Online Bus Ticketing System
By

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Dissertation submitted in partial fulfillment of the requirements for the
Bachelor of Technology (Hons)
(Business Information Systems)

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CERTIFICATION OF APPROVAL

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A project dissertation submitted to the
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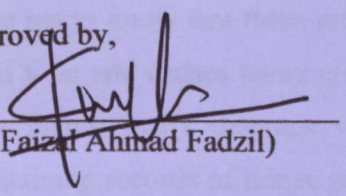
Approved by,

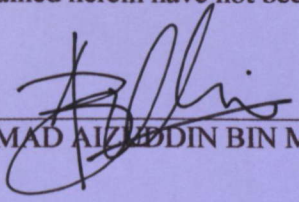


(Mr Faizal Ahmad Fadzil)

UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK

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.



MUHAMMAD AIZUDDIN BIN MOHD RUSLIM

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Muhammad Aizuddin Bin Mohd Ruslim

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CHAPTER 1:INTRODUCTION

1.1 BACKGROUND STUDY

The Bus Ticketing System is a web-based application that allows UTP student to check bus ticket availability, buy bus ticket and pay the bus ticket online. This system creates for all the home office users and can be accessed anywhere whether inside or outside UTP.

Electronic tickets, or e-tickets, give evidence that their holders have permission to enter a place of entertainment, use a means of transportation, or have access to some Internet services. Bus Ticket Reservation System enables the bus company's customer to buy bus ticket online. E-ticket is the easier and quickest way to take bus. The online system is a new system because it still not is used fully by other bus company such as Transnasional and Mutiara. Currently, staff at the bus ticket counter is using an internal system to sell ticket at the counter. Customer is unable to buy bus ticket online at this moment and has to go to the counter to buy bus ticket. Sometimes, customer needs to queue up a long queue to buy bus ticket and ask for information. Besides that, customer also not allows buying bus ticket through telephone. Example, Transnasional's telephone line is always busy.

My project is to computerize traveling company to manage data, so that all the transactions become fast and there should not be any error in transaction like calculation mistake, bill generation and other things. It replaces all the paper work. It keeps records of all bills also, giving to ensure 100% successful implementation of the computerized Bus Ticketing System.

This ticketing system has three modules. First module helps the customer to enquire the availability of seats in a particular bus at particular date. Second module helps him to reserve a ticket. Using third module he can cancel a reserved ticket.

1.2 PROBLEM STATEMENT

Nowadays, the system that are using by the staff at the counter currently is an internal system and just used to sell the bus ticket at the counter. Customer has to go to the counter to buy bus ticket or ask for bus schedule. Furthermore, customers need to pay cash when they buy the bus ticket and sometimes needs to queue up long time to get the bus ticket. Besides that, customer also not allowed to buy bus ticket through telephone and the bus company's telephone always-busy line.

We all know that UTP is located in Tronoh and the nearest bus station to buy ticket is located in Taman Maju, Seri Iskandar. The choice of the bus ticket that we want to buy is also limited whether in term of time and the choice of bus. Only few buses maybe available for curtain destination. As a Utpian, student may have faced the same problem when the holiday is coming. Student have problem to book or making a reservation for a bus ticket. We all know that, there a few student that doing a charted bus business in UTP. But the problem is, student need to directly call to book for a ticket. Sometime student need to call more than 10 times to book a ticket and the result is disappointed. All the ticket is already sold out. This difficulty has inspired me to make this kind of website for UTP students. Then student have to go to Batu Gajah or Gopeng, Ipoh to buy a bus ticket. Since some student does not own any vehicle or transport it will make this situation harder for them.

1.3 OBJECTIVES

Why I choose this topic which is Bus Ticketing System as my Final Year Project. The general objective to this system is to assist University Technology Petronas student in making reservation for bus ticket during holiday. The other objectives are:

1. To provide a web based buying bus ticket functions. Customer can buy bus ticket through the online system and no need to queue up to buy bus ticket in the counter.
2. To provide anytime anyplace service for the customer. Customer can buy bus ticket 24 hours a day, 7 days a week over the internet.
3. To enable customer to check the availability of the bus ticket online. Customer can check the time departure and know if the ticket is fully booked.
4. To ease the bus ticket payment by online. Customer can pay the bus ticket by online banking.

1.4 SCOPE OF STUDY

The online system is an easy to use self service system which enables the customer buys the ticket online and pays the ticket through the Online Banking.

1.5 FEASIBILITY STUDY

"Feasibility study is the analysis of specific view or aspect in the project environment to help determine whether to continue or not with the project. Project developer uses it to find and know the important risk that can contribute or associated with the project. With regards about this project, a technical and operational feasibility has been conducted.

1.5.1 TECHNICAL FEASIBILITY

This project is feasible enough although there are few risks.

The project is still feasible as of this progress report date. The problem was the laptop or pc the programmer uses because the XAMPP software running in 32 bit windows but most of us use 64 bit windows. The UTP connection is sometime also poor and really slow. It depends on time and really not stable. It makes us harder to find information or any additional info regarding the project. Therefore the progress of the prototype is slow but the data gathering works and runs as schedule.

1.5.2 OPERATIONAL FEASIBILITY

By following users' acceptance of the system, this project has a low risk compare to other. The objective of the system is to assist a UTP student in making a bus ticket reservation during holiday.

1.6 FINDING

The author conducted a simple questionnaire to improve and get a respond from the users. Most of the users prefer to use this type of system in booking a bus ticket. The only place or counter to buy a ticket here is in Taman Maju and the choice of tickets is limited.

The author also visited other Online Bus Ticketing System like Transnasional but we can only use their system to know the time, date and location but we need to go and buy it manually. Different with Plusliner and Maraliner, we can directly buy the tickets online and they have a system that mostly same as Online Bus Ticketing System.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter defines the facts and finding on the electronic ticketing or e ticketing after read some articles, books and websites that are related to the system. I will also state a few existing bus ticketing system that already be used in Malaysia.

2.2 FACTS AND FINDING ABOUT ELECTRONIC TICKETING

In this section, all the information related to the online system is found by surfing the Internet and go to the library. Literature review is done and findings are come out after read through all the information.

2.3 DOMAIN

This section discusses about the research that have been done for this courseware. The research includes the entire information that is related on the system proposed which focused on the research of e-management system. E-management is a quite big field to do research. E-management is including about the member profile, the finance or others. Present some e-management system can found it in internet. For example, e-banking, e-business, e-ticketing, e-booking are still in upgrade to be a best and user friendly system.

Nowadays, a lot of people are busy with their work. Most of the time they use is in front of the computer. Computer is a most important thing in our life. Internet is one of the parts too. Every house they will have internet because it will be more easy for them to do some research, e-payment, e-banking, e-shop or any online booking to do a ticket reservation or a accommodation reservation.

With wide use of internet, a lot of online shopping, online business, and online booking website are developing to ease the user to do their work. User just need to use few finger click then can buy all the things their need to. With this few finger click user not need to queue up for a long time to pay for the goods at the cashier.

2.4 ELECTRONIC MANAGEMENT

Management comprises directing and controlling a group of one or more people or entities for the purpose of coordinating and harmonizing that group towards accomplishing a goal. Management often encompasses the deployment and manipulation of human resources, financial resources, technological resources, and natural resources. Management can also refer to the person or people who perform the act of management. Management operates through various functions, often classified as planning, organizing, leading motivating and controlling.

E-Management also can call as electronic management. E-Management is computerized all the management. E-Management is included a lot of things. E-leave management system also can as an e-management system. E-management is about how to manage a resources by using computer and online.

With the e-management, the management will be more efficient and systematic. The management does not have to use the manual technique that needs files and cupboards to store the forms. The forms are store in one place and references are easier to make.

2.5 ONLINE BOOKING OR RESERVATION

Widespread use of Internet has led to the emergence of a variety of electronic services, e-services. Electronic ticket, or e-ticket, is an example of such a class of e-services. E-tickets give evidence to their holders to have permission to enter a place of entertainment, use a means of transportation, or have access to some Internet services. Users can get the e-tickets by purchasing them from a web server, or simply receiving from a vendor or from another user who previously acquired those E-tickets can be stored in desktop computers or personal digital assistants for future use. For some cases, like e-tickets nontransferable example e-ticket airline, it has to be validated to prevent duplication, and ensure authenticity and integrity.

A user first has to relay it to server for validation before using an e-ticket. The validation process is called e-ticket problem here, results in the server either accepts or reject the e-ticket, and intended to prevent duplication which avoids multiple use of an e-ticket by the same or different users. It is to ensure authenticity and integrity that e-tickets are only accepted if they have been issued by an authorized source and have not been tampered with. In addition, for privacy, it is desirable that e-tickets should not contain any information associated with their holders.

This conference state that e-ticket problems are user can't be trusted and servers may fail by crashing. Besides that, two specifications of the e-ticket problems are the at most once and the at least once e-ticket problems. Both specifications are requiring e-tickets to be accepted exactly once in executions without failures. But, the former specification may result in some e-tickets never being accepted or accepted multiple times in executions with failures

There were a few protocols that can be used to solve the e-ticket problem, which are quorum based e-ticket protocol, simple e-ticket protocol and the optimistic e-ticket

protocol. Simple e-ticket protocol and the optimistic e-ticket protocol can be used to solve the ticket problem.

2.6 EXISTING SYSTEM

Nowadays, a lot of website about online services or online ticketing system can be found. Below are the few examples from what I found. From what I found, only a few website or e-ticketing system allow us to book and reserve the ticket online like Maraliner and Plusliner.

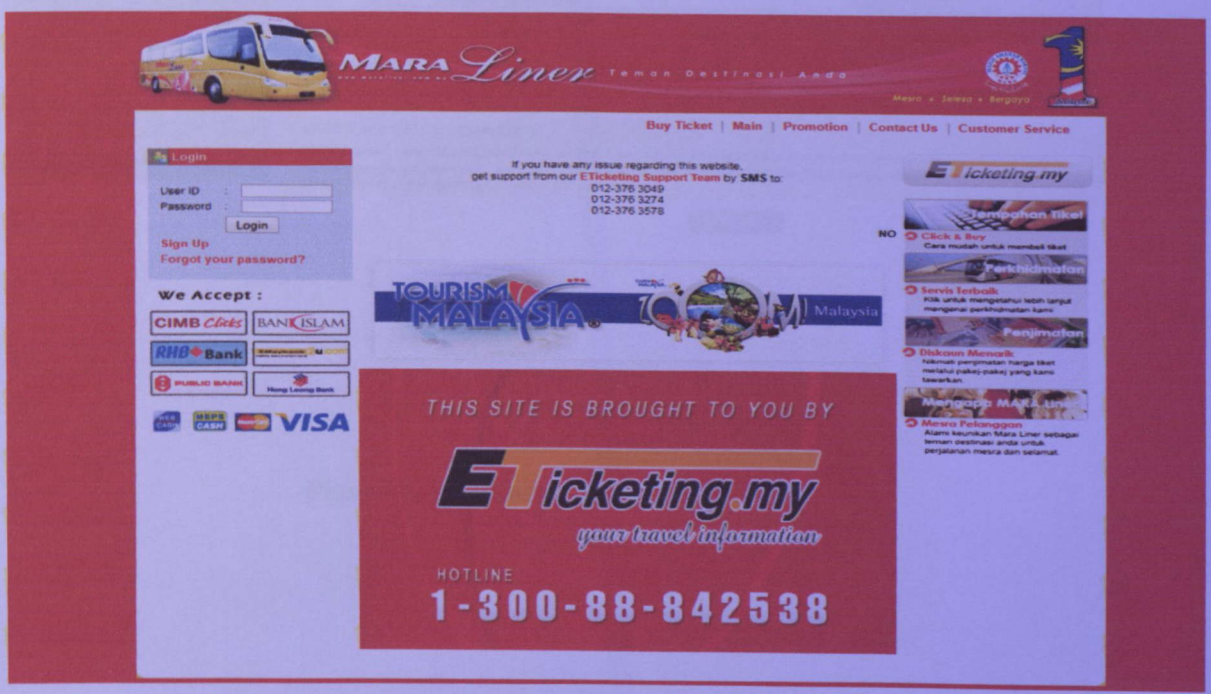

Figure 1: Maraliner e-ticketing system

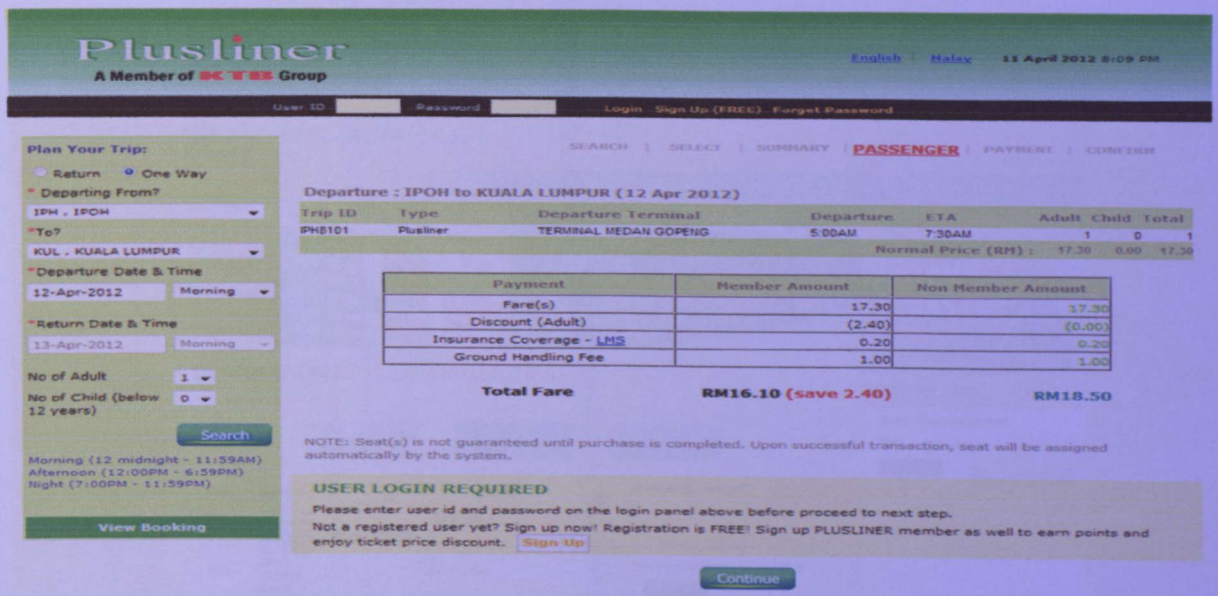

Figure 2: Plusliner e-ticketing system

For Transnasional, we can only use their system to check the time, date, and destination of the ticket, but we cannot reserve the ticket online. We have to go to their counter or agent and buy the ticket manually. Transnasional did not provide service or system as Plusliner or Maraliner. That is the weakness in the current system for Transnasional.

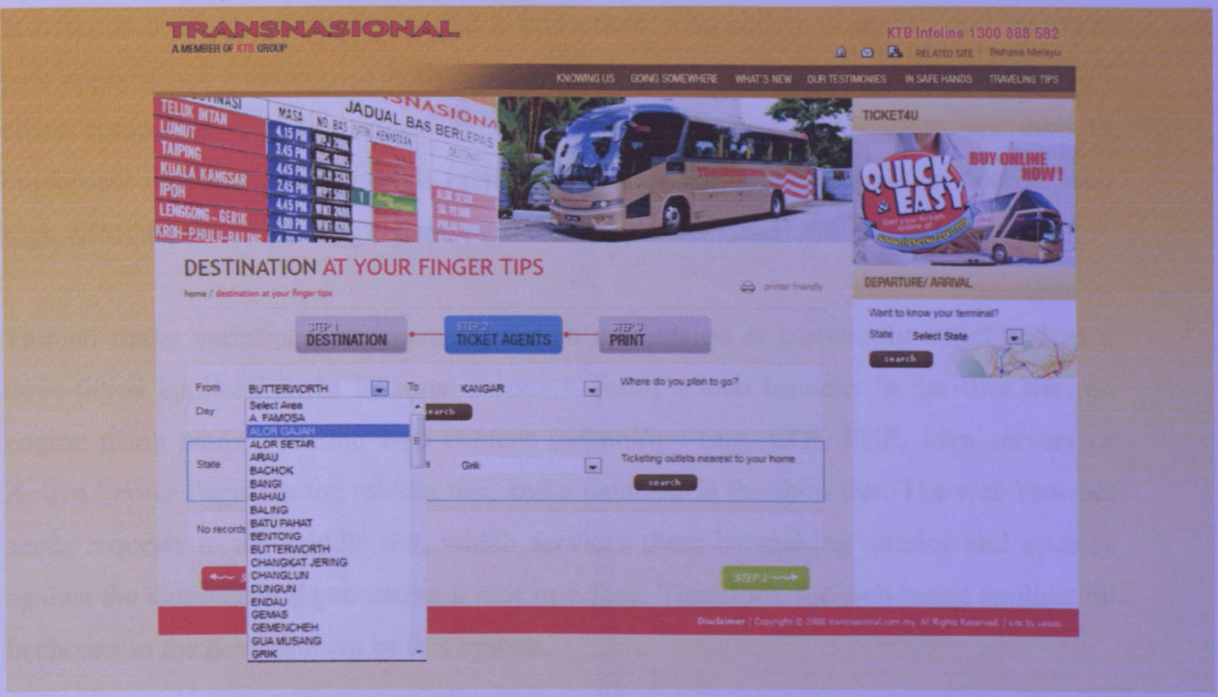

Figure 3: Transnasional e-ticketing system

2.7 WEB BASED APPLICATION

In software engineering, a web based application-sometimes called a web application. Web application is an application that is accessed with a web browser over a network such as the internet or intranet. Web applications are popular due to the ubiquity of the browser as a client, sometimes called a thin client. The ability to update and maintain web applications without distributing and installing software on potentially thousands of client computers is a key reason for their popularity. Web applications are used to implement web mail, online retail sales, online auctions, wikis, discussion boards, web logs, MMORPGs, video logging and perform many other functions.

Though many variations are possible, a web application is commonly structured as a three-tiered application. In its most common form, a web browser is the first tier, an engine using some dynamic web content technology (e.g. CGI, PHP, Java servers or Active Server Pages) is the middle tier, and a database is the third tier. The web browser sends requests to the middle tier, which services them by making queries and updates against the database and generating a user interface. Therefore, the web based application is chosen in the development of this system.

CHAPTER 3: METHODOLOGY

3.1 DEVELOPMENT METHODOLOGY

The project methodology that used in the development of the system is the System Development Life Cycle (SDLC). SDLC is the process of understanding how an Information System (IS) can support business needs, designing the system, building it and delivering it to users. The SDLC is composing of four phases: Planning, Analysis, Design and Implementation.

The SDLC traces the history (life cycle) of a developing information system. Structured design methodology is Waterfall Development. With Waterfall Development, analyst and users proceed is sequence from one phase to the next can mapped out an evaluated.

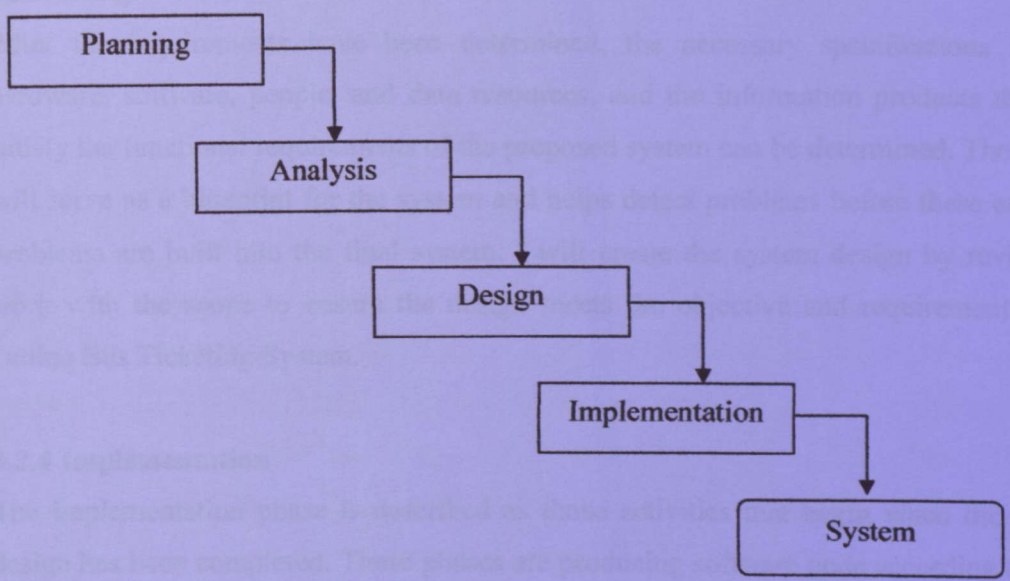

Figure 4: Waterfall Methodology

3.2.1 Planning

In planning phase, to develop a new system which is a first step is to identify a need for the Online Bus Ticketing System, and also plan how to develop the functional requirements of a system. This will include determining whether a business problem or opportunity exists, conducting a feasibility study to determine the developing a project plan.

3.2.2 Analysis

In this phase, I have analyze considers the current systems and investigates any problems associated with it. Other sources of information about system and the new requirements would also be investigated at this time. The output from this stage would probably be no more than a set of notes.

3.2.3 Design

After the requirements have been determined, the necessary specifications for the hardware, software, people, and data resources, and the information products that will satisfy the functional requirements of the proposed system can be determined. The design will serve as a blueprint for the system and helps detect problems before these errors or problems are built into the final system. I will create the system design by review the work with the scope to ensure the design meets the objective and requirement of the Online Bus Ticketing System.

3.2.4 Implementation

The implementation phase is described as those activities that begin when the system design has been completed. These phases are producing software code according to plan, analysis and system design that have been done. Coding and debugging is the act of creating the final system. The requirements documentation should be referred to throughout the rest of the system development process to ensure the developing project aligns with the needs and requirements or scope. The system also is tested to evaluate its actual functionality in relation to expected or intended functionality.

3.2.5 System

Last phase is system which is when development is complete and the system is in daily use. It is the longest life-cycle phase. System involves correcting errors which were not discovered in earlier stages of life cycle; improving the implementation of system units and enhancing the Online Bus Ticketing System services as new requirement are discovered.

3.3 PROJECT MILESTONES

3.3.1 First Milestone

The first milestone of the system will be the implementation of the system in the author's hardware. Three personal computers are needed to complete this project. Those three computers include the server, admin and the other one is the user. As of this progress report, the first milestone is met successfully.

3.3.2 Second Milestone

Since this project is a popular and known system, there are many templates for the website. So, the author does not need to redesign on paper first. The computer which be involve in this second phase will be the server and admin. Then, the data gathering and mining will be done. The author focused on research about the other online reservation system, pictures or images or any additional and useful information.

3.3.3 Third Milestone

The third milestone will be implementing the workflow and all the resources into the form and update the interface of the form to make it friendlier and easier to use. Using the designing method learnt in Internet Programming which is php and to make it more creative in design the author use the CSS and a few JavaScript. After the third phase is complete, the project proceeds to the fourth milestone.

3.3.4 Fourth Milestone

The fourth or last phase will be the last phase of creating the Online Bus Ticket Reservation website where the system functions and design is mostly complete and will be implemented for trial and in finding any bugs or problems. I'm hosting the server using my own personal desktop using XAMPP server.

3.4 GANTT CHART

The developer had prepared the Gantt chart for the research. This Gantt chart will help the author to have proper planning for the research in build ability. The Gantt chart consists of activities and the duration or period to complete the task or activities.

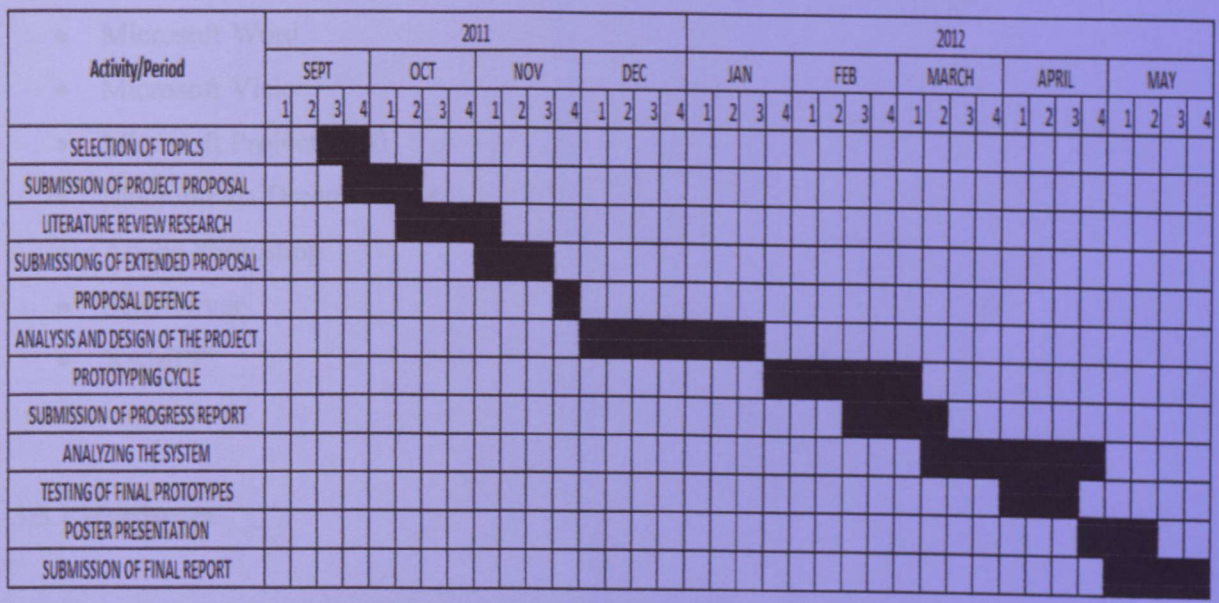

Figure 5: Gantt Chart

3.5 TOOLS

To complete this project, the author need some tools that required in assisting the author when develop the system. Below is the all the project requirement in doing the project.

Project Requirement

- Microsoft Word
- Microsoft Visio
- Microsoft Project 2010
- Macromedia Dreamweaver
- Adobe Photoshop
- SQL server
- XAMPP

3.5.1 Hardware

Hardware is one of the core and important things in doing and completing this project. This is an IT project, so it requires the most important hardware which is personal computer. The author needs more than one computer because there will be a server, users and computer for author himself to edit and develop the project.

3.5.2 Software

Tools or software that important in developing the project is PHP, CSS and JavaScript. All the software is needed to create the online form. The author also need few images and need skills to edit the pictures as to create the workflow and also editing in Graphical User Interface (GUI). In term of database, the author uses the My SQL server 2008 to hold and manage the database.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 Data Gathering

The main reasons that inspired the author to create this system is to solve all the known and indentify problem the author has described in the problem statement. To ensure the system is develop based on the current problem, the author using the research to clarify the problem stated earlier. All the data gathered by the author using the research and reading regarding the problem statement and to identify the system requirement.

4.2 Data Analyzing

Based on the research earlier, the author realized that the problem statement and the objectives are justified. The research and reading proves that UTP student need this kind of system to help and assisting them in making the bus ticket reservation.

4.3 Results

As for the results, the entire requirement for the system is already identified and documented in the author's journal and notebook. No, evidence or proof to show since this system did not need the author to do a survey or interview.

4.4 Prototype Discussion

Introduction

In my previous FYP 1, I choose 2 develop a system with a 3 module. Which is the First module helps the customer to enquire the availability of seats in a particular bus at particular date. Second module helps him to reserve a ticket. Using third module he can cancel a reserved ticket. Here I want to redesign my module to make it 2 only. The 3rd module canceled. Below is the progress I make during my FPY 2. I already finish in coding and all the functions and including the designs.

Homepage

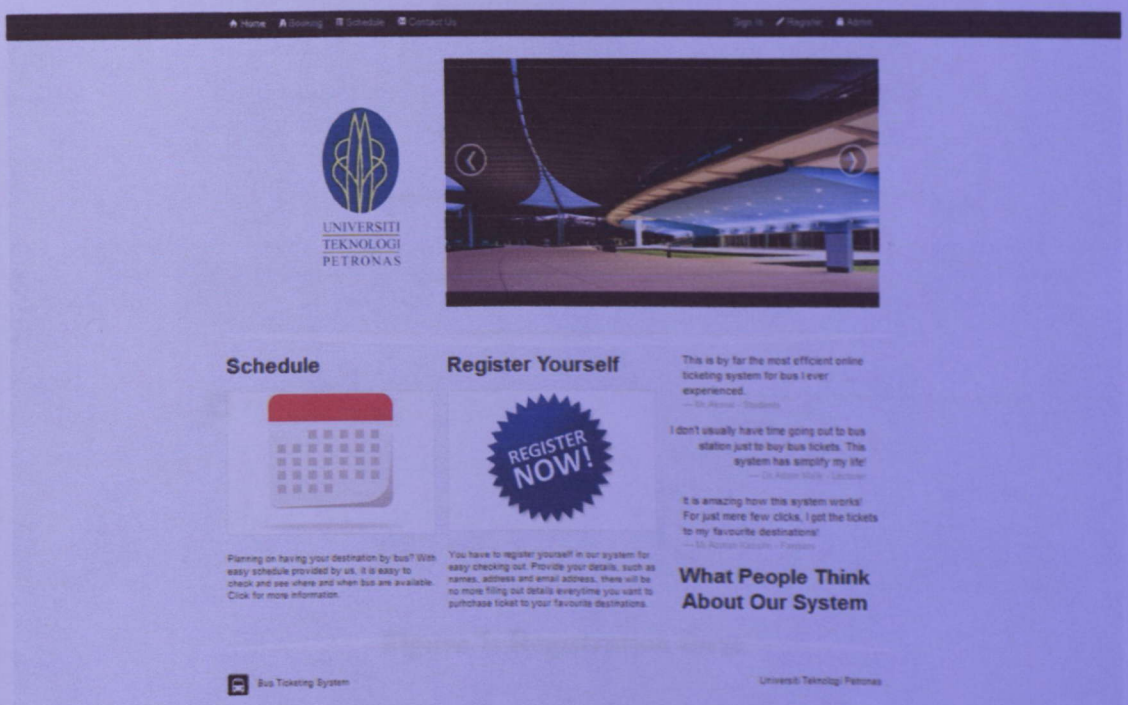

Figure 6: Homepage

Figure 6 is the Homepage for my website. The design will be finish later. In this homepage, as usual we have to register or sign in first to use my system. User can click at the top right corner, there is a register section. User can click on that part and the registration form will appear. If the user is already registered they can just login by clicking the Sign In button at top right corner. For the admin access, they can login by clicking the Admin button beside Register button.

Register

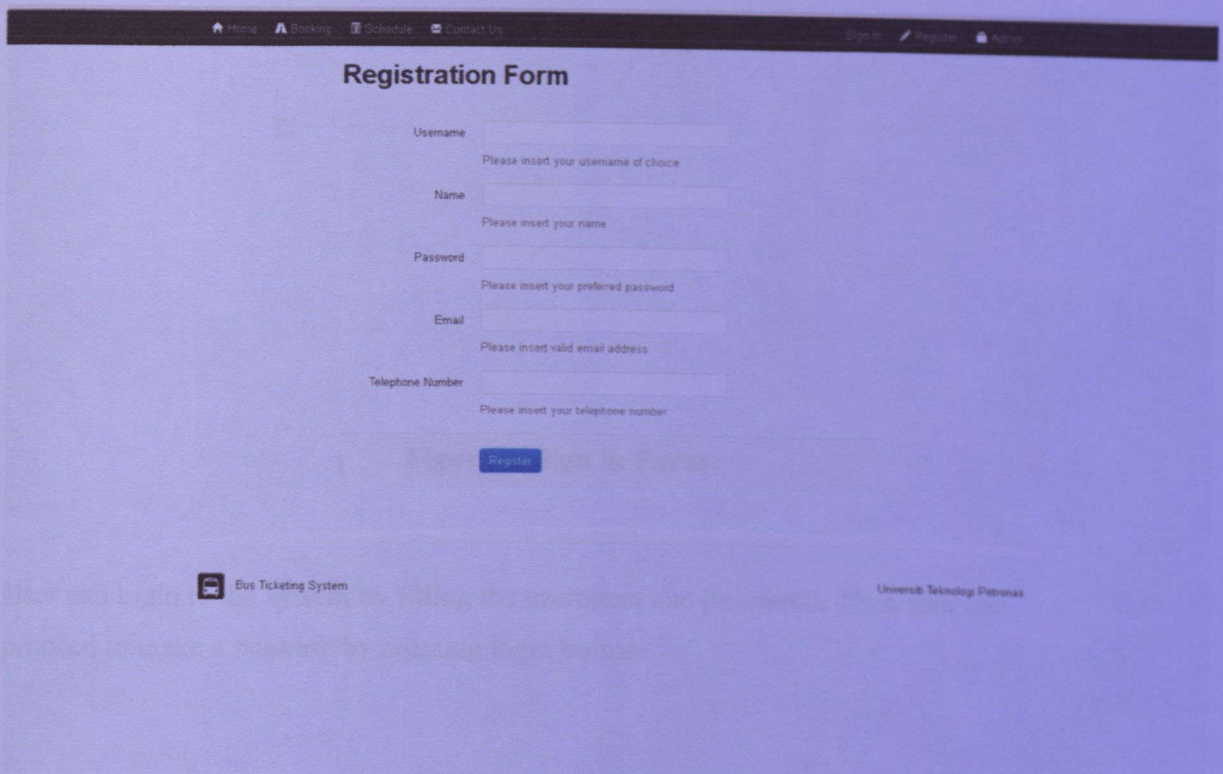

Figure 7: Registration form

For registration part, user has to fill the form that includes Username, name, password, email and Telephone Number. When the user click a register button, their account will be

automatically activated and my system did not need a conformation or verification through an email. User can sign in directly after registration.

User Login

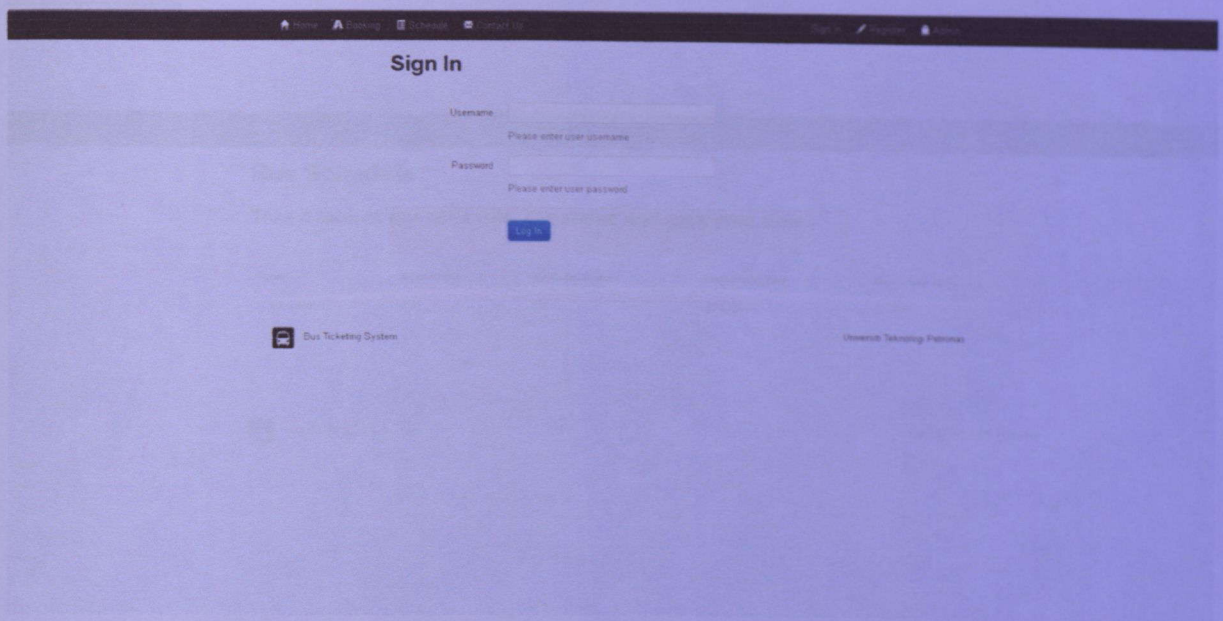

Figure 8: Sign in Form

User can login to the system by filling the username and password. Then user can proceed to make a booking by pressing login button.

Bus Schedule

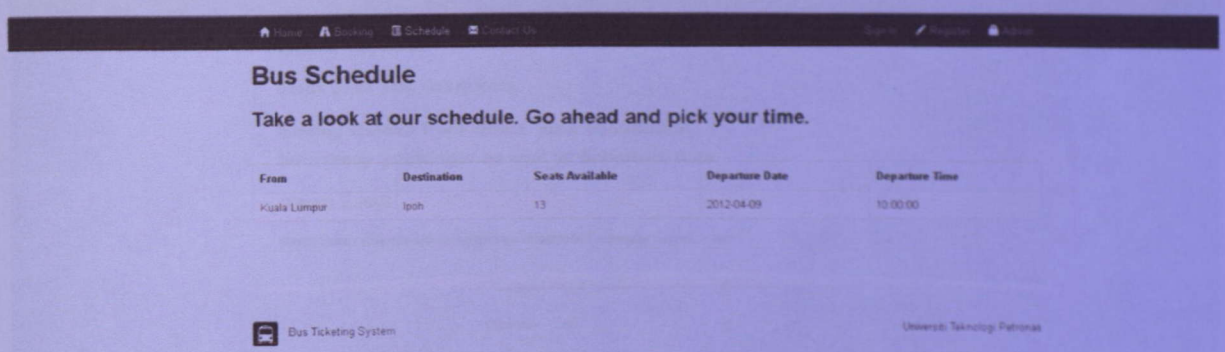

Figure 9: Bus Schedule

To reserve a ticket, users can easily find the bus schedule by clicking the Schedule button at the top left corner and the entire bus available will be show to the users. Bus schedule is set by Admin.

Booking Tickets

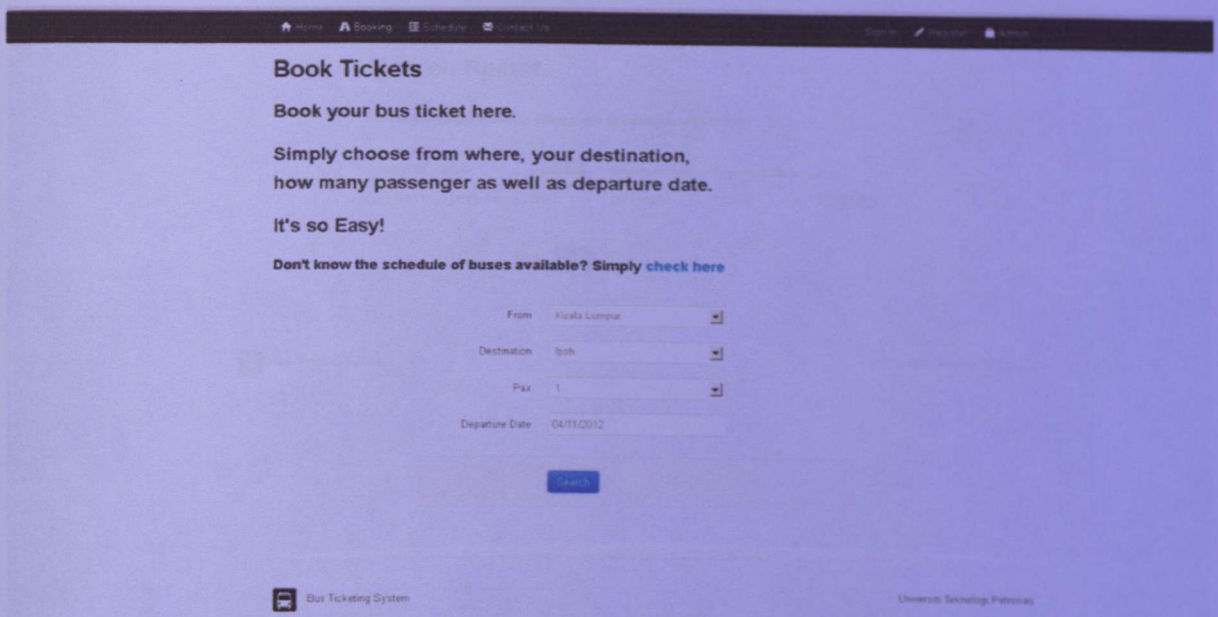

Figure 10: Book Tickets

Then user can start to use the main function or service of my system which is booking the bus ticket for a vacation or holiday. User can search the bus ticket by clicking the Booking button at the top left corner. User has to search for a ticket first before reserving the ticket. To search, user can just choose the location using drop box function. User also needs to choose the destination and the number of passengers and set the date of departure.

Search Result

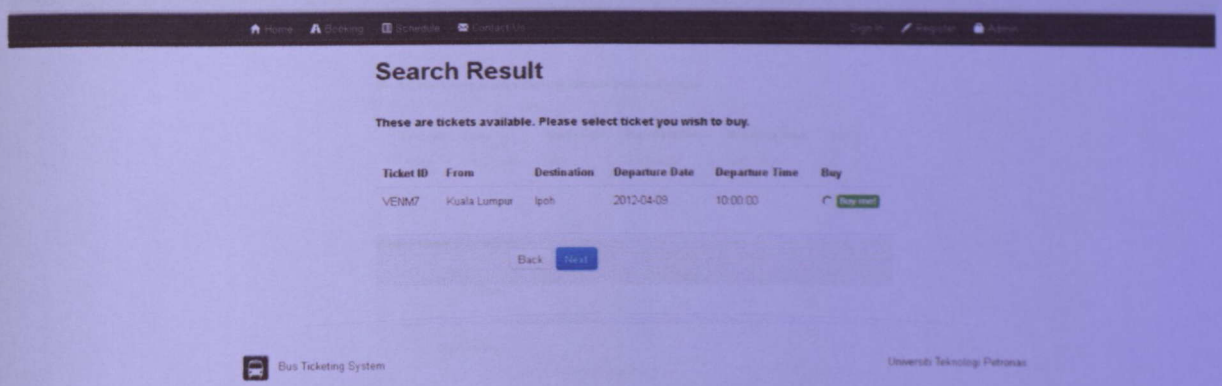

Figure 11: Search Results

This figure show the result when users browsing for a ticket according to his or her destination in searching the tickets. If the user is confirming to buy the tickets, they can just click the next button for confirmation.

Confirm Purchase

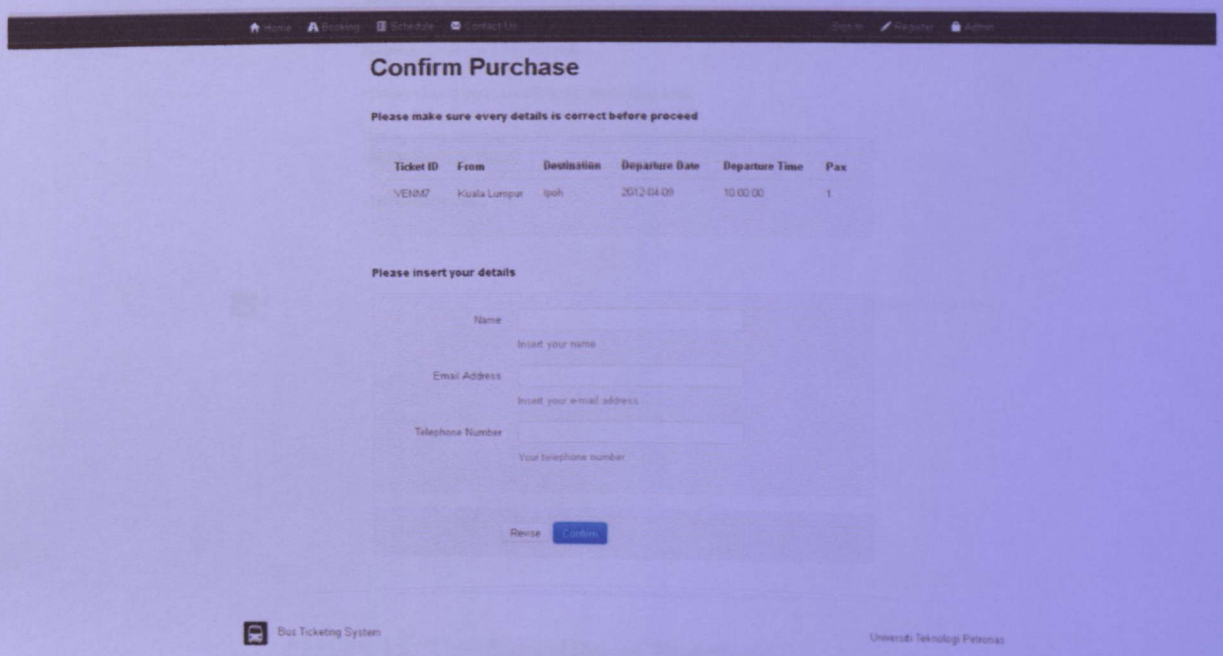

Figure 12: Confirm Purchase

After the user clicking the next button, Figure 12 will be displayed and user needs to confirm the purchase by filling all the details which are Name, Email and Telephone Number.

Conformation of Purchase

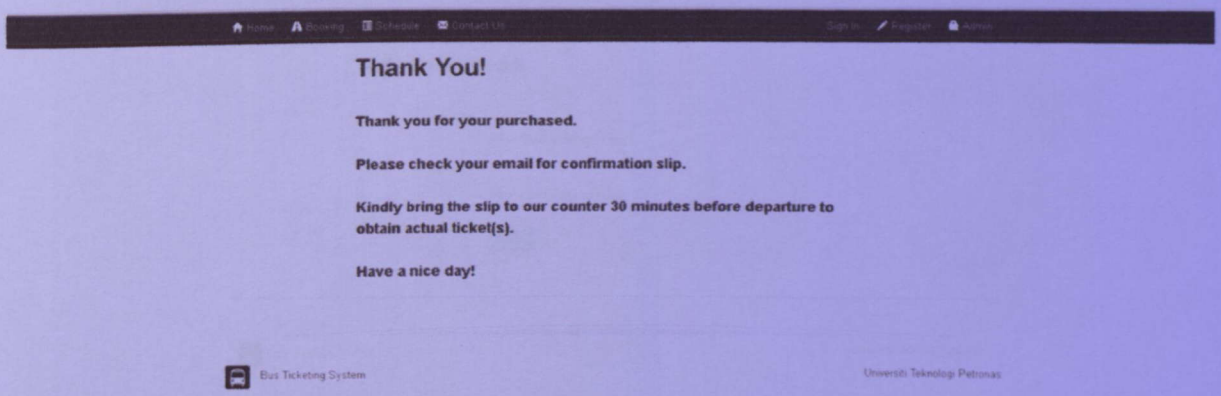

Figure 13: Confirmation of Purchase

Figure 13 show that users already make a purchase and confirming it.

Admin Access

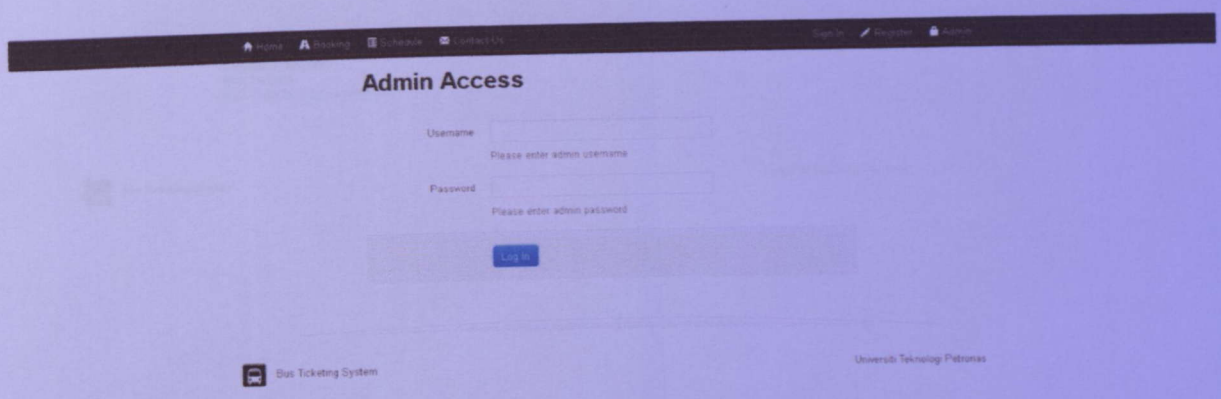

Figure 14: Admin Access

Since I am developing the system for Bus Operator, I need an admin access to make sure the system is stable and always in maintenance. Admin can login using the Admin Access section using administrator's username and password. After the login, figure 15 will be displayed as below.

Admin Access

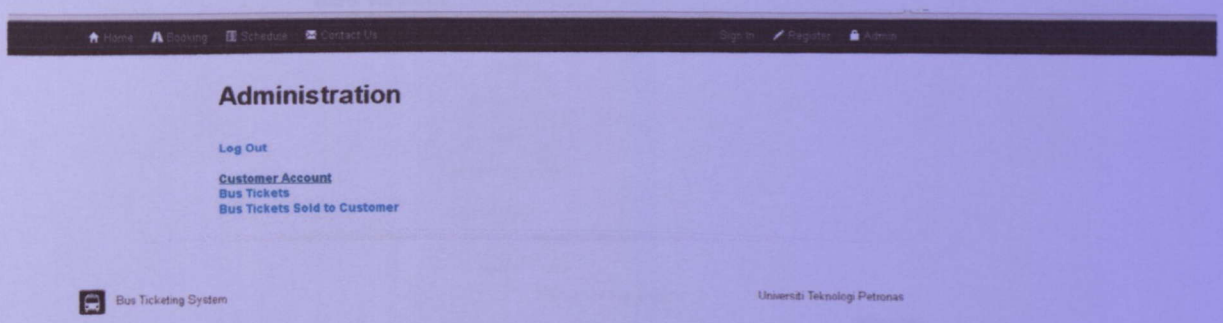

Figure 15: Administration

Admin control panel.

Admin Access

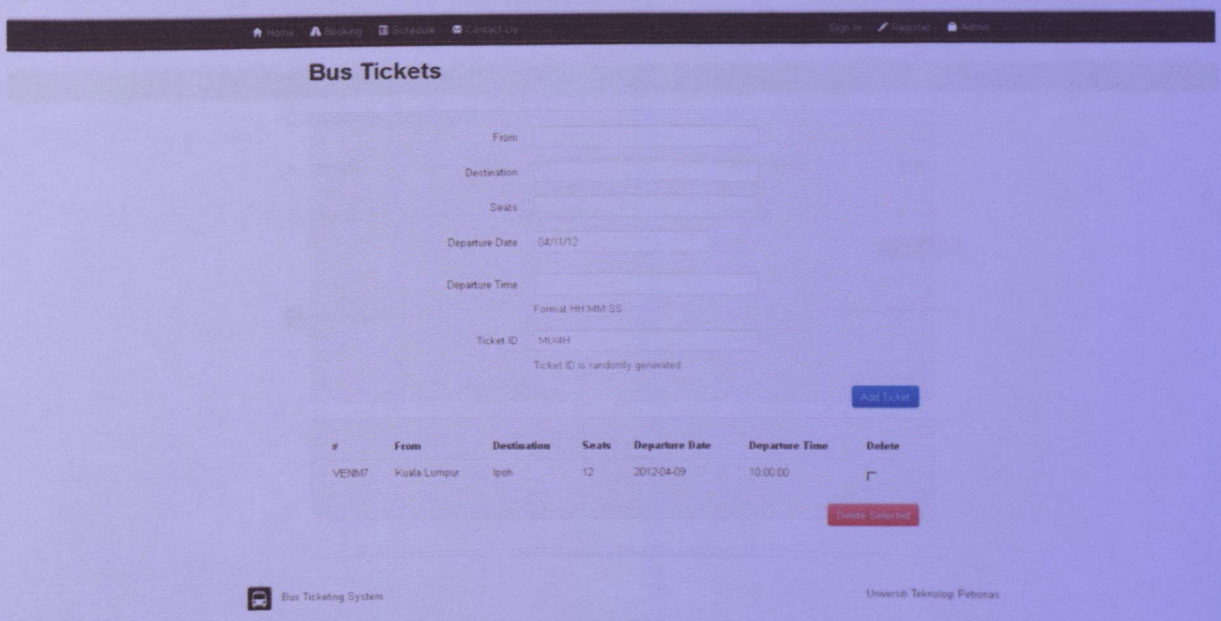

Figure 16: Administration

Admin has the right to edit anything including the Bus Schedule. Admin can add and delete the tickets availability. Example, If the admin want to add a new destination or tickets, admin can fill all the Bus Ticket's form and press the Add Ticket button. If admin want to cancel the existing tickets, he or she can easily tick the checkbox and press the Delete Selected button.

Customer Account

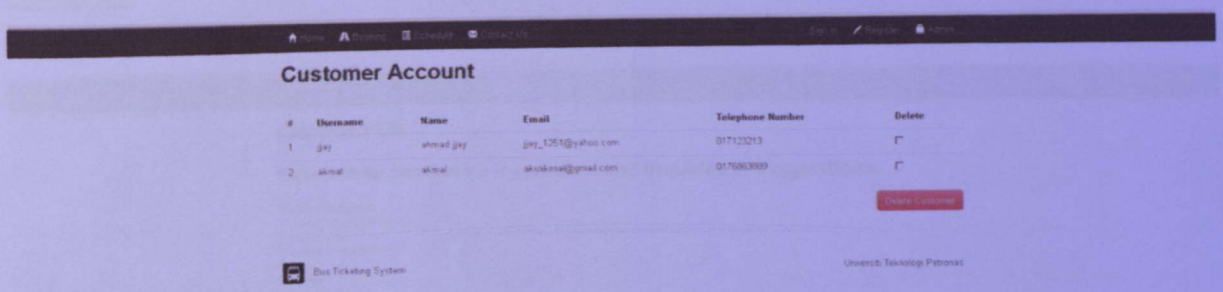

Figure 17: Customer Account

Figure 17 shows all the customer account or registered customer in this system. Admin has the right to delete the customer account.

About Us

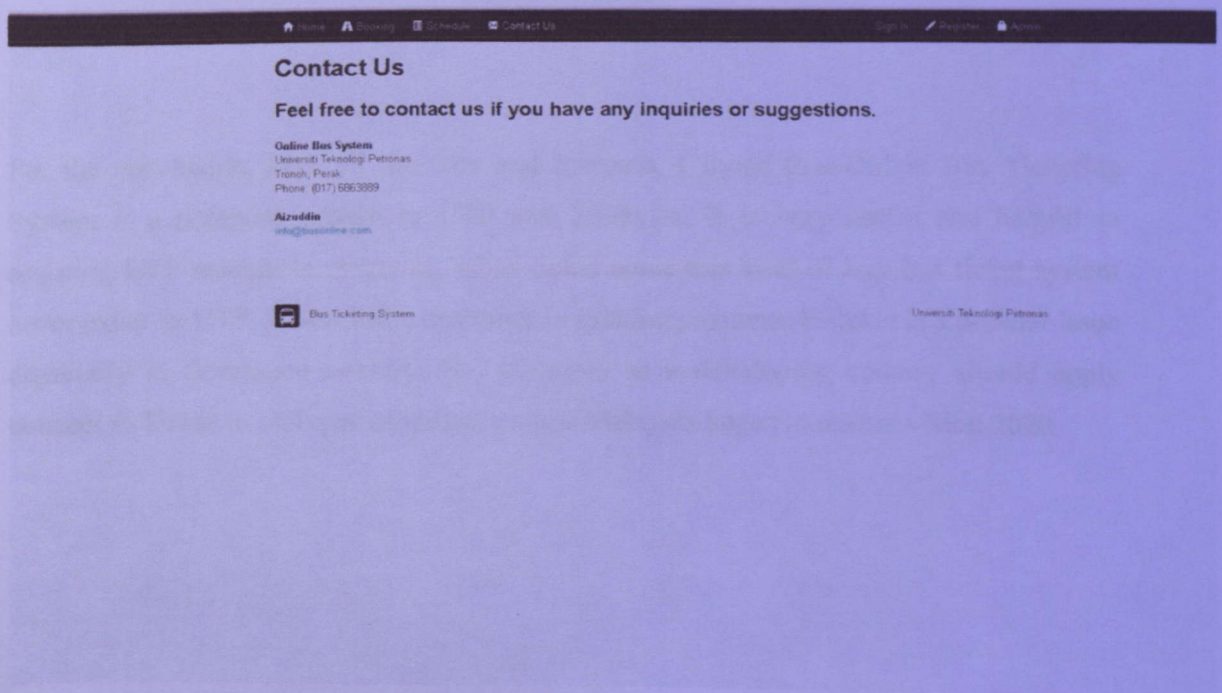

Figure 18: About Us

This figure shows the details about the company info.

CHAPTER 5

CONCLUSION

For the conclusion, after all the data and research, I found that Online Bus Ticketing System is a potential system in UTP and Malaysia. It is very useful and helpful in assisting UTP student in reserving a bus ticket since this kind of buy bus ticket system never exists in UTP. It also helps customer in making payment. E-ticket is a popular issue especially in developed country. So, Malaysia as a developing country should apply concept E-Ticket in all types of industry since Malaysia hopes to realize vision 2020.

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