIBAH A/P DAVID | | | | | |
| 498 | | | UTM | NON (JPA) | | 23-May-11 | 12-Aug-11 |
| KEY IN NEW APPLICATIONS | | | | | | | |
| 500 | 880722495446 | SITI ASMAK AB LATIB | UNIVERSITY OF ADELAIDE, AUSTRALIA | NON | | 1-Dec-11 | 1-Feb-12 |
| 501 | 860317565596 | AINQOR AMIRAH BINTI MOHAMMAD NOOR | UNIVERSITY TECHNOLOGY OF MARA | NON | | | |

Figure 25: Current Internship Application Database

Above is the internship application database in Excel document where the internship officer stores all the information of internship applications. As conclusion of the current practice of internship application in PETRONAS, the manual system involves in applying of internship application and saving the data of applicants which involves both students and admin. The existing trainee also needs to do manually the application of internship forms.

4.2 INTERVIEW

Interview participants for author project consist of personnel from ESU and STS unit and PETRONAS trainees.

Open-Ended Question for both System Administrator and Lecturer

1. What do you think about the manual system for Internship application process?
2. What are some of the problem or issue that you face when dealing with the system on a daily basis?

3. What are some improvements you would like to see in a new system of managing Internship applications?
4. What is your opinion regarding web-based system?

| |
|--|
| Interview Notes Approved By: Daliainie Mat Saaid & Aisyah Ayub |
| <p>Person Interviewed : Staff of NET Capability and Learning Department & Education and Sponsorship Unit</p> <p>Interviewer : Nurhayu Bt Rusdi</p> <p>Purpose of Interview:</p> <ul style="list-style-type: none"> • Understand the current system used by NET and ESU department • Determine information requirements for future system • Identify the problem arise from the existing system. <p>Summary of Interview :</p> <ul style="list-style-type: none"> • The needs of replacing the manual system into automate system into a web-based system and using Ozeki-Ng SMS server to make the future system accessible to all and sending notification via SMS. • The issues faced by the system administrators: <ol style="list-style-type: none"> 1. The manual and time consuming process of updating the internship applications. 2. Manual system using Microsoft Excel and Word provide limited features just for entering, searching and printing data. 3. Loss of student's placements applications, resume and other important documents due to too many papers and manual process involved. • The criteria of the new system that help to simplify the task of the system administrator are: <ol style="list-style-type: none"> 1. A function that permits the administrator to send the message notification via SMS to the applicants. 2. Using the web-based system to replace the manual system. |

Table 2: Interview Report of PETRONAS Internship Officer

Person Interviewed : Trainee of NET Capability and Learning Department & Education and Sponsorship Unit

Interviewer : Nurhayu Bt Rusdi

Purpose of Interview:

- Understand the current system used by NET and ESU department
- Determine information requirements for future system
- Identify the problem arise from the existing system.

Summary of Interview :

- The needs of improvement for the future web-based system features as one stop centre for Trainees in PETRONAS.
- The issues faced by the system administrators:
 1. The important internship form is in hardcopy, need to go to HRM to collect and it consume time.
 2. Trainee needs an overview about Internship as a whole in PETRONAS, not just focusing on their own departments.
 3. Needs of communications with other interns for chatting and forum just for internship students only.
- The criteria of the new system that help to simplify the task of the system administrator are:
 1. A function that have features of Internship Bulletin. Downloading forms, forum or chat.
 2. Need for the one-centre portal for administrator, students and trainee.

Table 3: Interview Report of PETRONAS trainees

4.3 FUNCTIONAL MODELING

Functional model describe business process and the interaction of an information systems with its environment. For this project, two types of models are used to describe the functionality of IPOS SMS: activity diagram and use case diagram. Activity diagram can be viewed as sophisticated data flow diagrams that are used in conjunction with structured analysis. Activity diagram for IPOS SMS refer Figure 26.

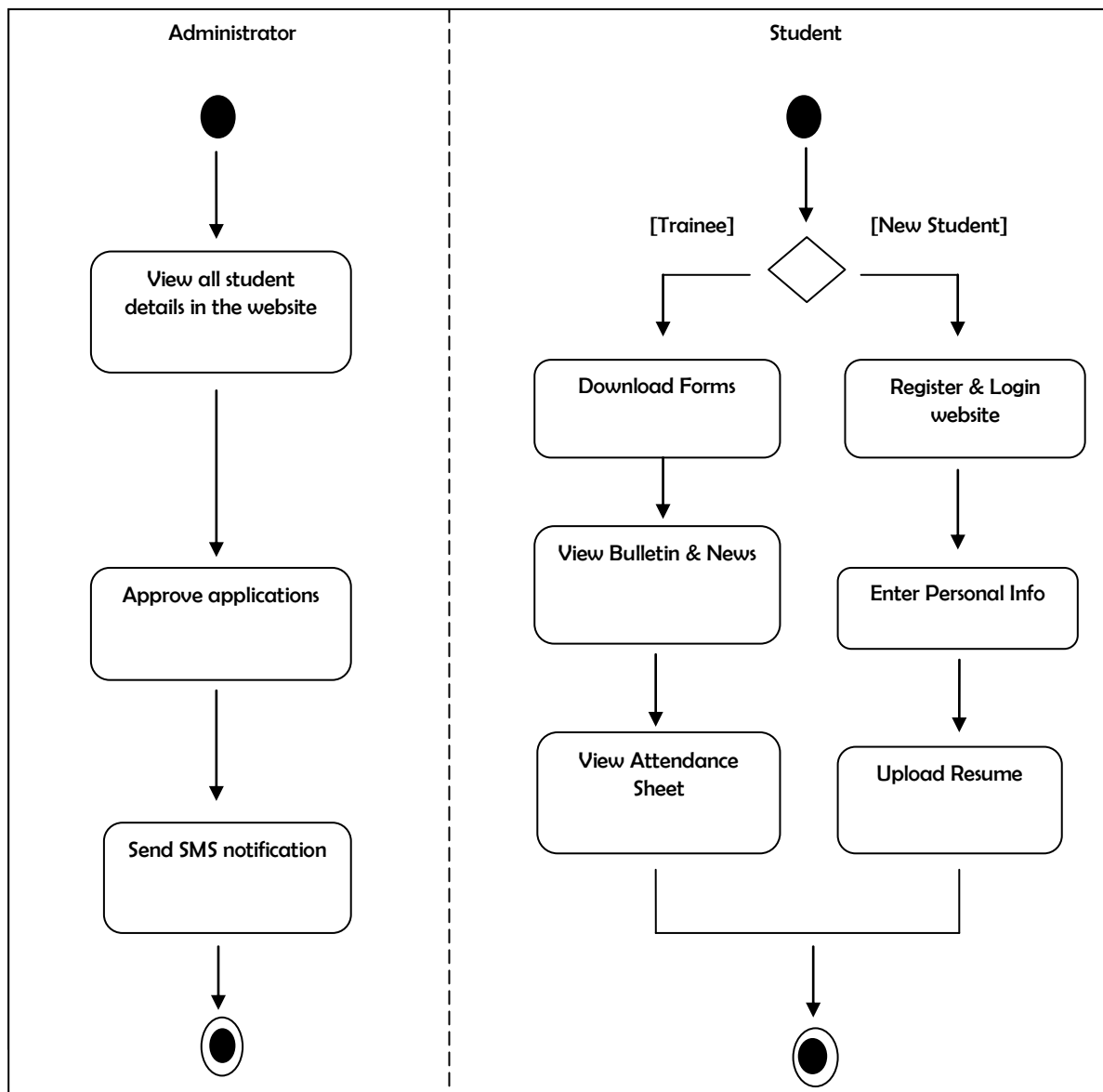


Figure 26: Activity Diagram for IPOS SMS system

Administrator will view all the student information to check if there are any new applications from new students then he will approve the applications. After the approval, sms will be sent to applicants.

New student need to register first. They only can login after the registration and may filling up the online application form. Existing trainee can login to IPOS SMS System to view their IP Time Track attendance from this system as well as download all the forms regarding the internship in PETRONAS.

Use cases are simple descriptions of a system's function from the bird's eye view of the users. Use case will portray the basic functions of the system; what the users can do and how the system should respond to the user's actions. There are three types of actors in IPOS SMS:

1. **Administrator:** Can access IPOS SMS and do the following task:
 - Manage applications from students include:
 - View list all application details
 - Delete inactive students, no longer doing internship in PETRONAS
 - Send notification email to students if the applications are being approved
 - Search and check the list of applications
 - Manage Students include:
 - Add student
 - Delete student
 - Update student details
 - View all student details in IPOS SMS
 - Control IPOS SMS include:
 - Add new link to other site in the homepage
 - Update the URL and name of link in the homepage
 - Manage and maintain the homepage design and content

Refer Figure 27 for IPOS SMS Administrator Use Case:

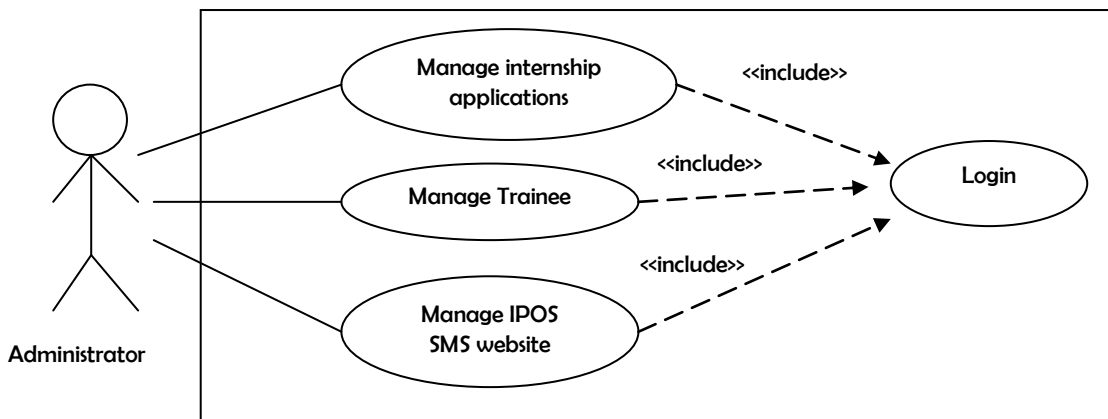


Figure 27: Administrator Use Case

2. **Trainee:** Can access IPOS SMS and do the following task:

- Manage account include:
 - Download the internship forms
 - View the attendance sheet (IP Time Track system)

3. **Application Student:** Can access IPOS SMS and do the following task:

- Manage account include:
 - Apply for internship placement via online form
 - View the internship overview and area in PETRONAS
 - Update personal information
 - Receive email notification of approval from admin

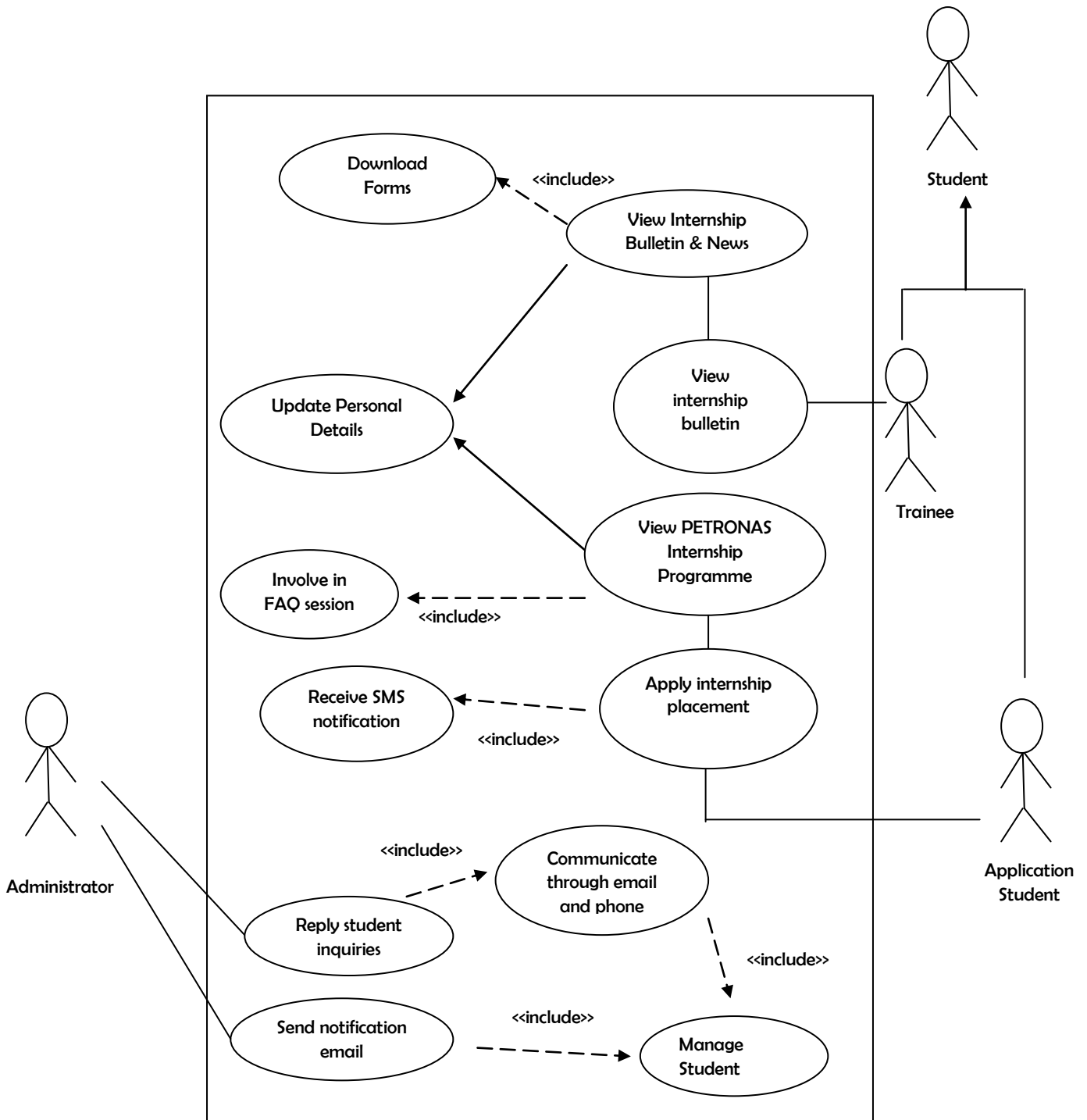


Figure 28: Internship Programme Online System Using SMS Use Case

4.4 SYSTEM ARCHITECTURE

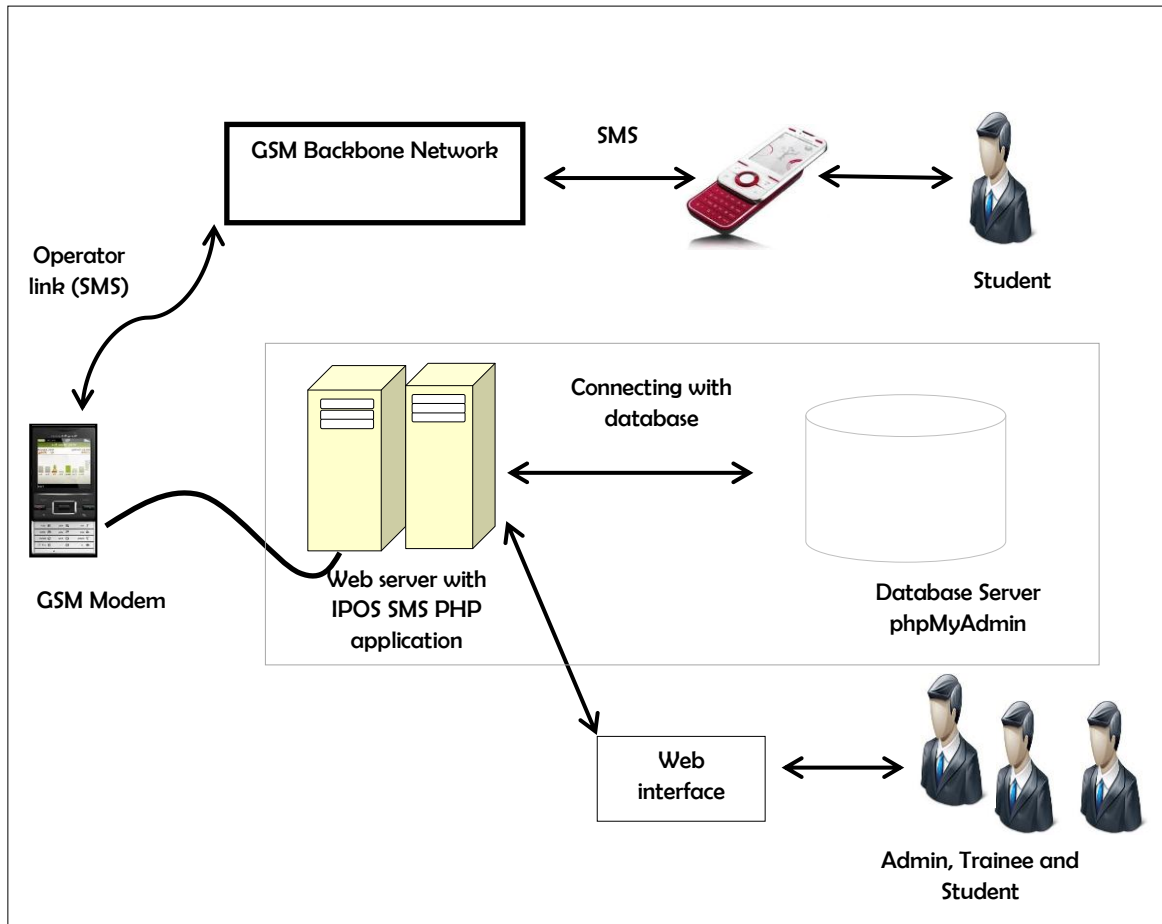


Figure 29: IPOS SMS System Architecture

IPOS SMS consists of two major parts: SMS mobile application using SMS Ozeki NG – SMS Gateway and IPOS SMS application connected with database. A GSM phone attached to the server computer as a modem in order to enable the message is sending through the GSM backbone network.

Once an Administrator post the notification message that needs to be send to the student’s mobile, php application will initiates the process by positioning an SMS message to the built-in web server of Ozeki NG – SMS Gateway. Ozeki NG will forward the message to the GSM network through a GSM phone attached to the server computer using a data cable and the mobile student will receive the SMS message.

Message that had been sent out by the gateway running on server will be received by the GSM phone that had been attached at the computer. Then the GSM phone transmits it to the SMS Center (SMSC) of the GSM service provider.

4.5 INTERFACE DESIGN

This section presents the interface design that has been developed for the prototype. This design was the product after carry out the research, interview and observation. Below are the screen shots of the interface design for IPOS SMS System.

At the home page, author includes information about PETRONAS online internship application to give a clear picture to the user what online internship application is about. Author explain the objectives of internship, requirements and terms and conditions at home page with intention to give early information to user, which makes them aware about this online internship application system.

There are five sidebars in home page; Home, User Manual, Register Now, Internship Area and Contact Us. In order to send the application through this online system, student needs to register and login. It is to ensure the data is being captured and send to the database. The administrator also needs to login in order to check and update the student application and at the same time approve the application.



PCSB Online Internship Application System



PETRONAS Industrial Training Programme is a dynamic platform designed to provide undergraduates from all disciplines with hands-on experience within the oil & gas industry and engage in many areas of the operations of a global company.

Three significant objectives have been incorporated to ensure the effectiveness of the training programme:

- i. Integrate theoretical knowledge and its application in industry
- ii. Acquire knowledge, skills and mindset to shorten undergraduate's learning curve
- iii. Accelerate process of identifying potential talents for PETRONAS talents strategy employment

REQUIREMENTS

- i. Malaysian or PETRONAS Sponsored Student pursuing undergraduate degree in higher learning institutions, either in Malaysia or overseas in any disciplines where industrial training is a mandatory part of course completion (preference will be given to third and final year students)
- ii. Performing the industrial training for a minimum duration of two and a half months and maximum of seven months
- iii. Submission of the following documents together with the online application (completed documents MUST be submitted via
 - o a. Curriculum Vitae

TERMS AND CONDITIONS

- i. Application should be sent via website at least three months prior to programme commencement
- ii. Should you not receive any reply from us within two months, please consider your application to be unsuccessful
- iii. Acceptance OR declination of offer must be notified within five (5) working days
- iv. Only online applications will be entertained. Postal/courier applications are deemed as incomplete

User Login

Login Id :

Password :

[Forgot password ?](#)

Please enter correct Login ID and Password.

Figure 30: Home page

User manual page provide information regarding the process of online internship application. There are 4 steps which involves, register, log in, fill up online application form and lastly the notification of result.

**PETRONAS CARIGALI
INTERNSHIP APPLICATION
WEBSITE**

Home User Manual Register Now Internship Area Contact Us

User Manual

YOUR CAREER MOVE STARTS HERE.

The application process. Start your application here and who knows where you may end up?

You can begin your application now, using our online system

STEP 1: REGISTER

If you have not previously applied to us online, please register first to create your profile and account. After you have registered, you can log into your account. The next step is to select the job you wish to apply for, and then complete the application form. After you have submitted your application, you will receive an acknowledgment that we have received your application within 48 hours.

STEP 2: LOG IN

If you have registered previously, please login to update your resume, search for current job openings or submit a new application.

STEP 3: FILL UP ONLINE APPLICATION FORM

You need to fill up the online application form [Industrial Training Application Form]. If you are applying to a new internship position, please update your resume before submitting the application.

STEP 4: NOTIFICATION OF RESULT

If you have registered previously, please login to update your resume, search for current job openings or submit a new application. If you are applying to a new position, please update your resume before submitting the application.

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Figure 31: User Manual page

Registration page allows user to register first before they can log in into the system as a student, trainee or as an admin. The registration is important for the admin to capture the data of the user.



Figure 32: Registration page

Internship Area page enables user to find information on the internship area in PETRONAS. This page allowed user to learn more about the specific area which they interested before applied in the online internship application for in the system.

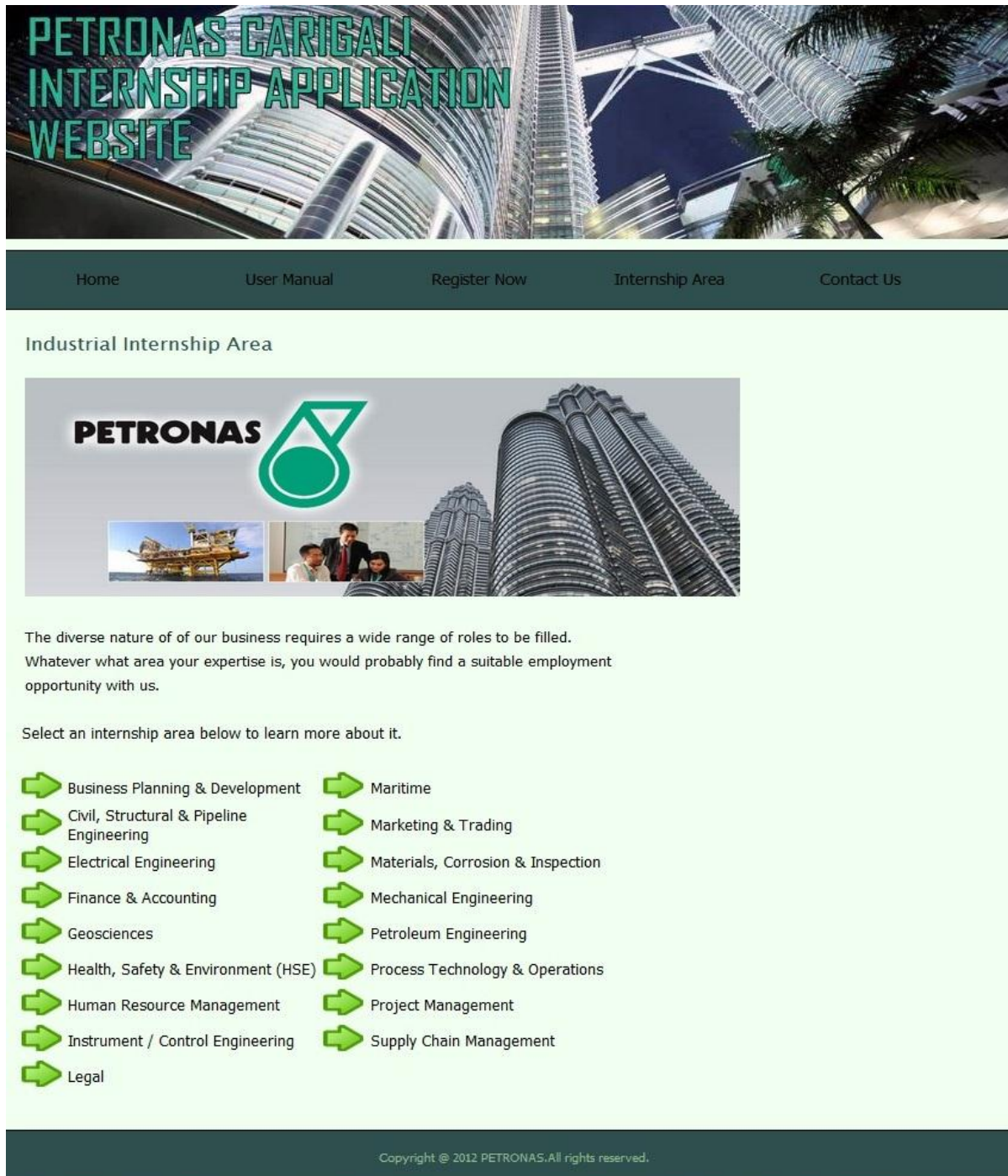


Figure 33: Internship Area page



Contact Us



CONTACT US

PCSB Internship Officer
NET Capability & Learning Unit
HRM Division
Level 26, Tower 1
Petronas Twin Towers
50088 Kuala Lumpur

FOLLOW US

Any inquiries please email to i_training@petronas.com.my

- [PETRONAS Website](#)
- [Facebook](#)
- [Youtube](#)
- [Discover PETRONAS](#)

Figure 34: Contact Us page

In the student menu, there is the online internship application form which allowed student to fill up the form and send it online. The data was being kept in the database which enabled the admin to access the data later. There are five sidebars in student home page; Home, Student Manual, Internship Area, Download Files and Log out. The online application form allowed student to apply their internship online which removed the manual system of internship application via email to i_training@petronas.com.my.



[Home](#)

[Student Manual](#)

[Internship Working Area](#)

[Downloads File](#)

[Logout](#)

Welcome to PCSB Online Internship Application System

Grab Your Golden Chance Here



PETRONAS Industrial Training Programme is a dynamic platform designed to provide undergraduates from all disciplines with hands-on experience within the oil & gas industry and engage in many areas of the operations of a global company.

Three significant objectives have been incorporated to ensure the effectiveness of the training programme:

- i. Integrate theoretical knowledge and its application in industry
- ii. Acquire knowledge, skills and mindset to shorten undergraduate's learning curve
- iii. Accelerate process of identifying potential talents for PETRONAS talents strategy employment

REQUIREMENTS

- i. Malaysian or PETRONAS Sponsored Student pursuing undergraduate degree in higher learning institutions, either in Malaysia or overseas in any disciplines where industrial training is a mandatory part of course completion (preference will be given to third and final year students)
- ii. Performing the industrial training for a minimum duration of two and a half months and maximum of seven months
- iii. Submission of the following documents together with the online application (completed documents MUST be submitted via this website [Industrial Training Application Form](#)).
 - a. Curriculum Vitae

TERMS AND CONDITIONS

- i. Application should be sent via website at least three months prior to programme commencement
- ii. Should you not receive any reply from us within two months, please consider your application to be unsuccessful
- iii. Acceptance OR declination of offer must be notified within five (5) working days
- iv. Only online applications will be entertained. Postal/courier applications are deemed as incomplete

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Figure 35: Home page for Student



Industrial Training Application Form



Grab Your Golden Chance Here.

Note : Please fill in your application with capital letter.

| | |
|--|---|
| Name | Ahmad |
| Date of Birth | <input type="text"/> ** Choose Date |
| Nationality | <input type="text"/> |
| NRIC No / Passport No. | 900108089999 |
| Gender | -- Please choose -- ▾ |
| E-mail Address | dani@gmail.com |
| Permanent Address | <input type="text"/> |
| Home Phone No. | <input type="text"/> |
| Mobile No | +6 <input type="text"/> |
| Name of University/College | <input type="text"/> |
| Course of Study | <input type="text"/> |
| Current CGPA | <input type="text"/> |
| Scholar/Non-scholar | -- Please choose -- ▾ |
| Undergraduate Degree | -- Please choose -- ▾ |
| Training Period | From: <input type="text"/> ** Choose Date To: <input type="text"/> ** Choose Date |
| Preferred Training Area | -- Please choose -- ▾ |
| Location | -- Please choose -- ▾ |
| Curriculum Vitae Attachment | <input type="button" value="Choose File"/> No file chosen |
| <input type="button" value="Submit"/> <input type="button" value="Reset"/> | |



Student Menu

User Account

- [User Information](#)
- [Change Password](#)

Internship Menu

- [Industrial Training Application Form](#)
- [Leave Application](#)
- [Internship Period Extension](#)
- [Memo for Oustation](#)
- [Industrial Training Questionare](#)
- [Exit Checklist](#)

Figure 28: Online Internship Application Form

Downloads File page contained all the files needed for the trainees in PETRONAS Carigali Sdn Bhd. They don't have to ask the hardcopy from the Internship Officer since they can download the files from this online system.

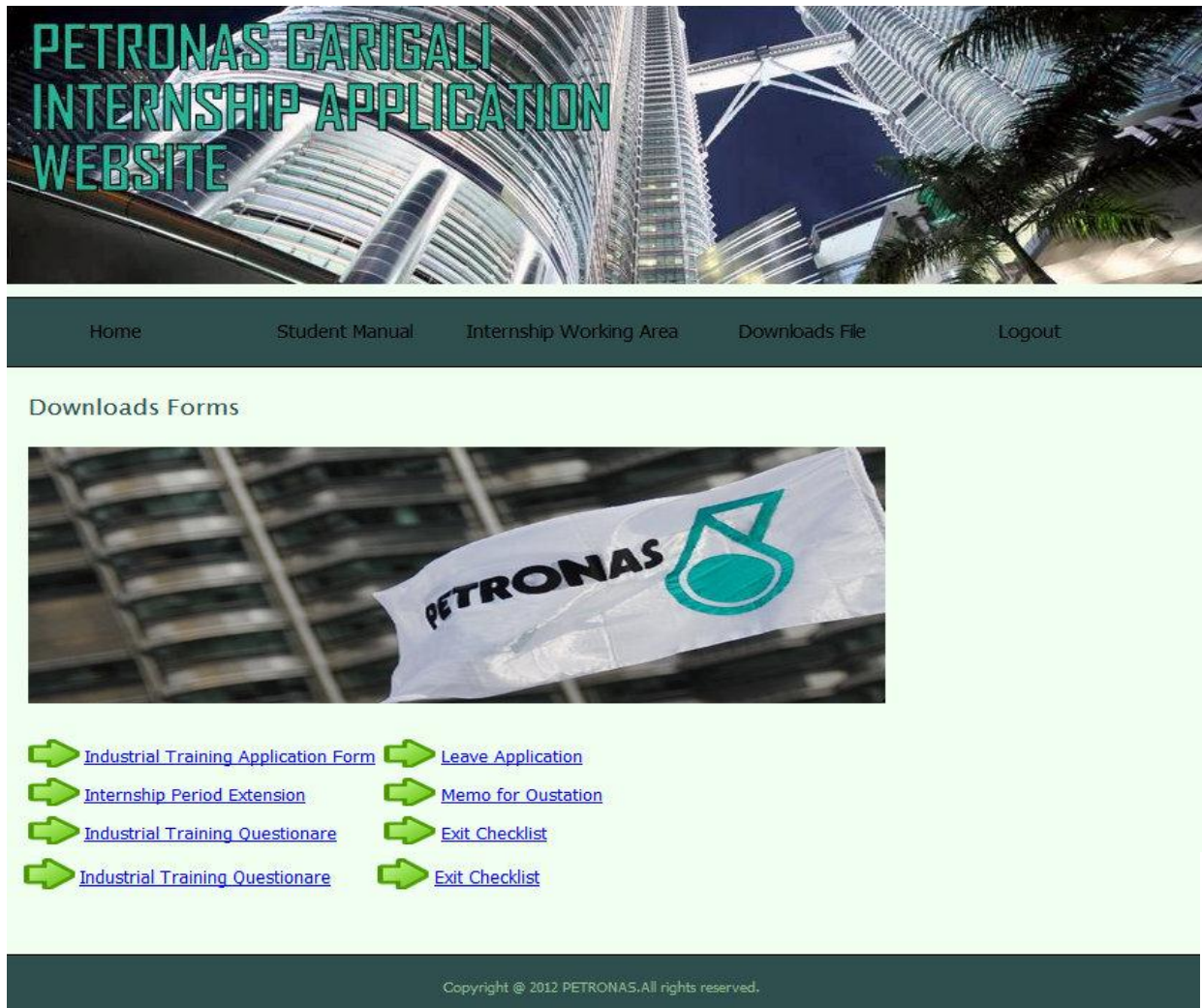


Figure 37: Downloads File Page

There are five sidebars in admin page; Home, Admin Manual, List of Report, Search List and Log Out. Admin home page provides information regarding the process for an admin to manage the online application from the students. The admin can tabulate all the data of the list of students who applied in the list of report menu.

The screenshot shows the home page of the Admin Menu for the Petronas Carigali Internship Application Website. At the top, there is a navigation bar with links for Home, Check For Applicant, List of Report, Search List, and Logout. Below the navigation bar, the page features a large banner with the text "PETRONAS CARIGALI INTERNSHIP APPLICATION WEBSITE" overlaid on a night-time photograph of the Petronas Towers. To the right of the banner is a green icon of a document with a checkmark, labeled "Admin Menu". Below this icon, there is a "User Account" section with two links: "User Information" and "Change Password". The main content area contains three steps:

STEP 1: CHECK FOR STUDENT APPLICATION

Admin needs to check for the student application in order to track the number of applications going through into the database. Make sure the application is in Mode Check or still in Mode Unprocess

STEP 2: APPROVAL APPLICATION

Admin needs to approve the application from the students. After the approval, admin need to send the approval application message to respective students via website.

STEP 3: ADVERTISE CV

Lastly, the application from the students need to be advertise to the line department for the placement of internship or by fulfill the request from the respective department.

At the bottom of the page, there is a footer with the text: "Copyright © 2012 PETRONAS. All rights reserved."

Figure 38: Home page for Admin Menu



Petronas Carigali Sdn.Bhd



Admin Menu



List of Applications

| No | Name | Gender | Program | University | CGPA | Contact No. | Status |
|----|---------------------------|--------|---------|------------|------|--------------|-----------|
| 1 | Nur Qistina Najib | Female | CV | UITM | 3.76 | +60195220716 | [Approve] |
| 2 | Ahmad Hazwan | Male | ICT | UITM | 3.67 | +60195991440 | [Approve] |
| 3 | Muhammad Adam Haris | Male | EE | UTP | 3.55 | +60195220716 | [Approve] |
| 4 | Nur Medina Muhammad | Female | EE | UTP | 3.50 | +60195220716 | [Approve] |
| 5 | Alia Batrisyia Ahmad Adam | Female | BIS | UTP | 3.44 | +60195220716 | [Approve] |
| 6 | Ahmad Hannan | Male | BIS | UTP | 3.44 | +60195220716 | [Approve] |
| 7 | Alia Khadijah | Female | BIS | UTP | 3.44 | +60195220716 | [Approve] |
| 8 | Muhammad Haris Iskandar | Male | PE | UITM | 3.38 | +60195220716 | [Approve] |
| 9 | Ahmad Dani | Male | EE | UTP | 3.24 | +60195220716 | [Approve] |
| 10 | Ahmad Dani | Male | BIS | UTP | 3.20 | +60195220716 | [Approve] |

User Account

[User Information](#)
[Change Password](#)

[\[Print Page\]](#)

Figure 39: List of Applicants Page

Admin also can search and check the students who applied for internship by referring to the search page and they can check the data of the students through the search page. Author also provides admin with check for applicant page. In this page, admin needs to approve or reject the internship applications received into the system.



Figure 40: Search and Check page

4.5.1 SQL Database for IPOS SMS System

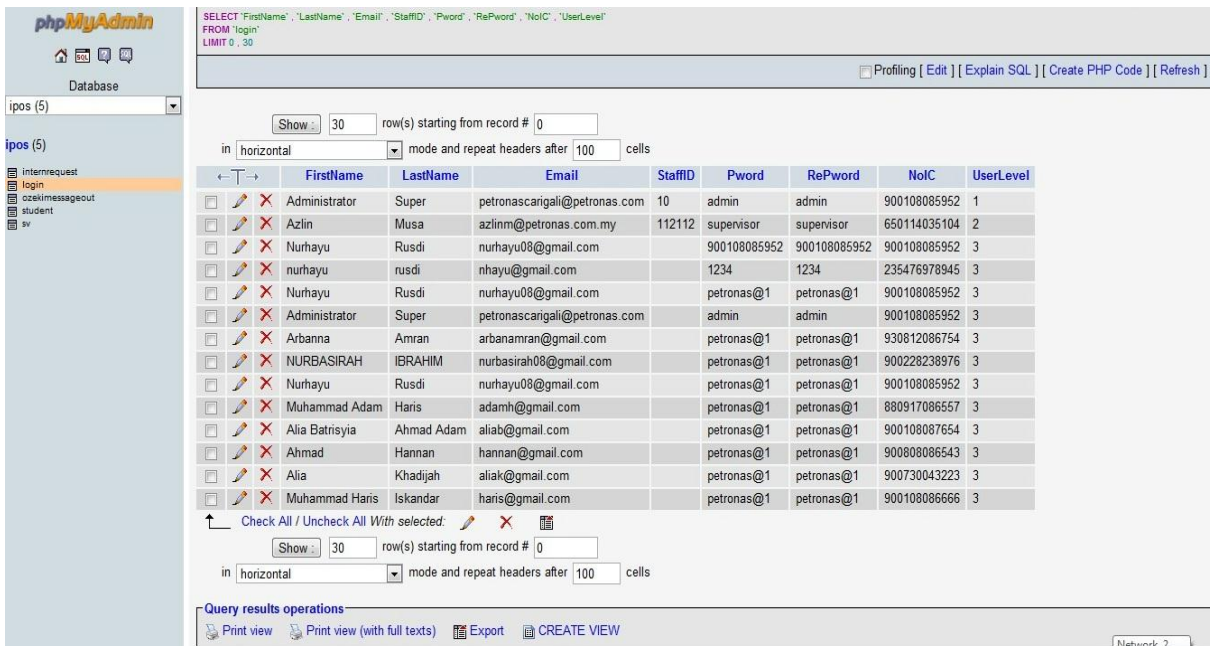


Figure 41: Login SQL Database

SQL query:
 SELECT `DOB`, `Nation`, `Gender`, `Email`, `Address`, `HomeNo`, `MobileNo`, `Uni`, `Course`, `CGPA`, `Scholar`, `Degree`, `Area`, `Location`, `ARecord`, `CV`, `StartDate`, `FinishDate`, `status`, `NoIC`
 FROM `student`
 LIMIT 0, 30

Database: ipos (5)

ipos (5)

internequest
 login
 ozekimessageout
 student
 sv

Show: 30 row(s) starting from record # 0
 in horizontal mode and repeat headers after 100 cells

| | DOB | Nation | Gender | Email | Address | HomeNo | MobileNo | Uni | Course | CGPA | Scholar | Degree | Area |
|--------------------------|------------|----------|--------|------------------|---|-----------|--------------|------|------------------------|------|----------|------------|--------------------------------|
| <input type="checkbox"/> | 17/09/1988 | MALAYSIA | Male | adamh@gmail.com | KG SG AKAR, BATU 14, BATU KURAU, PERAK DARUL RIDZU... | - | +6019-522071 | UTP | ELECTRICAL ENGINEERING | 3.55 | PETRONAS | Year Three | Electrical Engineering |
| <input type="checkbox"/> | 08/01/1990 | MALAYSIA | Female | aliab@gmail.com | DAMANSARA HEIGHTS, KUALA LUMPUR | 03-234567 | +6+6019-5220 | UTP | BIS | 3.44 | PETRONAS | Year Three | Marketing & Trading |
| <input type="checkbox"/> | 08/08/1990 | MALAYSIA | Male | hannan@gmail.com | UTP | - | +6019-522071 | UTP | BIS | 3.44 | PETRONAS | Year Four | Human Resources & Management |
| <input type="checkbox"/> | 30/07/1990 | MALAYSIA | Female | aliak@gmail.com | UTP | - | +60195220716 | UTP | BIS | 3.44 | PETRONAS | Year Three | Corporate Affairs & Administra |
| <input type="checkbox"/> | 08/01/1990 | MALAYSIA | Male | hans@gmail.com | utp | - | +60195220716 | UITM | PE | 3.38 | PETRONAS | Year Three | Geosciences |

Check All / Uncheck All With selected:
 Show: 30 row(s) starting from record # 0
 in horizontal mode and repeat headers after 100 cells

Figure 42: Student SQL Database of IPOS SMS System

There are two database involved and connected in the system which is login database and student database. Login database hold all the data involved the login of the user, getting from user registration before user can log in into the IPOS SMS system. Student database hold all the data capture from the online application form which the applicants need to fill and submit.

4.5.3 Send message data description

Figure 43 illustrates the page which users (administrator) will approve the applications of the student and to notify via SMS. After recipients have been selected, compose the text of the SMS and click on Submit SMS. Once user click the button sends which is after specifying the recipient number and key in the text message, those data will be appeared in the Ozeki NG SMS Gateway system.

PETRONAS CARIGALI
 INTERNSHIP APPLICATION
 WEBSITE

Home Check For Applicant List of Report Search List Logout

Petronas Carigali Sdn Bhd

Welcome Mr./Mrs. Admin

Name Nurhayu Rusdi
 University
 Course
 Mobile No +60135273715
 Status -- Please choose --

Admin Menu
 User Account
 User Information
 Change Password

Message
 PETRONAS Greetings! Thank you for your interest in PETRONAS. The application will be processed shortly. Should you not received any news in 3 months, your

Submit Reset

Copyright © 2012 PETRONAS. All rights reserved.

Figure 43: Submit SMS page

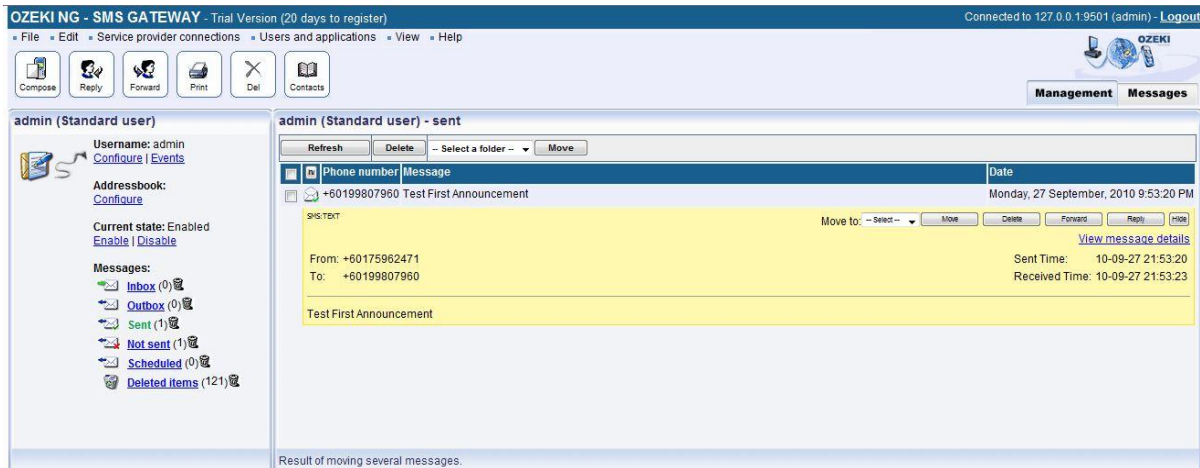


Figure 44: Send message data in Ozeki NG-SMS Gateway

Figure 45 illustrate message that will be received by students who had been notified via SMS by the administrator.



Figure 45: Mobile based – Student view

4.6 TESTING

A usability testing was conducted to test the usability of IPOS SMS System. 2 staffs and 3 intern students were asked to use the website. There are among the aspect that been tested during the usability testing:

Figure 46 illustrates all of the users agreed that this website is easy to use and the instructions are also clear. This is based on the results where there were no users who felt clueless while using IPOS SMS System. It shows that the interface is user friendly.

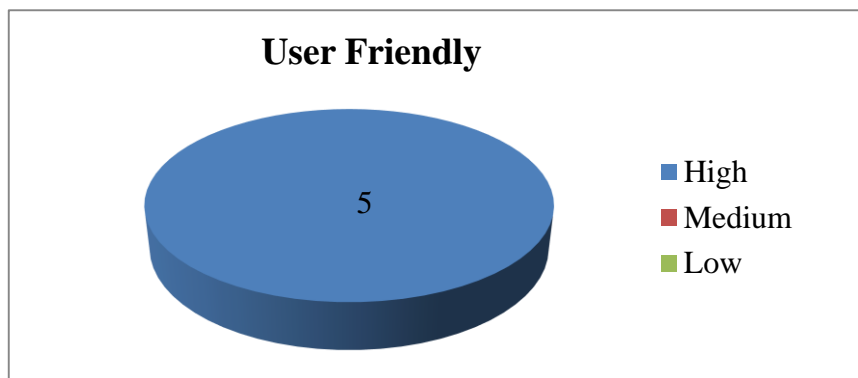


Figure 46: User Friendly

Figure 47 illustrates five users are agreed that this website faster the internship application process as compared to the manual system.

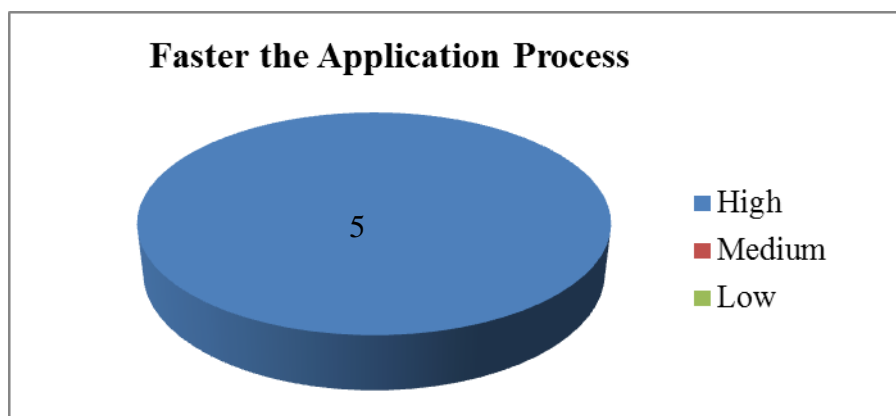


Figure 47: Faster the Application Process

Figure 48 shows the system is successful in sending the notification in forms of SMS throughout the website. Five users are agreed that this system is proven in sending message to the hand phone number of the users.

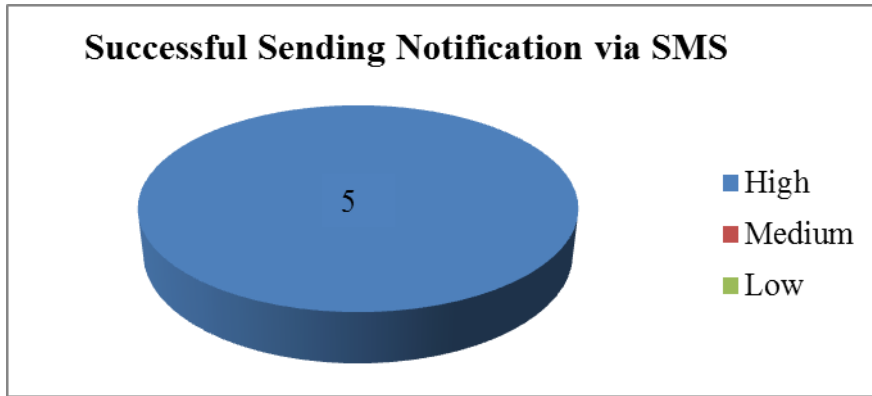


Figure 48: Successful Sending Notification via SMS

Figure 49 shows all the users are agreed that the overall system and website features ease the user and gives impact to them and gives the effective ways of enhancement the internship application process.

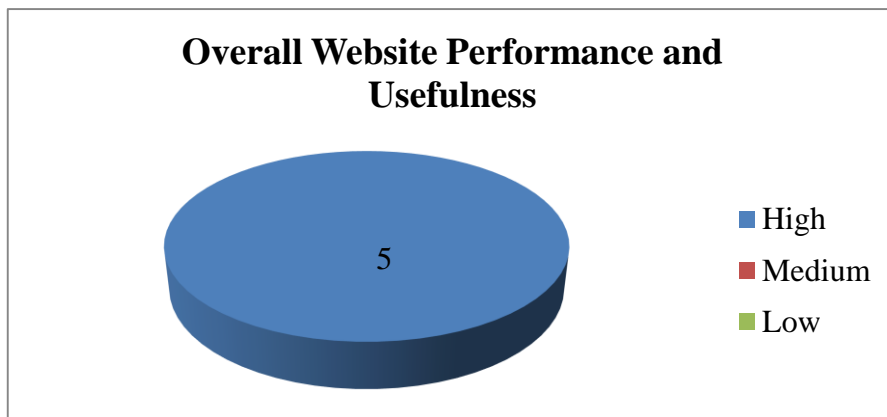


Figure 49: Overall Website Performance and Usefulness

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion and Recommendation

This project involves development of website that enhances the manual system of internship application in PETRONAS into a web based system. It involves the information about the internship application in PETRONAS and provides online internship application form. There are two modules of main user involves in this system which are admin and student.

As a conclusion, IPOS SMS system will be a first internship website in Malaysia that allows the notification to be sent through the instant messaging system. All the objectives have been met after completing the website and conducting the testing with real users. The website can be maintained by updating the list of applicants and change the pictures and information regarding the internship application to the current one since the applicants needs to use the forms and require updated information regarding the internship placement.

Among the recommendation given for the website is it might be able to automatically send email notification. Besides, the website could use resume checker before proceed with sending short message service.

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