WEB-BASED INTERNET MOBILE APPLICATION TO MANAGE ORGANIZATION

NAYYEL ARSAN ALOUN

UNIVERSITY UTARA MALAYSIA

2011/2012

WEB-BASED INTERNET MOBILE APPLICATION

TO MANAGE ORGANIZATION

A Submitted To the College Of Arts and Science in Partial Fulfillment of the Requirement

for the Degree Master of Science (Information Technology)

University Urara Malaysia

By

NAYYEL ARSAN ALOUN

808998

PERMISSION TO USE

In presenting this project in partial fulfillment of the requirements for a postgraduate degree from University Utara Malaysia, I agree that the University Library may make it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor(s) or, in their absence by the Dean of the Graduate School.

It is understood that any copying or publication or use of this project or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to University Utara Malaysia for any scholarly use which may be made of any material from my thesis.

Requests for permission to copy or to make other use of materials in this thesis, in whole or in part should be addressed to:

Dean of Postgraduate
College of Arts and Sciences (UUM-CAS)
University Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman.

ABSTRACT

Information world today's, where the internet and web technology are used widely. Most of the organizations acknowledge the importance of SMS system and WEB in reaching and interacting with their users. However, there is much discussion regarding the effectiveness when it comes to SMS system. This study helped organization's students, users of organization, and willing to accept, reading and using SMS messages: effective is SMS messages compared to traditional communications. The goal of this study is to investigate the effectiveness of SMS messages compared to traditional ways for different aspects and on the other hand, to develop prototype by using Web and SMS technology to apply this system and extent students are willing to accept SMS messages on their mobile phone, since the effectiveness of SMS messages highly depends on this willing. The results of this research indicate that the use of the web and SMS for the benefit of the organization and students in all aspects instead using traditional ways to contact.

ACKNOWLEDGEMENTS

"By the Name of Allah SWT, the Most Gracious and the Most Merciful"

First of all, thank to Allah S.W.T for this Almighty that makes me healthy throughout completing this research paper. Also take this chance to all who have contributed their help and give me support in completing this study. Without whose cooperation, encouragement, and suggestions, this study would not have been possible.

I would like to thank and express my appreciation to my supervisor and my leader, Mr. Abdul Razak bin Rahmat how gives me full support, courage, constructive suggestion, knowledge and guidance consistence during this study. I appreciate the time he spent discussing the progress of the study.

Also a pleasure to thank and present this study to my first teacher who has helped me step by step to inspire me through the studying terms. I dedicate all the brilliant moments of this study to my father, Mr.Arsan Ehnayan Aloun.

Special thanks to my beloved family, especially my uncle D. Matrok Ehnayan Aloun, and my cousin D.Salim Safah Aloun, who sacrifice much and supported my efforts with love, understanding and constants encouragement without which it would not have been possible for me to earn this master's degree. Thanks for their never ending support.

Finally, I would like to dedicate my sincere gratitude and appreciation to friend around me for their assistance and support throughout the duration of my graduate studies. Once again, thanks to all who have contributed in completing my study. I cherish all your support, guidance and help.

Table of Contents

CHAPTER THREE: RESEARCH METHODOLOGY

CHAPTER FOUR: ANALYSIS AND DESIGN

CHAPTER FIVE: FINDING AND RESULTS

CHAPTER SIX: CONCLUSION AND RECOMMEND

LIST OF TABLE

LIST OF FIGURE

1.1 INTRODUCTION

This chapter provides description on the undertaken study. And chapter contains a background about the study area to provide useful information about organization SMS information through mobile application. The problem statement, research questions, objectives, scope, and significance of this study are discussed in this chapter.

1.2 STUDY BACKGROUND

Online system in one of the technology advanced that became important, where this online system play a major role in the management of an organization. That is because online system functions are in stored data and retrieved data that own by an organization. An online system can be defined electronic interactive system is send information. In this situation, sending information is done by internet connection either by wired network, wireless network or mobile wireless network(Koufaris 2002). Hence, it is an advantage if it's used as an online application because it is supple and quick admission to huge of data.

Online is the condition of being connected to a network of computer or other device. A business provides it is customers to access business data over telecommunication line. This is known as online service. Online service includes email services, online the addition, online service is able to connect any number of users and meet their needs. Nowadays, online has many benefits such as business can be expand with a relatively lower cost thus brings business success(Baida, Gordijn et al. 2004). It can save time and can be accessed anytime from anywhere and it also reduced paper based work thus the business can run faster and able to manage business data accurately.

The mobile devices and the emergence of wireless technologies have become today an important element of society. Firms adopted mobile devices and wireless technologies to support

and improve their business' performances. Today even small mobile devices can access the internet(Goto and Kambayashi 2002). Therewith, mobility issues have become an important technical and economic research interests.

While the world is becoming more technical the people started using their mobile in their daily life and actions. Today's people travel longer distance than ever, people's work situations are more challengeable than they used to be and we seem to be an on our way at all times. People are on the move, at work and otherwise. At most the workplaces of today, people face situations in which they must carry mobile to finish ordinary tasks(Guthery and Cronin 2002). This increased mobility among people in our information society increases the need of being able to access information independent of location. One way of accessing necessary information when carrying mobile is to use Mobile Internet services. Mobile application works closely with the client. It can be a wireless or not wireless environment(Kavassalis, Spyropoulou et al. 2003).

According to Tanakinjal, Amin et al. (2007). Advancement in mobile technology provide advantages to users in terms of knowledge by using mobile that it lead to better information, save time as well as minimize the cost, in further of contribute a better communication, easy to get and catch knowledge, mobility, and transparency. With the rapid development of mobile technologies, most of people at this time have a mobile phone and carries it all the time; as SMS offered the benefits such as, SMS it has the ability to send and read at any time, no matter you are in your office, on a bus or at home, SMS it has many benefits one of them is it takes low cost services, and more secured because mobile phone is a personal device.

By creating SMS service it allows you to configure any mobile phone numbers for the SMS service, the SMS messages will be sent out to all assigned mobile phones simultaneously, the SMS system of the mobile network operator will store the SMS message and later send it to the students and staff when his or her mobile phone is online(Hillebrand, Trosby et al. 2010).

1.3 PROBLEM STATEMENT

Cross Cultural Exchange, a program designed to students up with volunteer opportunities abroad. The cornerstone of our student exchange programs is a two to three months home stay in a city or remote rural village. Here you immerse yourself in the daily life and ritual of your host community and work with locals on projects chosen by community leaders. Those seeking overseas voluntary work and volunteer opportunities abroad will discover the difference one individual can make, at the same time we have so many specialized organizations in this area of work to attract volunteers to work with them (Sheldon & Shamil, 2011).

Where the students must do trips to areas that are related to their work, as most of these areas, are far from the organization, which leads to face a problem that process of communication among students and the organization is responsible about them, as the means used in the process of communication, is the traditional process in the use of mobile phone, personally and individually from the rest of the students, where the process of communication that these traditional, will take a lot of time in the process of communication with students, and wasting money in the process.

But by using SMS can be solved, SMS can give short and clean information and send it to the right person, SMS can send and receive anywhere anytime.

Not all students and staff want to receive SMS on their phone; because some of them says that it is noisy to keep receiving these SMS, e-Zetoon system provide choices for students and staff to enter their number, and they can choose whether to fill or not their phone number details e-Zetoon system as a part from this organization can be access to all students and staff phone number that are already filled, and use the WLAN technology to announce any update information or actions as SMS.

Furthermore, organization consist number of members as students, staff, and workers. The organization face problems with storing data of the users, because of the staffs of Zetoon

organization is still using the traditional methods like Microsoft excel, and word to store data of users.

According to appendix A, there are many problems in the traditional system of Zetoon organization. These problems as following:

- Management work load, manual process make staff do so many works, because everything is done manually, for example if employees want to connect with students that are members in the organization, employees must meet them face to face in the organization, or call them one by one out of organization, all of that work must to be done by staff/employee(Kawashima, Tadano et al. 2009).
- The organization lack in communication ways between students and supervisor of organization. Especially, when the students working in outside the organization.
- Increase of delay time, the communication ways between student and supervisor cause delay time. In case if the supervisor needs to meet students, he/she must contact them separately via traditional way by mobile calling, so this procedure takes a long time. By the end of this research a SMS system will be allow to users of organization to contact with each other in short and same time(Miller 2011).
- High cost, in case if the organization needs to contact with users because the students don't work at the same area. The organization has to connect with all of students out of organization by the phone; one to one that is way will waste money(Gawande 2009).
- Lack in storage capability of main database, because the database is too simple. Also there is lack with security of main database.

1.4 RESEARCH QUESTIONS

This study aims to solve the following questions:

- How to design e-Zetoon system for organization?
- How to capture and analysis the requirement of organization system?
- How to test and evaluate usability of e-Zetoon system.

1.5 RESEARCH OBJECTIVE

This research is aimed to propose a WAP/WEB and SMS system for the organization and students, the prototype will be designed to help the organization for contact student and help them out of organization, the research questions provide this study with the understanding to the user requirement that need to achieve the study goals such as:

- Study the current system of the organization, and system requirement, current system that used to make contact with students out of organization.
- To capture and analysis the requirement of Internet Web-based Application Manage Organization system.
- Evaluate usability Internet Web-based Application Manage Organization system.

1.6 SCOPE OF RESEARCH

This study focuses on the designing of SMS WAP/WEP and use it to send the information, so this research propose mobile technology in services, instead call the students by personal phone, all mobile service provides will be covered. So the student can use the mobile device to see all information about organization (e.g. update information, update casual, new action) through mobile phone by using SMS technology. E-Zetoon system to allow the organization contact students via SMS service, so organization can contact students by one message, and the message will distribute to all of the students automatically. Furthermore, staffs can add, delete, update, and show information's of students and supervisor more easily, E-Zetoon system will be available just for users and students of the

organization. Also e-Zetoon system will be available 24\7; E-Zetoon system will be available at Jordan in organization sector.

1.7 SIGNIFICANT OF THE RESEARCH

This study considered as one of the mobile SMS application and it is implementation in organization, which gives the students opportunity to use this service when they want. The significance of this research is to design an application to develop that organization way to contact students through using WAP/WEB. Furthermore, the new way makes communication process easy, effective, save time, and effort.

The study is appropriate for implementation in all regions in any country, which could open the way for organization to use these services at any time and place. This research has a lot of benefits in society and to the organization, so this study is to help the organization to connect with students through the use of mobile device. This study, as it is important for all members of organization (employee), providing them with opportunities for their SMS from the organization of the mobile device anytime, anywhere, quickly, and easily. The WEP and SMS user can access to dynamic content such as: new actions, casual, update casual.

Decrease the delay time, the e-Zetoon system allows the organization to contact students via SMS service in a shortest time and via one message.

- Decrease the cost, time and effort of students and supervisor, because e-Zetoon system allows a wonderful contact service. It is allow the students to contact the supervisor in a short time from anywhere and anytime.
- Decrease the management work-load, because the e-Zetoon system allows the stuff to modify the data of students and supervisor. And allow the supervisor to contact students in a shortest time via SMS service.
- Improve storage capability of main data base. Store a huge number of user's information.

1.8 CONCLUSION

This chapter is presenting some of the details of this study and the researches problem which we are looking to be solved. The main target of this research is to develop an application to help the organization to connect with students they work out of organization. Through this chapter we discussed the scope and significance of this study which led us to ensure the objectives of this study can be achieved. And the problem statement can be solved. In the next chapter we will discuss other studies which are literature review.

1.9 THESIS OUTLINE

This research divides into six chapters, each chapter has special topic to be understood the problem and to be solved. So, it contains of the chapters that are explain as follows:

- **Chapter One: (Introduction)**

This chapter gives a background for the study, the necessary information to understand the problem, and the problem statement which leads to identify the research questions, study objectives, scope, and significance of the study.

- **Chapter Two: (literature review)**

In this chapter the discuses and the practices of this service will identify from the related literature reviews, previous related work, and additional information to understand the research.

- **Chapter Three: (Research Methodology)**

Describe the phases of the research methodology that have been adapted to organization the study. This chapter discusses the methodology that has been used in this project; it contains the major steps of the Awareness the problem, suggestion, development, and conclusion.

- **Chapter Four: (System Analysis)**

This chapter analysis the design and prototype; it provides the algorithms and techniques which were suggested for this study.

- **Chapter Five: (Discussion and Evaluation)**

  This chapter provides the proposed system discussion and evaluation using the usability and accessibility test to measure the user acceptance.

- **Chapter six: (Conclusion)**

  This chapter will conclude the project by conclusion of study, study contribution, problem and limitation, future work and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

Generally, the abilities of computer such as storing, searching, manipulating, and presenting information acknowledged. Thus, information that is accurate, quick, and reliable source is proving by a management system that must be organized and efficient(Turban, Leidner et al. 2008). For this reason, in order to verifying the proficiency and usefulness of an organization management can use information system. Moreover, the abilities of information system such as collect, process, store, and distributed information, where these abilities become important to support decision making and manage in an organization.

The large and huge use of the Web Application hand phone technology in business, which can deal the most facilities (e.g. television, satellite, desktop, laptop, and internet) the computers. The mobile device in many towns and places contributes to enhanced and develop the business transaction. The mobile phone become the most important tools that used in which place in world, the mobile can present some facilities to use to exchange of pleasantries by the messages. Otherwise the users can use this device.

2.2 MOBILE APPLICATIONS

Nowadays, many applications are done by using small devices and consumers satisfied with the applications. Therefore, mobile service applications have to be designed which provide value in a very short time which services have to be simple and easy to understand, otherwise customers will not use them. In that sense, the concept of the current system must be really

understood and studying the lifestyle and consumer behavior of various task(Bodendorf and Schobert 2007).

In mobile environment, all the scenes provide by small devices must be simple and easy to use including fill in the form. Therefore, guideline in mobile application is consisting of five rules. Developers give purpose to content and define the relationship between the user and the content, as well as the need for time and allowance to growth.

- Understand the use of the content, not just state the content is, but how it will be used.
- Please direct users to their content. Mobile users often know what they &ed. giving them what they want at any given moment is a key challenge.
- Direct content to its users. A guide knows how to direct relevant content. If there are places for audience to organize and make its common values known, then the content can be directed and made available.
- Save the user's time.
- Allow the growth of content. The matter always change, user involvement is needed in maintenance and creation.

These are the guidelines produce by government in developing e-government applications. Development and management of mobile application in public sector is clearly towards Malaysia vision. Furthermore, developers need to study previous researched to change a paper form to paperless mobile application. The applications have to be performed without forgetting the stated rules which involve in government current application processes. Besides that, the mobile application must be user friendly and easy of use especially for government's staff (Saleh and PENDLEBURy 2006).

2.3 WEB- BASED APPLICATION

Web application is a software application that deliver or receiving its function to end-user from a web server, through a network (Alfonso, et al. 2005). Web application is an application that is accessed via web over a network such as the internet or an internet web application are popular due to the ubiquity of a client, sometime called a thin client. The ability to update and maintain web application without distributing, and installing software on potentially thousand of client computers is a key reason for their popularity.

2.4 MOBILE WEB APPLICATIONS ENABLING TECHNOLOGIES

A web application is an application that runs on a web server and is accessed by users over the Internet or a local intranet. Web applications usually consist of static resource files (e.g. Images), web components, helper classes and libraries(Siau and Shen 2003). A web browser is commonly used as a thin client hence all the processing is done on the server. Web applications are usually organized in three-tier architecture a user interface level, a functional process logic level, and data storage level. A web browser is the user interface level and dynamic web content technology such as ASP or Java is used in at the functional (business logic) level. Data Storage is handled by database.

Web applications are an extension of a web server(Armstrong, Ball et al. 2004). Web applications are either service oriented or presentation oriented. A presentation oriented web application produces interactive web pages containing mark up languages like (XML and HTML) and dynamic content in response to requests. Many of these open sources LAMP (Linux, Apache, MySQL and PHP). A service oriented web application then implements the endpoint of the web service.

2.5 WEB AND WAP DEFINITION

WEB application is a computer programming system created by Donald Knuth as the first implementation of what he called (literate programming), the idea that one could create software as works of literature, by embedding source code inside descriptive text, rather than the reverse.

Wireless Application Protocol (WAP) is defined by International Engineering Consortium as an application environment and set of communication protocols for wireless devices to communicate with each other and with any external application. In another words the WAP technology can define as an open international standard for application layer network communications for different communication fields, which its aim to provide and support the users with the Internet accessing from a mobile phone or PDAs (Kalliola 2005).

2.6 WEP application vs. WAP application

Obviously, choosing WAP application to build this application leads us to some advantages and disadvantages comparison with WEP application. Table 6.0 illustrates the differences between them.

Type of application / Comparison	WEB applications	WAP applications
Advantages	• It is too easy to access any web site even though the WEB size. • Many applications are available through the WEB. • The WEB does not need to spend a lot of money spicily with daily offers to use it. • Its speed is more than a WAP application.	• It can connect to the internet anytime and anywhere. • Don't need to spend a lot of many to buy a computer or make participation to make connection to the internet. • It is more secure of WEB • It is easy to creation and maintenance.
Disadvantages	• Many of the website is not secure • Sometimes WEB will be target by hackers • Sometimes WEB could be under maintenance • Sometimes WEB could be low connection and disconnection. • It must sit in specific place to make connection for the internet	• It is need special kind of hand phones to make connection in the internet. • It is slower than WEB. • It is more expansive than WEB. • The screen in the WAP is smaller than web, so it is not clear enough.

Table 2.1: differences between WEB/WAP (Kodakanchi, Kuofie et al. 2006; Qaddour 2006).

2.7 WAP Device Characteristics

WAP device characteristics	
Component	**Communication**
• Less powerful CPU • Less Memory • Smaller Screen Display • Different input • Restricted power supply	• Less bandwidth • More unstable • More latency • Less availability

Table 2.2: WAP device characteristics (Kodakanchi, Kuofie et al. 2006; Qaddour 2006)

2.8 THE WAP PROTOCOL STACK

The Mobile devices contain mobile devices such as mobile phone, and devices which need special operating systems such as the pocket PC, which can be able to provide many

applications. In another hand mobile devices include t he most competitive technology such as the Personal Digital Assistants (PDAs) with or without networking capabilities and mobile phones that may or may not be able to access the WEB(Naismith, Lonsdale et al. 2004). The WAP application can be used to reduce the processing operation on the client side effect, which embraces the client and server approach in order, where a mobile phone equipped with other communications technologies such as a micro browser communicate with a WAP Gateway reside on a server, therefore only a simple browser that capable of displaying contents were placed in the phone while all the intelligent and processing done by the server (Singelee and Preneel 2005).

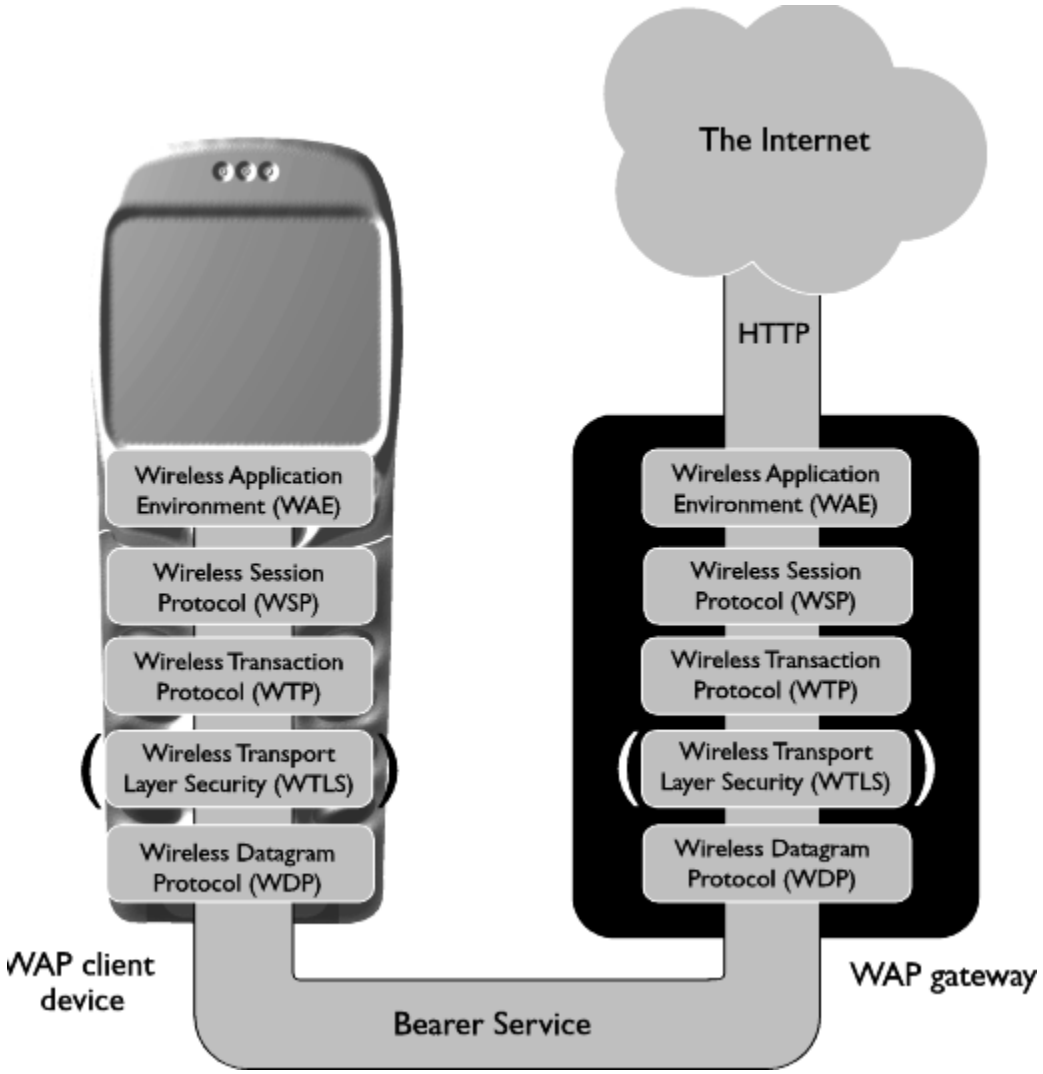

Figure 2.1: WAP Protocol Stack (WAP Forum, 2000).

The WAP layer stack contains the following

• W**ireless Application Environment (WAE):**

This protocol embraces the tools that the wireless Internet content developers utilize. These tools include WML and WML Script, which is a scripting language used in combination with WML.

• **Wireless Session Protocol (WSP):**

This protocol provides two types by work with WTP to provide connection oriented service and connectionless service that provides above WDP.

• **Wireless Transaction Protocol (WTP):**

This protocol organizes the traffic. It also classifies the request of the transaction into three classes, the reliable two-way, reliable one-way, and unreliable one-way.

• **Wireless Transport Layer Security (WTLS):**

This protocol provides an optional layer. It related to the security, data integrity and the user authentication, and this will be important for some applications like WAP-banking.

• **Wireless Datagram Protocol (WDP):**

This protocol manages the transmission and makes it easy to adapt WAP to a diversity of bearers (network carriers) from the network layer.

• **Global System for Mobile communications (GSM):**

Digital mobile telephone system that is widely used in Europe and other parts of the world, is the de facto wireless telephone standard in Europe. Wireless Application Protocol

(WAP), Multimedia Messaging Service (MMS) and Network Identity and Time Zone (NITZ) it all GSM services.

2.9 MOBILE PHONE COMMUNITIES

The large used of mobile device and its application increase day after day. However, mobile device provide and support the multi users to access different services at the same time. Furthermore, mobile device opportunities and other developing and enhances the economies and the information society in the communication between the people in the WAP technology to achieve the flexible communicates between the people in different areas(Ashok 2008).

2.10 JAVA/J2EE

The Java 2 Platform Enterprise Edition (J2EE) provides developers with the tools and Application Programming Interfaces (API's) they need to create and deploy interoperable web services and clients. According to Sun, "The J2EE platform simplifies enterprise applications by basing them on standardized, modular components, by providing a complete set of services to those components, and by handling many details of application behavior automatically, without complex programming. The Java 2 Platform, Enterprise Edition has full support for Enterprise JavaBeans components, Java Servlets API and JavaServer Pages and XML Technology (WWW3).

Web components like JavaServer Pages (JSP) and Java Servlets provide dynamic extension capabilities for web servers. A client sends a HTTP request to a web server which implements the Java Servlet and JavaServer Pages technology. The web server converts the request into an HTTP ServeletRequest object which is delivered to a web component. The web component interacts with JavaBeans or a database to generate dynamic content. A web component produces

a HTTP ServletResponse object which is converted by the web server into a HTTP response that is sent to the client. (Eric Armstrong et al, 2004).

These web components can run on the Tomcat Web container supplied in the Java Web Component Software Development Package (JWSDP). Tomcat provides services such as life cycle management, concurrency, security and requests as well as providing accesses for components to API's for transactions, email etc(Bodoff, Green et al. 2002).

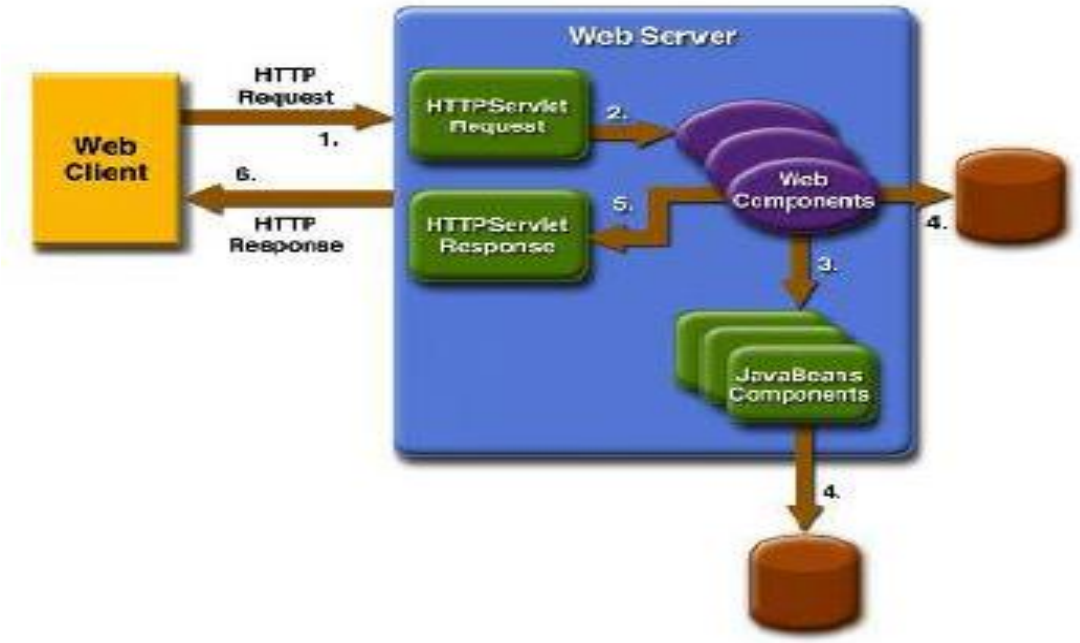

Figure 2.2: Java Web Application Request Handling (Bodoff, et al 2002).

2.11 DATABASE MANAGEMENT SYSTEM

According to Dwyer (2004), At the present time, in order to processing and manipulating data to buttress organization daily operations and decision making process, most of organization will employ database integration. For those issues, it is important for web environment to have integration of database management system (DBMS). The emergence of the internet is the cause for database management system to alter it to be equal status and known as web based

application, where web based can be define as an entrance to data information and knowledge. Web technology has opened up opportunities to transform organization. It does so by providing an effective method to improve communication, distributing, and vital information. It can even change the way business is being done by implementing database as organization website back end (Diehl, 2005).

2.12 SMS IN ORGANIZATION BUSSINES

SMS can be used to grow your business, and organization, your brad and your bottom line so it can be a remarkable tool for small business; if it is used in used a creative way it can reduce you cost, time, and increase your visibility, and improve your leads and inquiries and ultimately your organization. To successful use this tool. It can take a trained services eye(Wells and Lewis 2006). That's where you can rely on us, and more important is how it's implemented.

2.13 MOBILE SERVICES WITH TOURISM GUIDE

Guidebooks service provides the users and other customers who interest in using the mobile device for theirs enquire or search on the various information that guidebooks can provide. The two quintessential tourist publications are the guidebook and the map by the organization for the advancement of structured information stander. These are often used in combination when tourists navigation and find out what to do in different places and how to get between them. While guidebooks have been given some attention in tourism studies, they have generally been seen as texts to critique. There is little discussion of how guidebooks become incorporated into activity (IBM, 2006).

This study present the variety of mobile devices is growing and the users expect to be able to use the same or the same kind of services on the different devices. Otherwise the study provide the method to locate the user location, however these technical and service infrastructure may differ and they may even change.

2.14 MOBILE APPLICATION WITH TRANSPORTATION

In this days the mobile device are rapidly growing and spreading their application areas, the useful application and the attractive services could help to supporting human activates in outdoor environment is one of the principal of mobile computing.

According to (Goto and Kambayashi 2003), the study preset the mobile transporting to determine the user location in order by using some function to calculate the user destination and mapping the current user location. This function is very useful for visually passengers because to guide information is given by visual or voice message in public transport and these passengers can't use some of them(Goto and Kambayashi 2002).

This study can provide the gap of the tourists during the travel the mobile terminal has the concert travel plan the passenger. The mobile terminal gets several information's such that the current location of the passenger, operation schedule of vehicles, information about the facilities of stations and so on. During the travel, the mobile terminal check the travel plan and offers the passenger appropriate guidance as the human attendant behavior.

2.15 ZETOON ORGANIZATION

Our mission is to educate and empower individuals in order to enable them to build and develop the communities in which they live. Education is the biggest factor in acquiring higher earning power. Therefore, supplying educational opportunities to individuals is one of the best ways to

enable them to prosper and to invest in their local communities. Social reform has changed not just on a national level within the United States but around the world. The upcoming generation is not standing with their hand out, they are asking for training, education, and skills to enable them to provide for their families for a lifetime, and not just eat for one day.

2.16 CONCLUSION

The main features presented in this chapter to provide the reader with the highlight on the aim of this research. Otherwise this chapter discussed related literature review to the issue of mobile technologies and its application of mobile commerce services with the useful accessing the information by the mobile devices.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 ITRODUCTION

This chapter elaborates on research methodology that was adopted to complete this study. To organize mange, develop system, and achieve the objective of this study, the system development methodology is adopted. Research methodologies help to organize the study phases and determents the study architecture which leads to achieve the desired result (Kothari, 2005). Moreover, there is a connection between the research problem and study objectives since the research can't be exploited without development and the development could not be recognized without a realistic base. So it's necessary to use the research methodologies which maintain the relation between study and development.

Research methodology is not considered as the way of the sequence of the work, it is also the way to enhance the methods to solve the problem during the research. These method are related with some people who doing the research before and know the correct way which we must follow. The general methodology consists of five phases: understanding of problem, suggestion, evaluation, and conclusion (Vaishnavi and Kuechler 2007).

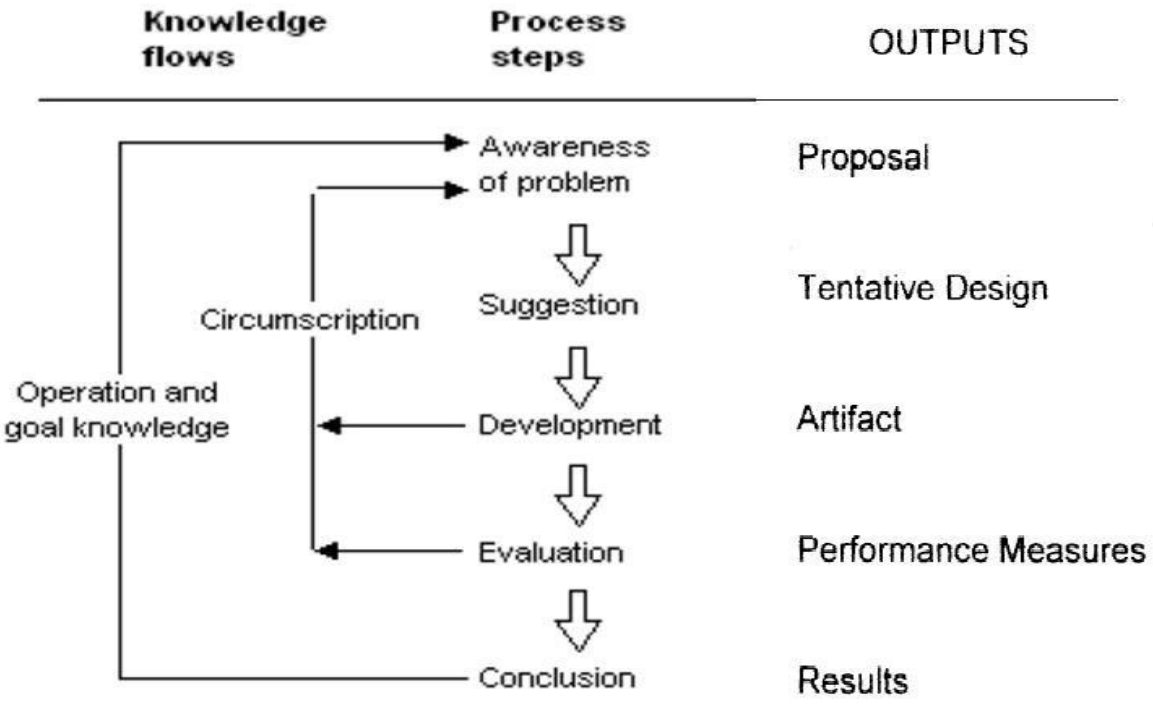

Figure1 3.1: The General Methodology of Design Research (Vaishnavi & Kuechler, 2007).

3.1.1 AWARENESS OF PROBLEM

Awareness of Problem is a phase of exploring potential research topics in a chosen domain, and the understanding of the problem which needs to be solved. In fact, the selection of domain was decided during this phase. Through discussion and related reviews of similar systems for WAP/ WAB application and SMS technology services on organization for students , a general idea of what should be included in the system was decided. By making some interview with some people(used internet to contact with them), how are seeing and using the system, and asking them about the problems which faced them when they want to contact each other and making calls, awareness phase tries to collect some of problems in try to solve it.

OFFICER INTERVIEW

According to Mr.Lorin Rich the manager of organization, through making the interview in the organization, he mentioned that there are many international students, many of them are

looking to work out of organization, and when the organization need to contact them, organization will use the traditional way to keep in touch with them and sometimes they are not available, furthermore, the face problems through communication process. This problem reduces the number of the communication technique which leads to reduce the profits.

In this system we try to find some salutation and solve organization problems through developing system could be able to help and make easy communication technique for organization, and achieve the officers and students desires.

As Figure 3.1shown, the proposal is the output of this phase, Data gathering is also part and of awareness of the problem; firstly to come up with the objective of this study listed, we have to understand the research domain. For this research, the research domain is the all members of organization (employees, and students), literature review will carry out. During the literature review stage, ideas, information, issues and problems related to all employees and students of organization will gather. The information will be gathered and collected and reviewed from website, proceeding, white paper, and reports.

3.1.2 SUGGESTION

In order to develop a well design for WAP/WEB application and SMS to make for organization, one of the major influences on the quality of the system developed is the software development approach adopted. A methodology consists of an approach to software development, a set of techniques (e.g. SMS tools) that support the approach to structure the development process and unifying ser of procedures to structure the proposed requirement model.

As information system requirement are becoming increasingly complex, the use of object orientation approach is more necessary. Object oriented offers conceptual, structures that support

the subdivision in the system. It also aims to provide a mechanism to support the reuse of program code, design and analysis design.

3.1.3 DEVELOPMENT

The model is a simplification of the transactions, which will use a precisely defined signs and notifications to represent and simplify a stricture and the relationships of the system. The model will create to avoid complexity and to act as a guideline in developing the prototype in order to make the prototype easier to understand and reusable.

The system prototype will develop using Java language. MySQL will use to build the prototype database to store all students' information, and employees in the can use the prototype to contact to access. And contact with Clickatell Company in United Kingdom to supply this service to send Short Message Service (SMS).

1. **Water fall methodology**

In the traditional waterfall methodology, first comes the analysis phase, then the design phase, followed by the implementation phase, with testing completing the process. The team that does each phase is different and there may be a management decision point at each phase transition. This methodology is called the waterfall methodology because each phase flows naturally into the next phase like water over a series of falls.

Waterfall Methodology is a classically linear and sequential approach to software design and systems development, each waterfall stage is assigned to a separate team to ensure greater project and deadline control, important for on-time project delivery. A linear approach means a stage by stage approach for product building**.**

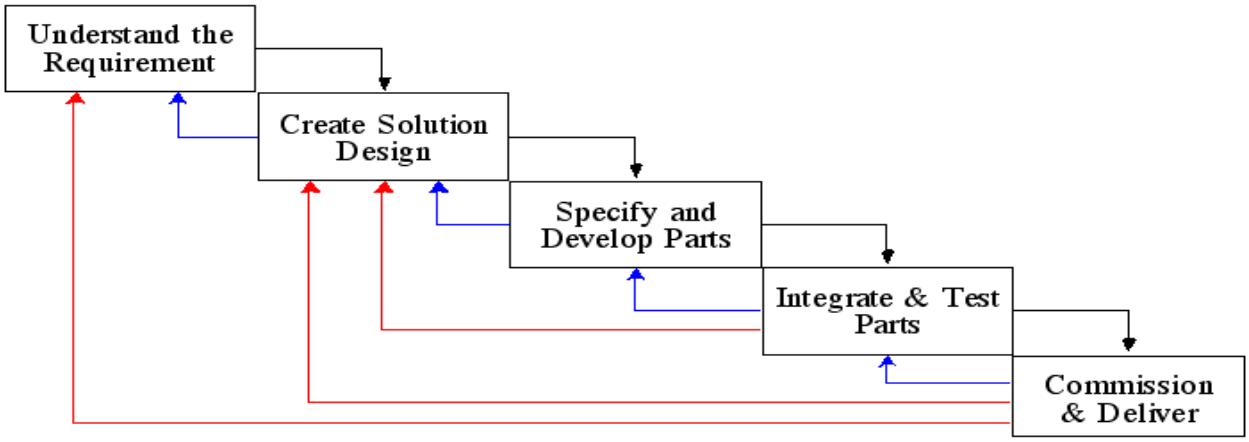

Figure4.2: Waterfall methodology.

I. SYSTEM ANALYSIS

The goal of system analysis is to determine where the problem is in an attempt to fix the system. This step involves breaking down the system in different pieces to analyze the situation, analyzing project goals, breaking down what needs to be created and attempting to engage users so that definite requirements can be defined.

II. REQUIREMENTS ANALYSIS

Sometimes requires individuals or teams among client and service provider sides to get detailed and accurate requirements; often there has to be a lot of communication to and from to understand these requirements. Requirement gathering is the most crucial aspect as many times communication gaps arise in this phase and this leads to validation errors and bugs in the software program. The part of the system development life cycle with preliminary investigation which are made to understand the working of the existing system these investigation include the request system study, its clarification approval and the feasibility study of the system the system analysis collect the information of existing procedure and their working from this information find out the drawbacks in the system and finally present the solution of these problem.

2. **Requirements gather to collect data and tools.**

Data gathering is part of requirements analysis system phase. Through the literature review stages, information, issues, and ideas that related with send information procedure will collect. Further information will be collected and review from books, interviews sessions, journals, and so on, requirements gathering data and tools collection can be seen in Figure 3.3 below.

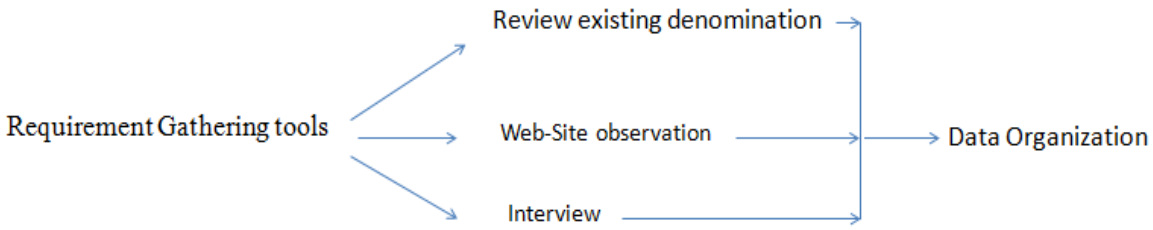

Figure3.4: Requirements gather to collect data and tools.

a) Review existing documentation

Procedure manual illustrate the format and functions of various aspect of the existing system. Well written manuals are for analysis, because they save house of data gathering time.

b) Web-Site Observation

Website observation is approach gets as closely as possible to the real system under study. Need to know which kind of system it is, who runes, need to know how relates to other system in the system.

c) Interview

This stage, will conduct interview in order to gather the data and information that needed to e-Zetoon system. The writer will sue internet to interview students and staffs of Zetoon organization to identify the problem organization faced by staffs and students, also to gathering

the requirements needed for e-Zetoon system. This phase is necessary to be sure that all data and information came from interviews can be applied in e-Zetoon system so this system will work better than current system.

III. DESIGN

Design and development phase, the first step that use to developer will make decision for the system operation for the software, hardware, and network infrastructure that use to develop e-Zetoon system. All of data, information, and requirement that the e-Zetoon system.

The next step is, developer will design the interface of e-Zetoon system, it's important to make sure that system have user friendly interface for all staff and students so it will be easier and efficiency for them to use it. In case of this study, object oriented approach in e-Zetoon system's requirement design by the representation of class diagram in chapter four.

In systems design the design functions and operations are described in detail, including screen layouts, business rules, process diagrams and other documentation. The output of this stage will describe the new system as a collection of modules or subsystems. The design stage takes as its initial input the requirements identified in the approved requirements document. For each requirement, a set of one or more design elements will be produced as a result of interviews, workshops, and/or prototype efforts.

IV. TESTING

The code is tested at various levels in software testing. Unit, system and user acceptance testing's often performed. This is a grey area as many different opinions exist as to what the stages of testing are and how much if any iteration occurs. Iteration is not generally part of the waterfall model, but usually some occur at this stage. In the testing the whole system is test one by one.

3.1.4 EVALUATION

The evaluation will perform to determine the level of functionality and operability of the system prototype after the prototype has been developed; it is tested based on the list of requirement. The aim is to see the level of functionality and operability of the prototype system.

The research will employ two techniques to evaluate and test of the organization said the I institute:

I. the first technique is the use case testing to minimize prototype from bugs and errors, this technique is necessary since the use case testing will be performed on the interaction of the entire dialog components when all the components are combined for the first time.

II. The second technique is User Testing to rate the user satisfaction with E-marketing and E-services by SMS technology system and to evaluate the system in several dimensions.

3.1.5 CONCLUSION

The WAP/WEB and SMS application for people in any country in this world will develop in order to enhance the services performance and increase its student's satisfaction. In addition this WAP application an SMS technology can contact student's convenience by offering mobile services for organization to contact and access all of the students, such as: update the scandal of student, inform them for new events or actions, also keep in touch with them. Which can be available anywhere anytime.

Implementing this prototype will return in many benefits for both organization and students of organization. Through this prototype the users save time and effort and keep them informed of their in formations details anywhere any time. Some work and further studies still need to be conducted for this WAP/WEB application and SMS technologies in order to make it more functional and reliable such as expanding generalizing the model to include communities.

3.2 SUMMARY

In conclude, after requirement identification is a major phase in the prototype, and also understanding the objectives and the scope of study, as well as the problems which are to be solved. The requirement of system gathered using two techniques interview and review of the current system. After defining the problem statement, the objective and the scope had been defined clearly. And I will use web technology and SMS tools to solve this problem and I will use interview with employees and students by video call and internet ways to determine the problem, all data that gathered from questionnaire were analyzed by using the Statistical Package for the Social Sciences (SPSS) program. Data analysis is carried out in the form of descriptive statistic. The analysis of the data that gathered from the questionnaire will be discussed in chapter five.

Research methodology has discussed the methodology that been used in this project, where the methodology was grouped according to four phases was based on the project objectives as follows:

In **Awareness of the problem Phase**, ideas, information, issues and problems related to the Notification System were gathered. Gather necessary requirement and compile.

In **Suggestion Phase**, developments of elements were implemented in software then these are the main focus of requirements analysis.

In **Development Phase**, the interactions among system components and the system functionalities were identified.

In **Evaluation Phase**, the organization notification System was tested and the problem encountered will be analyzed to ensure it will provide correct services.

CHAPTER FOUR

SYSTEM ANALYSIS AND IMPLEMENTATION

4.1 INTRODUCTION

The aim of this chapter is to provide a highlight about the system functionality which identifies the functional requirements and the non functional requirements, the UML diagrams will present in the analysis and design part from this chapter by identify the usecase diagram, class diagram, sequence diagram, collaboration diagram, and the activity diagram. The next part of this chapter will focus on the implementation and testing of the system by identifies the usecase test, and by provides the `questionnaire result for the system feasibility. The end of this chapter will provide the conclusion in order to determine the purpose of this chapter.

4.2 USE CASE MODEL

Perspective and developer define what should take place inside the system. This model uses actor to represent roles the user can play, and use case to represent what the users should be able to do with system. Each use case is a complete course of events in the system. From user perspective. If appropriate, interface description may also be developed. These will specify what the user interface will look like when the use case is performed.

a. Actors

Actor is a model that anything that needs to exchange information with system. The actor can be a human or anything that is external to system. The developer will have to make a system delimitation to define were the boundary is between actors and use case.

b. Actor identification

In this study, developer can see from the requirements specification that focuses on two major actors, which are students and staffs of organization. Student get and view SMS information, staffs add, update, delete, and view the information that will send.

The classes of actors who are capable of using the e-Zetoon system are:

Staff: people who are working in the organization offices.

Students: people who are deal with organization.

c. Use case

Use case is a specify way of using the system by performing some parts of the functionality. Each use case consist a complete course of events initiated by actor, and it specifies the interaction that place between an actor and the system. A use case is thus a special sequence of related transaction performance by an actor and the system is a dialogue. The collected use case specifies all the existing ways of using the system.

d. Use case identification

This system developer can identify a number of use cases, where the actors as the starting point.

Three type of requirement needed:

a. Functional requirement.
b. Nonfunctional requirement.
c. Software requirements.

Listed below are the functional requirements, non-requirements, and software requirements for e-Zetoon system.

4.3 FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS

4.3.1 Functional Requirements: Administrator Requirements

I. The system will classify to the administrator, need to login by his/her username and password that make them able to access their pages.

II. The purpose of the administrator in this system will focus on manage the student of organization by add, delete, and edit SMS information. The administrator requires to login be his/her username and password to obtain manage the student information.

III. The administrator can be able to change his/her login information that the system provides, the administrator cannot change his/her login information without the login to the system.

IV. The system will support the administrator to send SMS to any student to tell him about the new information.

4.3.2 NON-FUNCTIONAL REQUIREMENTS

Non-functional requirements describe all aspect in optional way. Our project determines some of the requirements that help system to achieve its goal clearly and rapidly.

I. **Usability:** the system should be easy to use from all members of organization and students.

   1. The system should be clearer for the user in this area be providing them with the appropriate quid to the system.
   2. The system should present the easy function that makes the user able to practice his/her activities on his/her page.

II. **Performance:** The system should response in an optimal time, without any delay or non-consistency in database. The system should to notify the administrator about the

system lack and the system performance by generate this error and come out with the useful suggestion.

III. **Reliability:** the system must not generate error when probably on its operational environment. The system must provide the users of the system with the flexibility to delete the alternative solution during the lack.

IV. **Privacy:** information in this system is confidential, only approved administrator can access this information; the privacy of such information is an important factor in the process.

V. Safety and security: the system should prevent illegal access to the database, while marinating a high level flexibility.

4.4 USE CASE DIAGRAM

Functionality of the system from the user perspective, use case diagrams are use to show the functionality that system will provide and to show which user will communicated with system in some way to use the functionality(Grechanik, McKinley et al. 2007). The system will give the ability to the users to login into the system by using username and password. The use case diagrams are one of those type behavioral diagrams defined by the Unified Modeling Language (UML). Te purpose of UML is present a graphical overview of the functionality provided by a system in terms of actor. The aim to present use case and any dependencies between thus use cases.

The use case below will show how the system components work and the job for each one in this system, the system will present the administrator to manage the students information by add, delete, and update the students information, the system will support the administrator to add the information details by upload all SMS information details and then send them to students by SMS to the database of the system. The system will give the ability to administrator to login to

the system by his or her username and password and change the login information after the login to the system. The system will support the administrator to send SMS.

These concept are simple an aid to defining what exists the system actors and what should be performed by the system use case.

Actors: actors model anything that needs to exchange information with system, and can be model human user, but they also be model other system communicating with our system. The essential thing is that actors constitute anything that is external to the system that been develop.

Use case: use case to a specific way of using the system by performing same part of the functionality. Each use case constitutes a complete course of events initiated by an actor and the system. A use case is thus a special sequence of related transaction performed by an actor and the system in a dialogue. The collected use case specifies all the existing ways of using the system, as seen in figure 4.1.

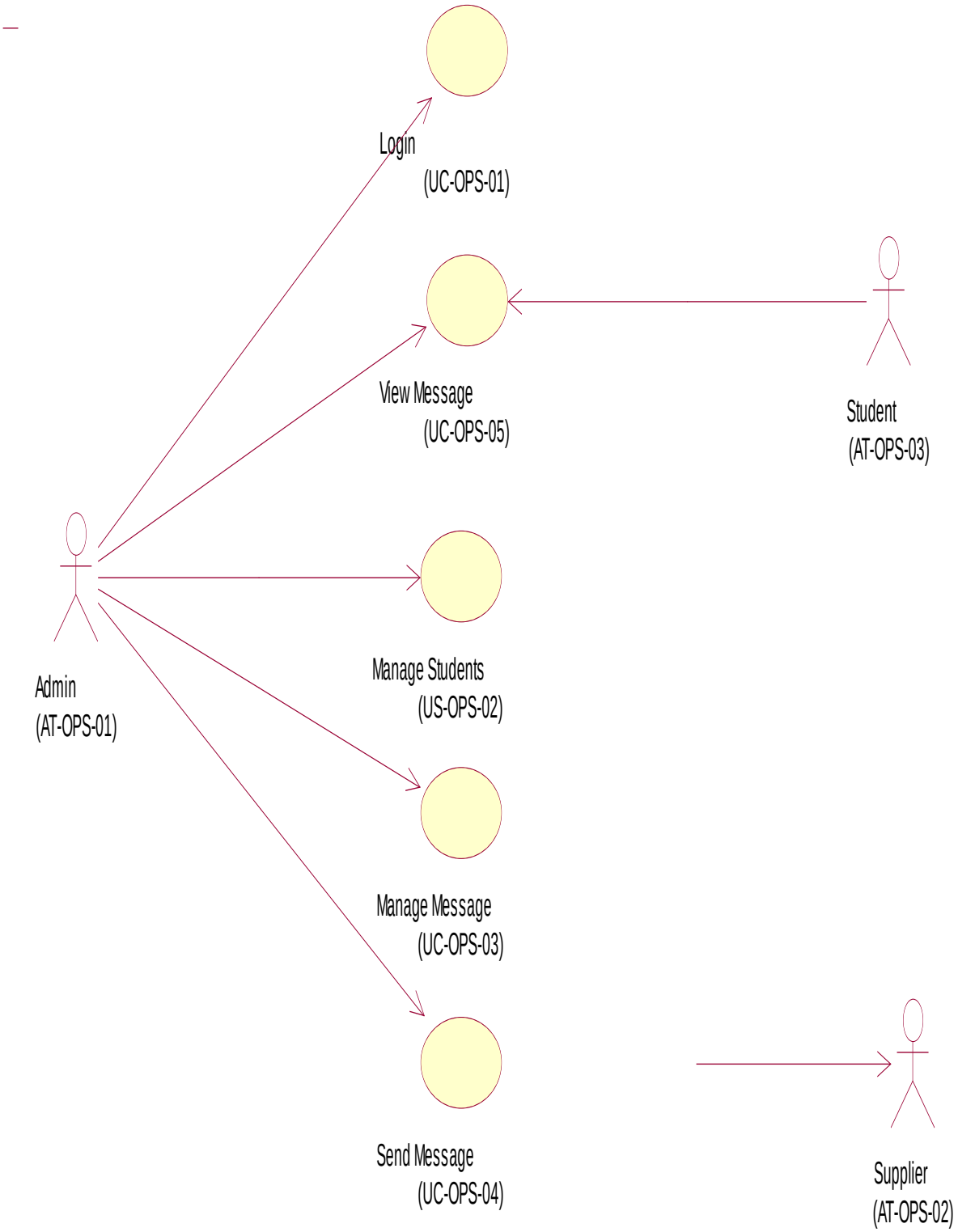

Figure 4.1: use case diagram for proposal system.

4.5 USE CASE SPECIFICATION

4.5.1 Use case specification for login.

Table 4.2 show the use case specification for view information. This use case will be utilized by user to show information of complaint where this system will retrieved the information from the database.

Figure 4.2: use case specification for login.

Table 4.1: use case specification for login.

Brief Description	This use case will be used to allow administrator to access his/her page in order to students by WAP.
Basic Flow	➢ The administrator needs to insert his/her username and password. ➢ The administrator needs to confirm the login process by press the login button.
Exceptional	➢ Wrong username and password. ➢ Refill the login fields.
Pre-conditions	The administrator must login to his/her account by the login username and password.
Post- conditions	Administrator can access his/her page.

4.5.2 Use case specification for manage student.

Figure 4.3: use case specification for Manage Student.

Table 4.2: use case specification for Manage Student.

Brief Description	This use case will be used by the administrator to support him by add, delete, and update the student information.
Basic Flow	➢ The administrator can add new information to the system by select the add student. ➢ The system will respond to his order and will show the add students information fields. ➢ The administrator now require to fill the student information and press the add button. ➢ The administrator can delete any student information through the system by select the delete button and press confirms the delete. ➢ Administrator also can edit students information by select edit operation, when administrator choose can modify the student information and press edit confirm the change process.
Exceptional	➢ Wrong information entries. ➢ Select student.
Pre-conditions	The administrator must login to his/her account by the login username and password.
Post- conditions	➢ Administrator Add success. ➢ Administrator Delete success. ➢ Administrator Edit success.

4.5.3 Use case specification for manage message.

Figure 4.4: use case specification for mange message.

Table 4.3: use case specification for mange message.

Brief Description	This use case will be used by the administrator to support add, delete, and update information.

Basic Flow	➢ The administrator can add new information to the system by select the add student. ➢ The administrator now require to fill the student information and press the add button. ➢ The administrator can delete any student information through the system by select the delete button and press confirms the delete. ➢ Administrator also can edit students information by select edit operation, when administrator choose can modify the student information and press edit confirm the change process.
Exceptional	➢ Wrong information entries. ➢ Select student.
Pre-conditions	The administrator must login to his/her account by the login username and password.
Post- conditions	➢ Administrator Add success. ➢ Administrator Delete success. ➢ Administrator Edit success.

4.5.4 Use case specification for send message.

Figure 4.5: use case specification for send message.

Table 4.4: use case specification for send message.

Brief Description	This use case will initiate by the Admin after that will be able to send notify message to Student.
Basic flow	➢ The admin should press send message button to be able to send manage message. ➢ The system shall display send message page on the screen. ➢ The Admin should write message after that press send. ➢ The Admin can send more than one message.
Excitation	Wrong information entries.
Pre-conditions	The Admin must login successfully by using user name and password to send the message.

Post-condition	Success send message.

4.5.5 Use case specification for manage message.

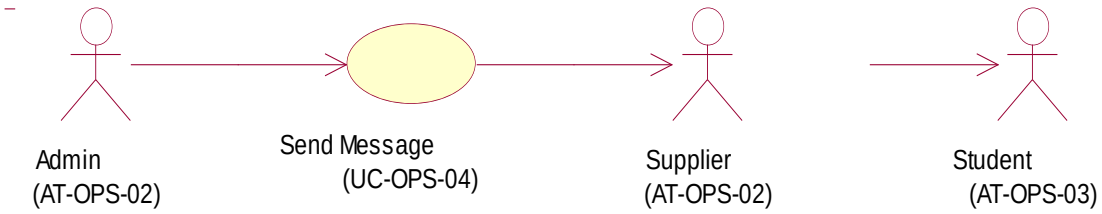

Figure 4.6: use case specification for manage message**.**

Table 4.5: use case specification for manage message**.**

Brief Description	➢ This use case will initiate by the Admin after that will be able to send message to Student. ➢ The system able to send message to the supplier and then supplier send this message to student.
Basic flow	➢ The student able to check message. ➢ After that the message with manage supplier send message. ➢ The system will respond to the user order and will save the information of message send in the system data base.
Excitation	Refill message fields.
Pre-conditions	The Admin must login successfully by using user name and password to send the message. Fill the message fields.
Post-condition	Success send message.

4.4.6 Use case specification for view message

This use case will used to allow the student to check and view the message that already have been making and stored in the organization database as shown in table 4.6.

Figure 4.7: use case specification for view message**.**

Table 4.6: use case specification for view message**.**

Brief Description	This use case allow student to see information of message.
Basic flow	The student no needs to insert his/her username and password.
Excitation	Refill login fields.
Pre-conditions	User or student can access without username and password.
Post-condition	Access success

4.5 SEQUENCES DIAGRAM

Sequences diagramed are a semantically equivalent to a communication diagram or simple interaction and enter action specify the communication pattern amongst asset of object or system that are participating in sequence, cooperation diagram in system can be defined as three type of sequence such as boundary interface object, entity object(Surgailis 2003), and control object as shown in figure 4.8.

Sequence diagrams describe how each use case is offer by communication objects. It shows step by step. One of flows through use case. What objects are needed for the flow, what message the object send to each other, what actors initiates the flow, and what order are message sent.

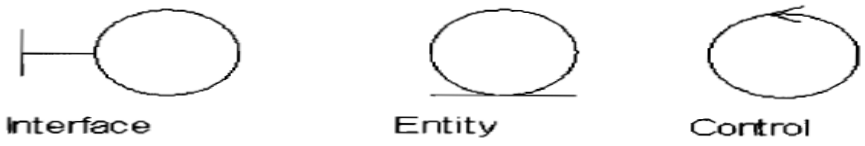

Figure 4.8: Objects type.

1. **Interface object:** The functionality specified in the use case adscription that is directly dependent on the system environment is placed in the interface objects is to translate the actor's communication with the system. The tasks of an interface objects is to translate the actor's input to the system into event in the system, and to translate these event in the

system that the actors is interested in into something which presented to the actor. Interface object can in other words.

2. **Entity objects:** In order to model the information that system will handle over a longer period of time the use entity object such as information survives use case, therefore the information should be kept even if the use case has been completed. Besides the information to be handling, and the also allocate the behavior that naturally belongs to this information to the entity objects. The entity objects are identified from the use case. Just as the interface object are. Most entities are found early and obvious. These are identified in the problem domain object model. Entities usually correspond to some concept in real life, outside the system.

3. **Control objects:** Control object are normally found directly from the use case. In a preliminary draft the will be design one control the object for each concrete and abstract use case. Each se case normally evolves interface objects and entity object, the behavior left that is placed to the control objects.

4.5.1 SEQUENCES DIAGRAM FOR LOGIN

In login process, sequence diagrams will describe that process of login for staff as following:

- First step is that staff must insert user name and password.
- Then staff may press the sign in button.
- System will verify the username and password the key in by user before this.
- If username and password are wrong, system will show invalid message.
- If the username and password is valid, staff can access the home page of the staff that consists of main functionality command menus.

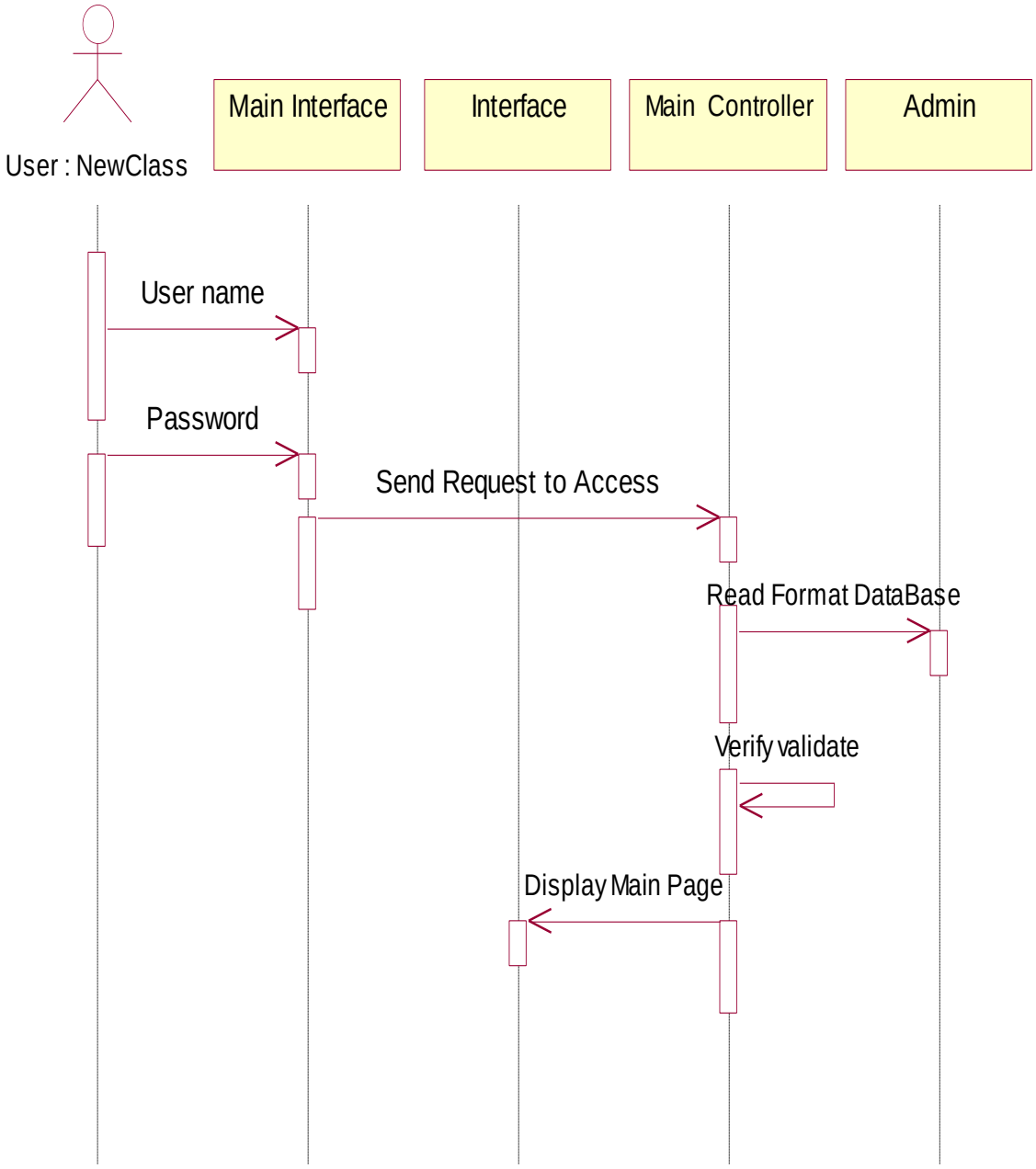

Figure 4.9: Sequence diagram for login.

4.5.2 Sequences Diagram for manage student.

As seen in figure 4.10 sequence diagrams described that process of manage student, the admin in this operation can add new student to the system.

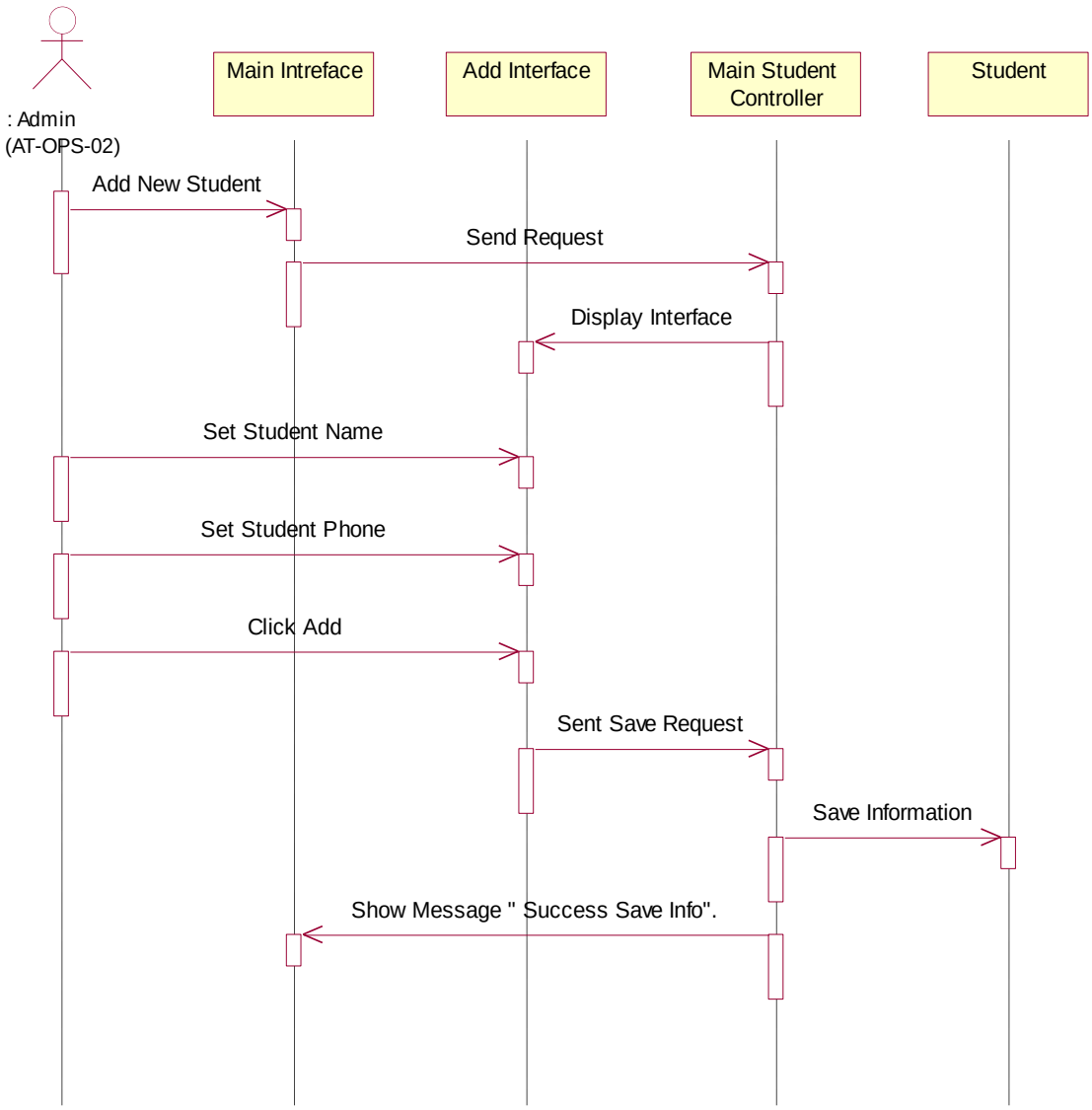

Figure 4.10: Sequences diagram for manage student.

4.5.3 Sequences diagram for Add Message.

The Admin in this operation can add new message to the system, figure 4.11 shown the sequence diagram which described the process of add message by staff.

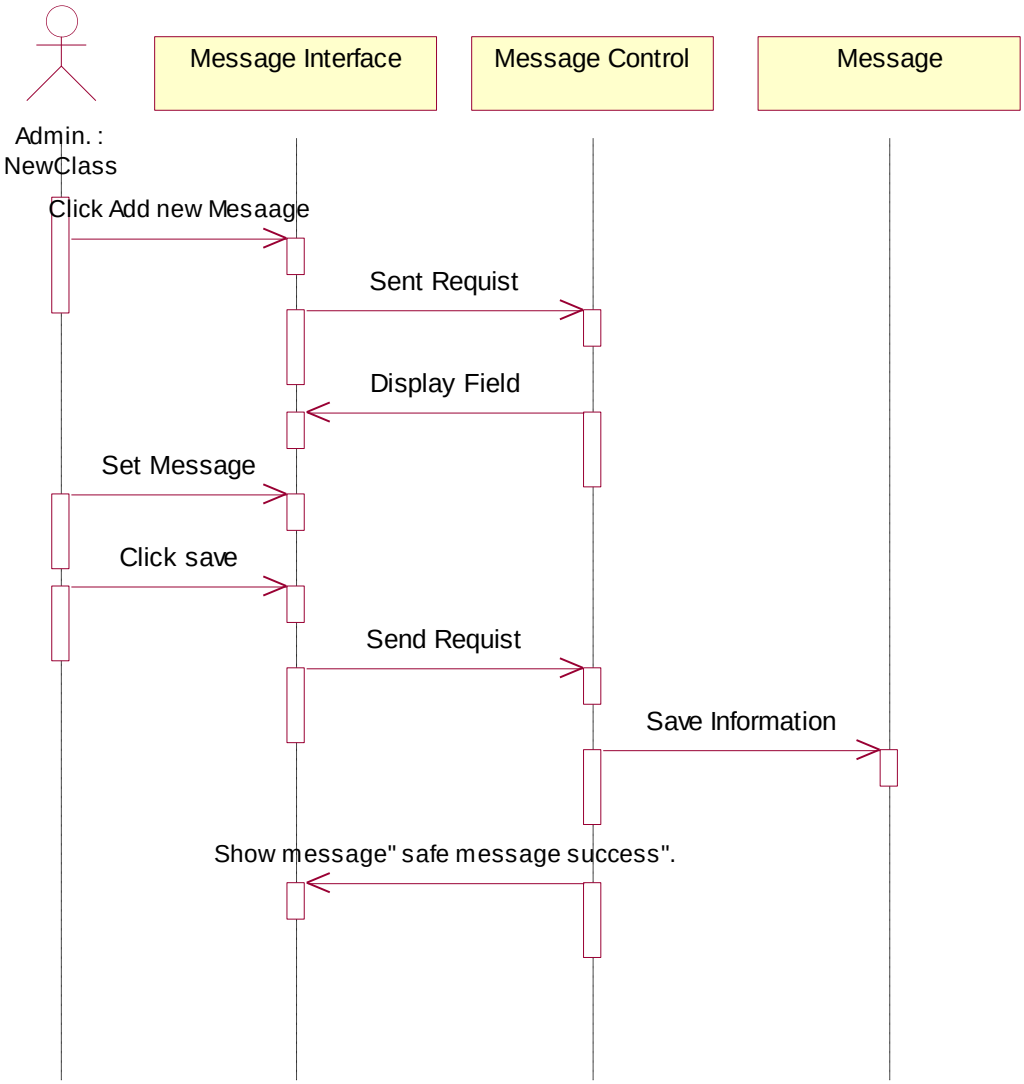

Figure 4.11: Sequences diagram for add message.

4.5.4 Sequence diagram for view message.

As seen in figure 4.12 show the sequence diagrams which the process of to view message information to student by staff through system.

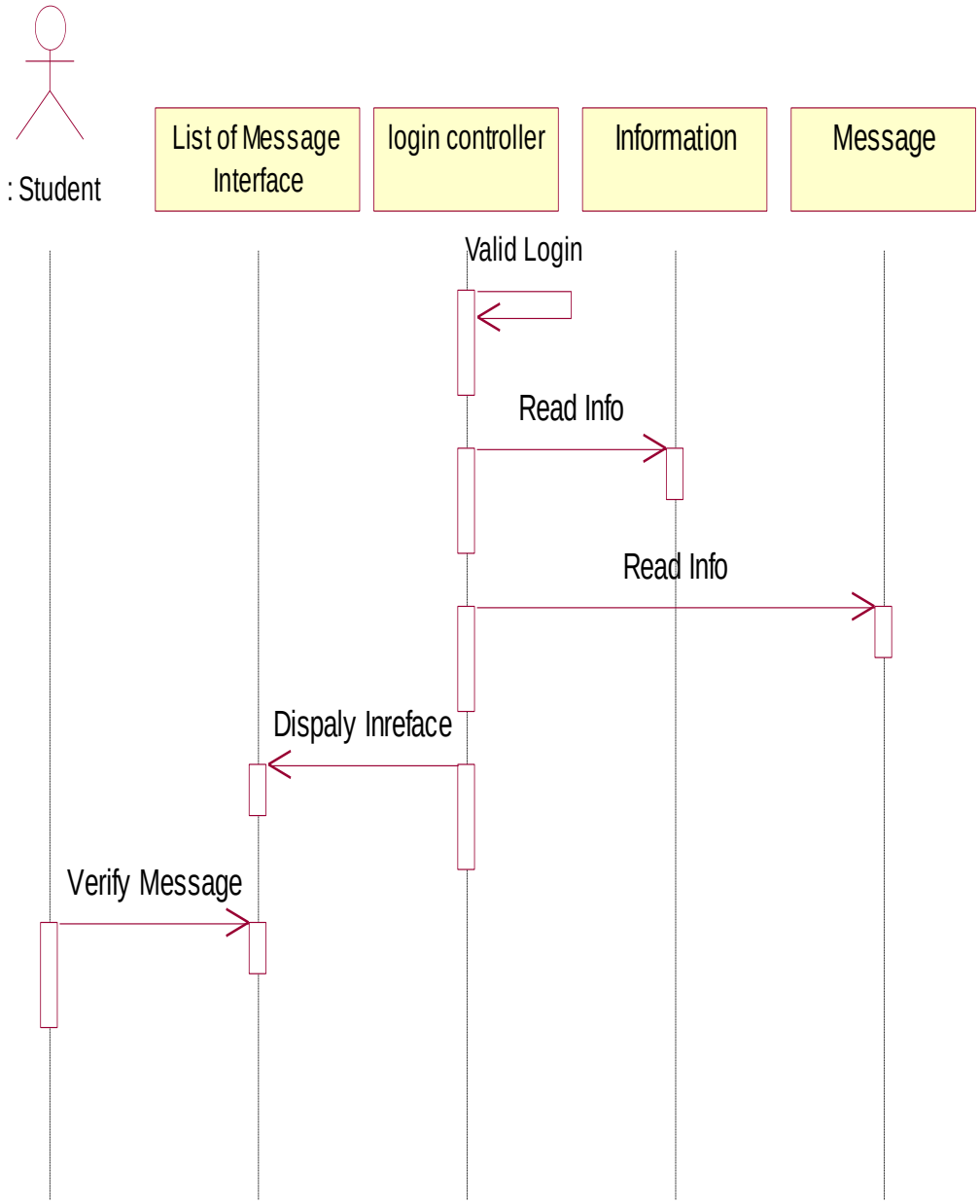

Figure 4.12: Sequence Diagram for View Message

4.5.5 Sequence diagram for send message.

Figure 4.13 shown sequence diagrams of described that process of send message to student, admin in this operation can select message and then the system send this message to student are out of organization.

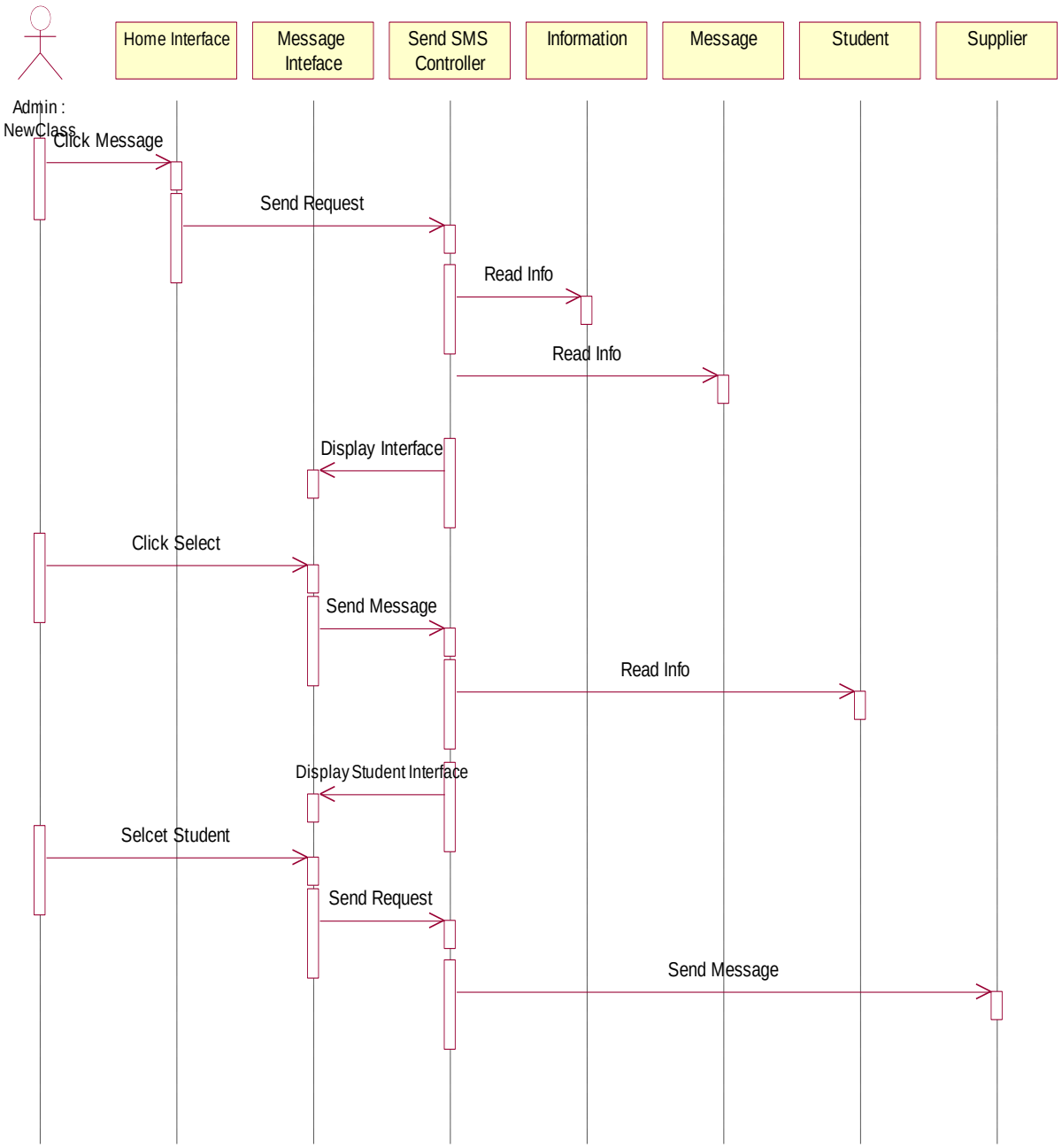

Figure 4.13: Sequence diagram for send message.

4.6 CLASS DIAGRAM

According to the class diagram below we can simplify the class blew to three main classes, these classes will present all of the administrator, user, reduction, guest, and the local reduction system which will control the entire component database table in the system.

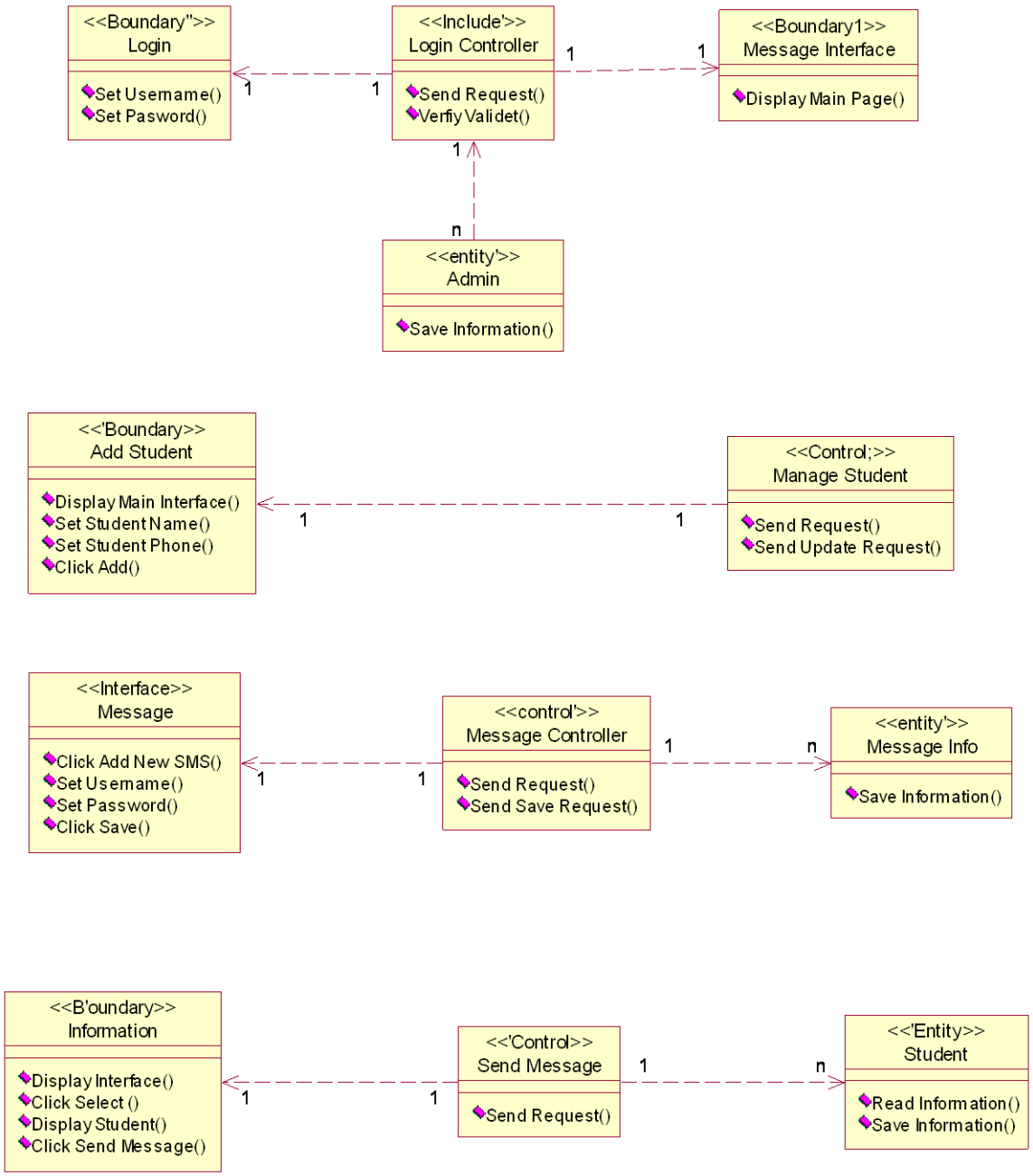

Figure 4.14: class diagram for the proposed system**.**

4.7 INTERFACE DESIGN AND MAIN FUNCTION

The system construction starts when the process of designing the interface and developing the system is implemented. In this process, the system is designed according to the requirement and objectives.

4.7.1 MAIN PAGE

This is the first page as shown in figure 4.15 that will see when the user opens e-Zetoon system. This page represents for the main page of this system. User will see that main page of the system contains several command menus as shown in table 4.7, where each of the command menus has its own functions.

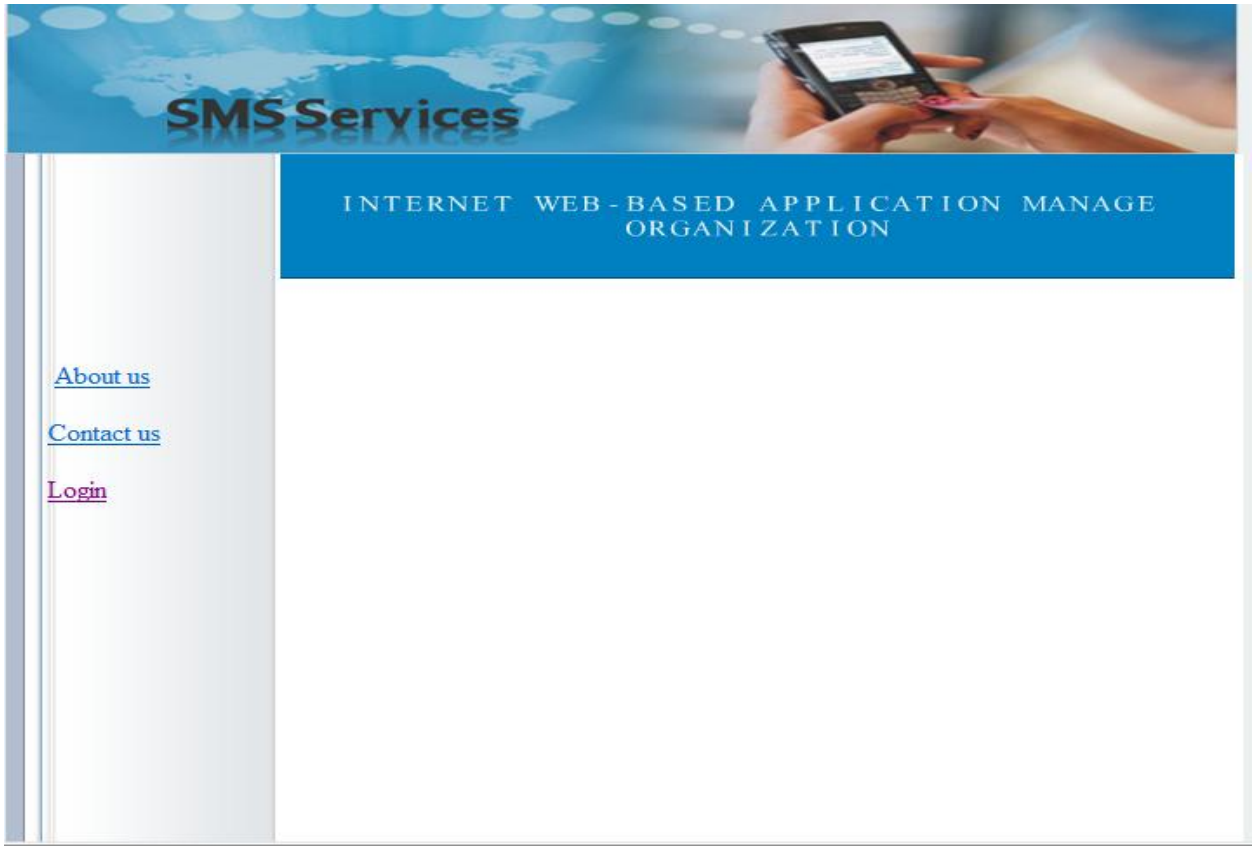

Figure 4.15: Internet Web-Based Application to Manage Organization Page.

Table 4.7: command menu of internet web passed application to mange organization.

Link Button	Functions
<<About us>>	This link will show the user or staff manual how to make message by using this system.
<<contact us>>	This like page will take the users to make a connection among organization and the people want contact us.
<<login>>	This link will bring user to the main page of the system that we can make several functions there.

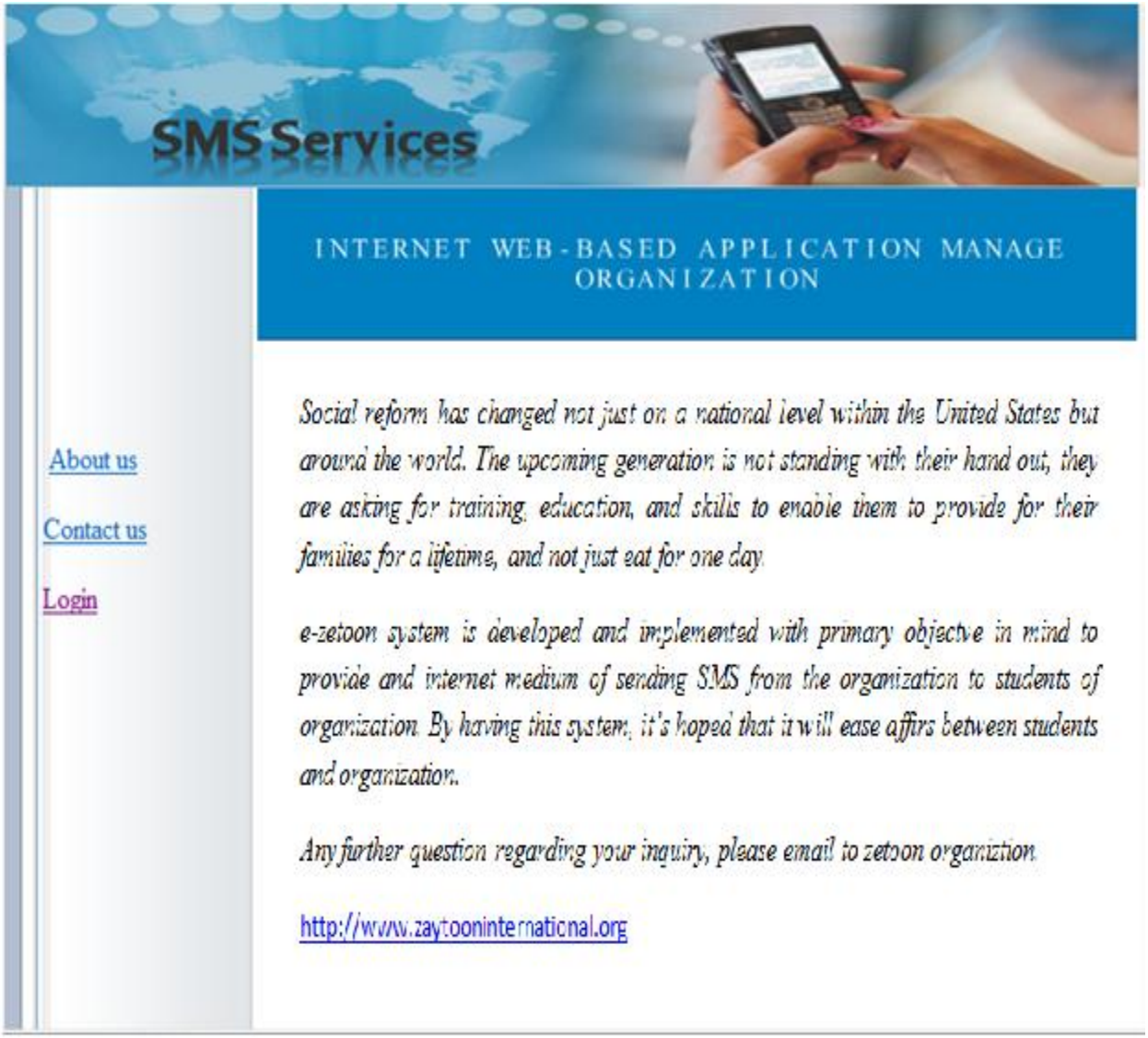

Figure 4.15: Internet Web-Based Application to Manage Organization Page" About us".

4.7.2 LOG IN FUNCTION

Figure 4.16: login functions.

- **Discretion:**

Authorized the users of organization will have their own staff username and password in order to access the system. For example staff's verification to access Staff menu as shown in figure 4.16, with the security control, the records in the database could not easily to be exposed to irresponsible persons.

4.7.3 ADMINISTRATION MAIN PAGE.

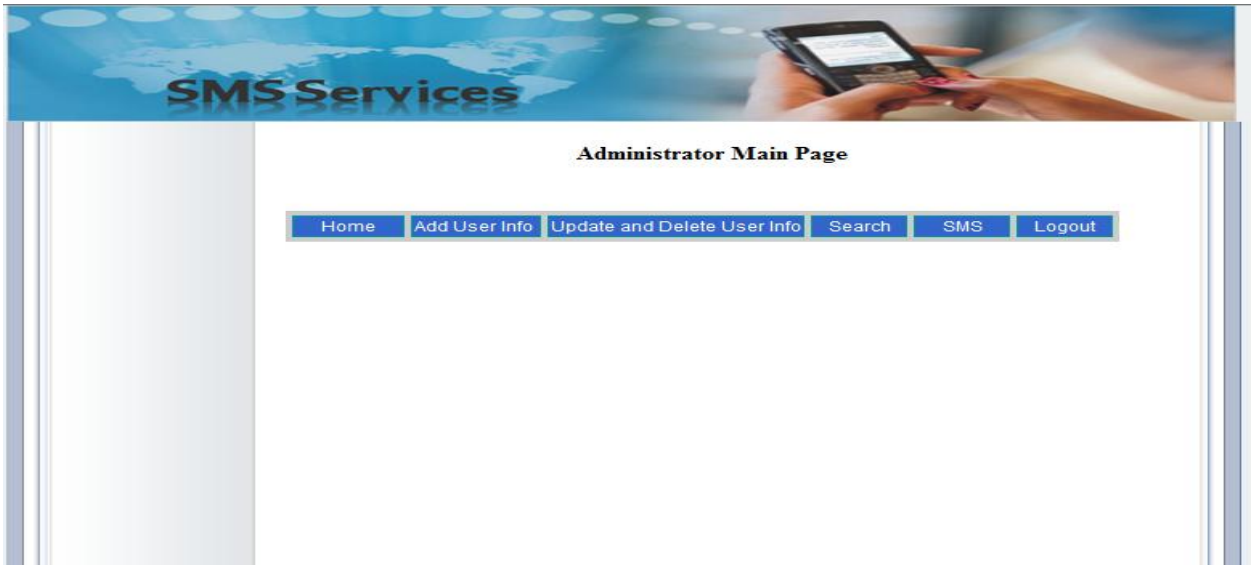

Figure 4.17: Administration Main Page**.**

❖ **Discretion:**

This page is second one that will display for the customer after staff makes login. In this page have many services for students, through this page the staff will be able to make add new users, update the information, delete information, search, write SMS, and log out.

4.7.4 Add user information.

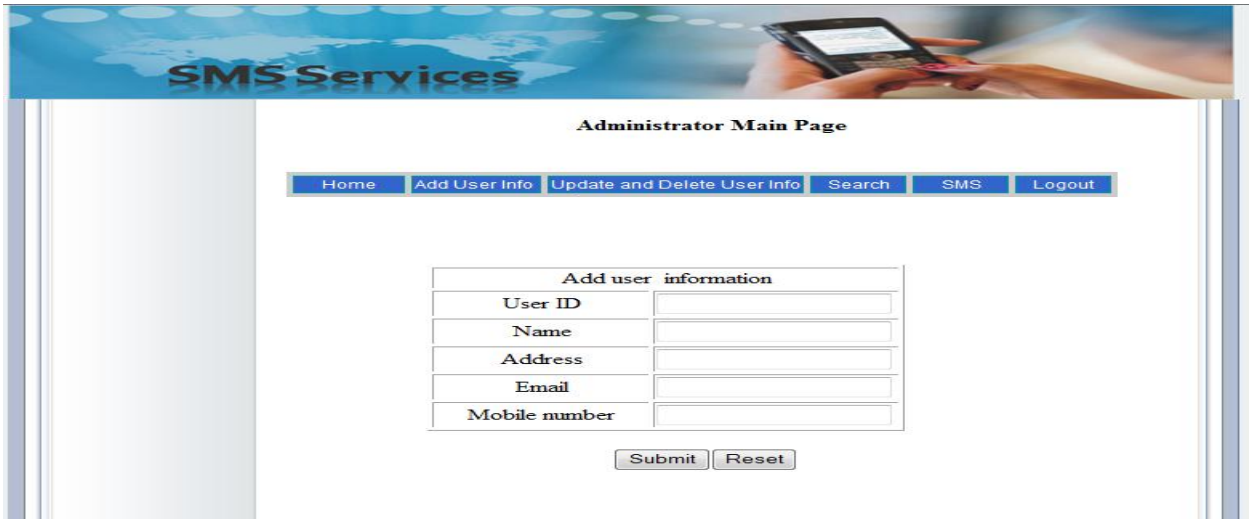

Figure 4.18: Administration Main Page.

In this page staff has many services for students, through this page the staff will be able to make add new users, and they want to share the information with them.

4.7.5 MESSAGE HOME PAGE

Figure 4.19: Message home page.

❖ **Discretion:**

The users of the Events page are the system administrators, as shown Figure 4.10 in order to add new event; the administrator selects the Add New Event button. Then the administrator can enter the new Event information and clicks save to store the data in the system database. In order to delete any event the administrator just clicks the delete link beside the desired event in the grid in order to delete that event.

4.7.6 Select users to send message.

Figure 4.20: Select users to send message.

❖ **Discretion:**

As shown in Figure 4.20, the users of the Notifications page are the system administrators, as shown Figure in order to send a new notification for a specific event first the admin selects the desired event from the list of events grid. Then the system will display a drop down list for the organization staff groups in order to choose the desired group. Finally the

system will display all staff included in that group and then the admin has to select staff to be notified and click Send Notification button to complete the process.

4.8 CONCLUSION

In chapter four, a brief description and discussion that about designing the requirement and nun-requirement model were presented, the result for each phase involves in this study were also presented. Use case diagrams, sequence diagrams, class diagram, and screen content were generated and also a set of use case description and requirements lists were created.

CHAPTER FIVE

FINDING AND RESULTS

5.1 INTRODUCTION

The main objective of this chapter is to evaluate usability the prototype of e-Zetoon system. A usability testing had been conducted to evaluate the usability of the prototype e-Zetoon system, by conducting a testing with the end users. The users who participated in this event are constantly reminded on the use of the system. According to Cavana(2001)," the main advantage of mail questionnaires is that a wide geographical area can be covered in the survey. They are mailed to the respondents, who can complete them at their own convenience in their homes. However, the return rates of mail questionnaires are typically low. A 30 per cent response rate is considered acceptable". Fifteen respondents are involved to test the system. Fifteen is the 50% from all of the cases "members" of organization, this will allow the possibility to gain insight into the users interaction towers the many function located inside the prototype of e-Zetoon system.

5.2 GENERAL INFORMATION

The general section functions as mechanism to collect student demographic and student experienced with web application. The system aspect section functions as mechanism to collect data on student opinion regarding to the prototype usability aspect. Table 5.1 below summarized demographic data. The statistical packages for social science (SPSS) are used to perform descriptive for the collected data.

Table 5.1: Student Demographic Summary.

GENDER					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	9	60.0	60.0	60.0
	Female	6	40.0	40.0	100.0
	Total	15	100.0	100.0	
AGE					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<20 Y. O	3	20.1	20.1	20.1
	21-30	11	73.4	73.4	73.4
	31-40	1	6.7	6.7	6.7
	Total	15	100.0	100.0	
EDUCATION					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Degree	3	20.0	20.0	20.0
	Master	12	80.0	80.0	80.0
	PhD	00.00	00.00	00.00	00.00
	Total	15	100.0	100.0	

As shown in table 5.1 above, this represented 9(60.0%) of respondents were male and 6(40.0%) were female. Most of the respondents were 3(20.1%) are age <20 years old, followed by 11(73.4%) are between the age 21-30 years old. The remaining were 1(6.7%) is between ages 31-40 years old. Besides that, most of the responder 3(20.0%) are degree, followed by 12(80.0%) are master student. The remaining is PhD student.

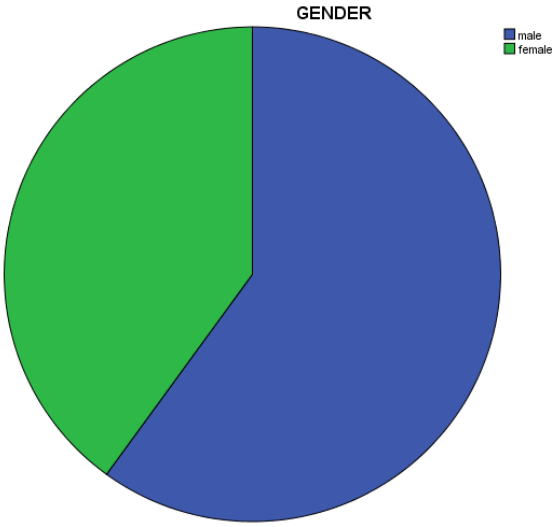

Figure: Gender Summary.

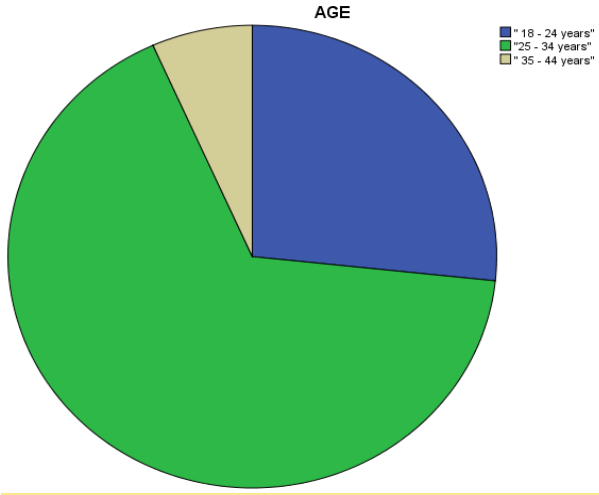

Figure: Age summary.

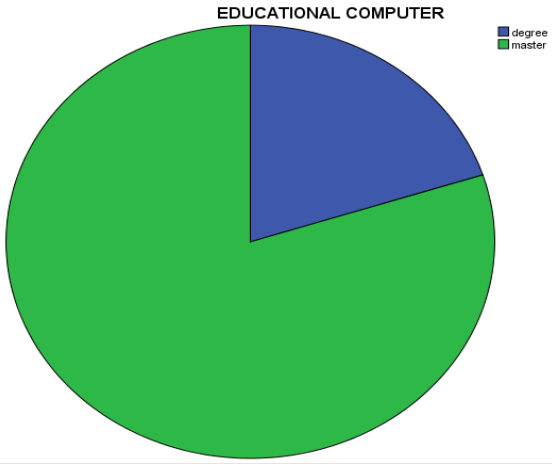

Figure: Education Summary.

5.3 SYSTEMS AS ASPECT

The system aspects are to measure the student satisfaction and effectiveness toward e-Zetoon system. The questionnaire (refer Appendix A) measure the effectiveness of using e-Zetoon system to exchange or share the information. Additionally, every question in the dimension ha ate from 1 to 5, where 1= strongly disagree, 2=disagree, 3=normal, 4=agree, and 5=strongly agree. The descriptive statistic for all items can be seen in table 5.2 below where most of items. Consequently, the mean participant agreed that e-Zetoon system has good usability.

Descriptive Statistics

Perceived Use Fullness	N	Mean	Std. Deviation
-Using e-Zetoon system to accomplish the call and inform process is quick.	15	4.07	.799
-Using e-Zetoon system would improve the concert of make call and inform process.	15	4.40	.737
-Using e-Zetoon system would enhance my effectiveness.	15	4.20	.676
-Using e-Zetoon system would increase my productivity.	15	4.47	.516
-Using e-Zetoon system would make it easier to do my tasks.	15	4.07	.704
-I would find e-Zetoon system useful in my daily tasks.	15	4.40	.828
Valid N (list wise)	15		

Descriptive Statistics

Perceived Ease of Use	N	Mean	Std. Deviation
Learning to operate e-Zetoon system would be easy for me.	15	4.33	.617
I would find it easy to get e-Zetoon system to do what I want it to do.	15	3.87	.743

My interaction with e-Zetoon would be clear and understandable.	15	4.33	.724
It would be easy for me to be skillful at using e-Zetoon system	15	4.13	.834
I would find e-Zetoon to be flexible to interact with.	15	4.60	.632
I would find e-Zetoon system easy to use.	15	4.73	.458
Valid N (list wise)	15		

	Mean	Std. deviation
Total PU	4.266667	0.715793
Total PE	4.333333	0.718926
Total PU & PE	4.3	0.716135

5.4 CONCLUSION

The evaluation takes focus on the development process and can uncover usability deficits early during the design. In future works, more usability test for the redesign application with use SMS in share information and contact with people and in future this prototype to include MMS interview with staff in organization and student to evaluation reach more people will help to shape application and better meet the user's opinion, requirements and expectations. The overall result was encouraging but improvement is definitely needed.

CHAPTER SIX

CONCLUSION AND RECOMMEND

6.1 INTRODUCTIONS

This chapter conclusion this study about send messages to members “students” out of organization and summarizing the finding that found this study and presenting research contribution. This study shows comparison between WAP application, WAP device, and the future work on this study. This study developed an application able to make easy contact with students and staff of organization to give them new opportunity to keep in touch with organization. Moreover, this study will help all the members of organization to save time and effort, also this system will help the organization to attract largest possible of student in order to achieve financial profits which are the main purpose for organization with student.

6.2 STUDY CONTRIBUTION

WAP application is useful in order to send messages through mobile application, and it could give the student an easy way to inform them about necessary information by send messages such as change the casual, update it, new evens.

6.3 PROBLEM AND LIMITATIONS

Although this system provides the people with an easier manner for view the messages or information with all details. There are some significant disadvantages to the E-marketing by using mobile application which includes the following points:

1. the developing of WAP/WEB and SMS, pages is more complex than developing pages for standard web browser because of the limitation size of mobile screen space and

internal memory in mobile devices. In development phase, developer need to concern about the size of the screen.

2. Limited financial resources no actual web server can be utilized in testing, and need to buy credit called “point package” from one of supply that service.

6.4 FUTURE WORKS

Internet web-based application manage organization to let the organization send messages and necessary information to organization’s students, there are many organization need to implement in this application, as an administrator can send messages for students to let them more close for organization news. So this is one of the future work must be done. On the other hand the administrator can send messages for the students if there any changes in the main information.

The system will develop MMS to involve demo and images organization to share with student.

Furthermore, e-Zetoon system interface deals with staff of organization just, user interface can be enhance using by all members of organization like student’s, So this is another one of the future work must be done to give them opportunity to share the knowledge and information with organization.

6.5 RECOMMENDATIONS

In my opinion, mobile technology becomes very important in our societies and there are no body can disregard its importance. We must look for the mobile hand phone as backbone in our works, because it makes all of things easier and faster to be done.

6.6 CONCLUSION

According to chapter number one, the objectives of this study are to design and develop the working prototype of E-Zetoon system and to evaluate usability the prototype of E-Zetoon

system, this system will help all of members of the organization students and staff to send and share organization information in a systematic way at anytime and anywhere the students will be, System Development Life Cycle (SDLC) is used as a method for the object to design and develop the working prototype of e-Zetoon system, questionnaires is used as method to get the answer the objective to evaluate usability the prototype of e-Zetoon system is the result of the usefulness and ease of use of the e-Zetoon system.

Internet web-based application to manage organization system will help staff and student by gaining the easer way to share the information and manage it by the necessary function such as make messages, inform student, view message, update or change the time table of student. This prototype system was completely developed by Java programming language.

Reference

Alfonso, P., et al. (2005). "Proteomic expression analysis of colorectal cancer by twoâ€dimensional differential gel electrophoresis." Proteomics **5**(10): 2602-2611.

Armstrong, E., J. Ball, et al. (2004). "The J2EE 1.4 tutorial." Sun Microsystems **17**.

Ashok, J. (2008). "How will Life Change in the Future Mobile Information Society." Another Opportunity for Developing Economies, Chennai, India, by TeNeT Group.

Baida, Z., J. Gordijn, et al. (2004). A shared service terminology for online service provisioning. Proceedings of the 6th international conference on Electronic commerce, ACM.

Bodendorf, F. and A. Schobert (2007). "Enhancing e-CRM in the insurance industry by mobile e-services." International Journal of Electronic Customer Relationship Management **1**(3): 269-278.

Bodoff, S., D. Green, et al. (2002). The J2EE tutorial, Addison-Wesley Longman Publishing Co., Inc.

Gawande, A. (2009). "The cost conundrum." The New Yorker **1**.

Goto, K. and Y. Kambayashi (2002). "Study on mobile passenger support systems for public transportation using multi-channel data dissemination." Digital Cities II: Computational and Sociological Approaches: 235-241.

Goto, K. and Y. Kambayashi (2003). Integration of electronic tickets and personal guide system for public transport using mobile terminals. Proceedings of the 2003 ACM SIGMOD international conference on Management of data, ACM.

Grechanik, M., K. S. McKinley, et al. (2007). Recovering and using use-case-diagram-to-source-code traceability links. Proceedings of the the 6th joint meeting of the European software engineering conference and the ACM SIGSOFT symposium on The foundations of software engineering, ACM.

Guthery, S. B. and M. J. Cronin (2002). Mobile application development, McGraw-Hill.

Hillebrand, F., F. Trosby, et al. (2010). Short Message Service (SMS): The Creation of Personal Global Text Messaging, Wiley.

Kalliola, M. (2005). "MOBILE PAYMENTS." Towards the Next Wave of Mobile Communication: 51.

Kavassalis, P., N. Spyropoulou, et al. (2003). "Mobile permission marketing: framing the market inquiry." International Journal of Electronic Commerce **8**(1): 55-79.

Kawashima, K., K. Tadano, et al. (2009). Bilateral teleoperation with time delay using modified wave variable based controller. Robotics and Automation, 2009. ICRA'09. IEEE International Conference on, IEEE.

Kodakanchi, V., M. H. S. Kuofie, et al. (2006). "An economic development model for it in developing countries." The Electronic Journal of Information Systems in Developing Countries **28**(0).

Koufaris, M. (2002). "Applying the technology acceptance model and flow theory to online consumer behavior." Information systems research **13**(2): 205-223.

Miller, K. (2011). Organizational communication: Approaches and processes, Wadsworth Pub Co.

Naismith, L., P. Lonsdale, et al. (2004). "Literature Review in Mobile Technologies and Learning: Report 11." Educational Technology.

Qaddour, J. (2006). High peak to average ratio solution in OFDM of 4G mobile systems. Proceedings of the 2006 international conference on Wireless communications and mobile computing, ACM.

Russo, J. E., E. J. Johnson, et al. (1989). "The validity of verbal protocols." Memory & Cognition **17**(6): 759-769.

Saleh, Z. and M. W. PENDLEBURy (2006). "Accruals Accounting in Governmentâ€"Developments in Malaysia." Asia Pacific Business Review **12**(4): 421-435.

Siau, K. and Z. Shen (2003). "Mobile communications and mobile services." International Journal of Mobile Communications **1**(1): 3-14.

Singelee, D. and B. Preneel (2005). Location verification using secure distance bounding protocols. Mobile Adhoc and Sensor Systems Conference, 2005. IEEE International Conference on, IEEE.

Surgailis, D. (2003). "CLTs for polynomials of linear sequences: Diagram formula with illustrations." Theory and applications of long range dependence: 111-128.

Tanakinjal, G. H., H. Amin, et al. (2007). "Mobile Devices and Communication: An Analysis." Journal of Internet Banking and Commerce **12**(3).

Turban, E., D. Leidner, et al. (2008). Information Technology For Management, (With Cd), Wiley-India.

Vaishnavi, V. and W. Kuechler (2007). "Design research in information systems." wwwisworldorg **22**(2): 1-16.

Wells, J. and L. Lewis (2006). "Internet Access in US Public Schools and Classrooms: 1994-2005. Highlights. NCES 2007-020." National Center for Education Statistics: 83.

Appendix

Questionnaire

University Utara Malaysia

Graduate School of Arts and Sciences

School of Computing

Department of Information Technology

Questionnaire for Internet Web-Based Application to Manage Organization

SYSTEM TO BE TEST:

The method of questionnaire that used in this study reflects the attitudes and impressions about using the mobile as an instrument in order to help the members of organization to share necessary information be messages, moreover, the questionnaire method that use in this project is designed in such way to help understanding the process that used in current process of Zetoon organization. This study carried out for the research purpose only which means that it is established to finish the MSc in IT.

INTRODUCTION:

In this research questionnaire method, which consist two sections? First part consist of three questions that tend to collect general information, the second part which include 12 questions all of them were in order to collect information about students and staffs aspects about the system itself.

SECTION A: General Information

Demographic Background: please kindly tick ( ) you answer to the given statement.

1) **Gender**:

( ) Male. ( ) Female.

2) **Age:**

( ) 18-24 Years old. ( ) 25-34 Years old. ( ) 35-44 Years old.

( ) 45-54 Years old. ( ) Above 55 Years old.

3) Education Background:

( ) Degree. ( ) Master. ( ) PHD.

SECTION B: System Aspect

This part is intended to rate your satisfaction and view on some aspect with the overall usability of the e-Zetoon system. Please make [x] your answer.

1= strongly disagree.

2=Disagree.

3= Normal.

4= Agree.

5= strongly agree.

Item	Description	1	2	3	4	5
Perceived Use Fullness						

1.	Using e-Zetoon system to accomplish the call and inform process Is quick.					
2.	Using e-Zetoon system would improve the concert of make call and inform process.					
3.	Using e-Zetoon system would enhance my effectiveness.					
4.	Using e-Zetoon system would increase my productivity.					
5.	Using e-Zetoon system would make it easier to do my tasks.					
6.	I would find e-Zetoon system useful in my daily tasks.					
Perceived Ease of Use						
7.	Learning to operate e-Zetoon system would be easy for me.					
8.	I would find it easy to get e-Zetoon system to do what I want it to do.					
9.	My interaction with e-Zetoon would be clear and understandable.					
10.	It would be easy for me to be skillful at using e-Zetoon system					
11.	I would find e-Zetoon to be flexible to interact with.					
12.	I would find e-Zetoon system easy to use.					

To whom it may concern:

Zaytoon International is a Non-Governmental Organization that works primarily in the country of Jordan implementing programs that encourage individual empowerment and fight unemployment. This last summer over the course of implementing our pilot training program in community centers and in doing research and networking there were some difficulties that we faced that could have been mitigated through technological solutions. One of the key problems we ran into was being able to keep track of all the people we were meeting with and all the information about those relationships. Some sort of more solid CRM software or consistent place to keep this information in a database would have been much easier as a few times the same person was bothered on multiple occasions and asked the same questions in our research and networking. We only used excel spreadsheets and dropbox (a website) to upload and share all of our information with each other but would like to know if there is a better way to collect and process this information? There is a specific emphasis on a user friendly interface to the database as well as an ability to input from multiple sources and being able to access the database readily from anywhere (so a web based solution). If you have any other ideas or proposed solutions we are open to any type of innovation and design change and are happy to provide any other details and structure to our needs.

Loren Rich

Executive Director