MOBILE SMS ALERTS FOR ISLAMIC EVENTS AND WORSHIPS

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MOBILE SMS ALERTS FOR ISLAMIC EVENTS AND WORSHIPS

A project submitted to Dean of Postgraduate Studies and Research in partial Fulfillment of the requirement for the degree Master of Science of Information and Communication Technology Universiti Utara Malaysia

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ABSTRACT

In the last decade, the mobile phones' usage grown up by an increased number of users, where the mobile phones become a part of people life. The mobile phones today provide more than voice call service. The aim of this project is to help the Muslims to reach the Islamic events and worships using mobile phone technologies by sending SMS messages to their mobile phone devices to stay up to time. The user will subscribe to the services he/she wants to be notified about them. He/she can either choose all of SMS services' types or select the favorite SMS services to him/her.

Dedication

إهداء

إلى من سقتني بحنانها، و إلى من رعاني بعطفه، إلى أمي وأبي اللذان تعبا وسهرا من أجلي و بارك الله لي بدعائهما...

إلى التي وقفت بجانبي في السراء والضراء وكانت عونا لي، إلى زوجتي المخلصة...

إلى التان آنستا وحشتي وأضحكتا قلبي، إلى ابنتي أروى ونسيبة...

إلى أخي وأختاي المحبين اللذين شجعوني...

إلى أهلي وأحبابي وأصدقائي اللذين لم ينسوني ولم أنسهم...

أهدي لهم هذا العمل...

عمر فاروق أحمد السالم

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Omar Farouk Ahmed Al-Salim

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LIST OF ABBREVIATIONS

CEPT	Conference of European Posts & Telegraphs
DCS	Digital Cellular System
ETSI	European Telecommunication Standards Institute
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
ISDN	Integrated Services Digital Network
JSP	JavaServer Page
PCS	Personal Communications System
SIM	Subscriber Identity Module
SMS	Short Messaging Service / Short Message Services
WAP	Wireless Application Protocol

CHAPTER ONE

INTRODUCTION

This chapter describes in brief the background of the study which includes in the main the need for mobile service to remind the Muslims with Islamic events and worships. The chapter presents the problem statement, the research questions and research objectives. Moreover, the scope of the research, the research significance, the report structure as well as the summary of the chapter are emphasized in this chapter.

1.1 Background

Since the earlier ages of using technology, the inventors and scientists were always trying to create methods and develop techniques sequentially to achieve the most flexible and easiest ever life for all human kind.

Nowadays, mobile technology that occupies a wide area of our daily life since it is very rarely to find any person who did not own a mobile; more over the mobile devices are considered as very flexible devices as they are easy to use and to be carried out everywhere by the users.

People always want to be in control. They need real-time information whenever and wherever they need. For instance, with the advance of technology, mobile phone is no longer a luxury item. It is easily available and possessed by most people around the globe.

Nevertheless, the popular communication technology used today is SMS, WAP, MMS, GPRS, and 3G. Among these, SMS is considered as the most widely used because of it is supported in all modem mobile equipment, and it renders low usage cost (Sang *et. al.*, 2003).

There are many Islamic events and worships in Muslim life. Some are daily like the five prayers; weekly like Friday prayer, monthly (fasting) and some are annually (pilgrimage).

The goal that Muslims want to achieve is paradise and to acquire it, they must work out with the effort in worships. The more worship Muslims perform, the high chance of going to paradise. Allah - Subhanahu Wa Ta'ala ordered Muslims to do worships only for him to get into paradise.

"Yā 'Ayyuhā Al-Ladhīna 'Āmanū Arka`ū Wa Asjudū Wa A`budū Rabbakum Wa Af`alū Al-Khayra La`allakum Tufliĥūna" Surah: 22 Aya: 77 (as transliterated by transliteration.org)

Allah says in Surah Al-Hajj (The Pilgrimage) "O you who believe! Bow down, and prostrate yourselves, and worship your Lord and do good that you may be successful." (as translated by Al-Hilali & Khan)

1.2 Problem Statement

There are many Islamic events in the calendar; people celebrate on some of these events. Sometimes a Muslim misses some of these events and nobody reminds him/her.

Muslims forget the date or time of these events and sometimes cannot remember them as they are busy with life activities. For example if someone wishes to fast during the white nights where the moon become full moon is Sunna (the

prophet Mohammed – peace be upon him - practices) that fasting these days, he/she might forget.

Some of worships have du'a (prayer) and some people do not know the du'a or they forget it.

There are a lot of mobile applications like praying time applications and hegira calendar, but not all mobile phones support these applications. All mobile phones support SMS (Short Messaging Service) services, so using SMS can be for all mobile phones.

1.3 Research Questions

1. What are the Islamic SMS events and worships services that provided (Islamic events alerts, Islamic worships alerts, Doaa, …etc)?
2. What are the requirements for mobile alerts for Islamic events and worships by SMS?
3. How to evaluate the mobile SMS alerts system?

1.4 Research Objectives

The objectives of this project are:

1. To identify the requirements for mobile alerts for Islamic events and worships by SMS.
2. To develop a prototype to send alerts SMS on Islamic events and worships.
3. To conduct a usability test on the efficiency and effectiveness of the developed system.

1.5 Research Scope

This project focuses on designing and developing an SMS mobile prototype to alerts, notifies and reminds the user for the Islamic events and worships and giving the user an update on events and worships.

1.6 Research Significance

The project after completion is hoped to assist Muslims by reminding or notifying them about the Islamic events and worships in their lives. Such assistance is translated by using SMS and sending messages from time to time.

1.7 Report Structure

The report is organized as follow:

Chapter one presents a brief background of the study and in which the problem statement, research questions, research objectives, research scope and research significance are described. Next, chapter two will include a review of literatures for related work to the research. Additionally, chapter three will consist of the methodology to be followed to make the research. While chapter four will comprise the analysis and design for the system which will be developed to achieve the goal for the research; chapter five will take in the evaluation for the system and discussions. Finally, chapter six will take account of the conclusion for the work of the research.

1.8 Summary

This chapter described the background of the research, such as the problem to be solved was stated with the questions of the research to be answered by the objectives of the research. The research scope and significance were also pointed out.

CHAPTER TWO

LITERATURE REVIEW

2.1 GSM

Scourias (1999), indicated that the first cellular phones began to appear in 1980 in Europe specifically in the Scandinavian region, United Kingdom, France, and Germany.

According to Scourias (1999), Europeans formed a study group called the Groupe Special Mobile (GSM) to study and develop a pan-European public mobile system. The group was specified in 1982 as a Pan-European standard by the CEPT (Conference of European Posts & Telegraphs) in order to replace a number of incompatible systems that were used in service at that time. The proposed system has to meet the following certain criteria such as good subjective speech quality, low mobile device and services cost, support for international roaming, ability to support handheld mobile devices, support for range of new services and facilities, and Integrated Services Digital Network (ISDN) compatibility.

In 1989, GSM accountability was transferred to the European Telecommunication Standards Institute (ETSI), and phase I of the GSM specifications were published in 1990. Commercial service was started in mid1991, and by 1993 there were 36 GSM networks in 22 countries (Scourias, 1999). Peersman et. al., (1997), describes the key feature of GSM as the provision of good speech quality over a whole range of operating conditions, the support for

international roaming and the ability to offer many new value-added services such as voice mail, call handling facilities, Call Line Identification - and the Short Message Service.

Although standardized in Europe, GSM is not only the European standard, since over 200 GSM networks are operational in 110 countries around the world. In the beginning of 1994, there were 1.3 million subscribers worldwide, which had grown to more than 1.1 billion by December 2004. With North America making a deferred entry into the GSM field with a derivative of GSM called PCS 1900, GSM systems exist on every continent, and the acronym GSM now aptly stands for Global System for Mobile communications (Scourias, 1999).

Based on Scourias (1999), the most basic service supported by GSM is telephony. At this point the speech is digitally encoded and transmitted through the GSM network as a digital stream, and features like caller identification, call forwarding waiting , multiparty conversations, and barring of outgoing (International) calls are provided as supplementary service , which is on the of teleservices or bearer service (Mallick, 2003).

Scourias (1999), claimed that one of the most accepted data services is the SMS, which is a message that can be sent to another subscriber to the service, where by an acknowledgement is provided to the sender. It can also be used for breaking news, stock updates, weather information and numerous other applications. The SMS can be stored in the Subscriber Identity Module (SIM) card for later retrieval.

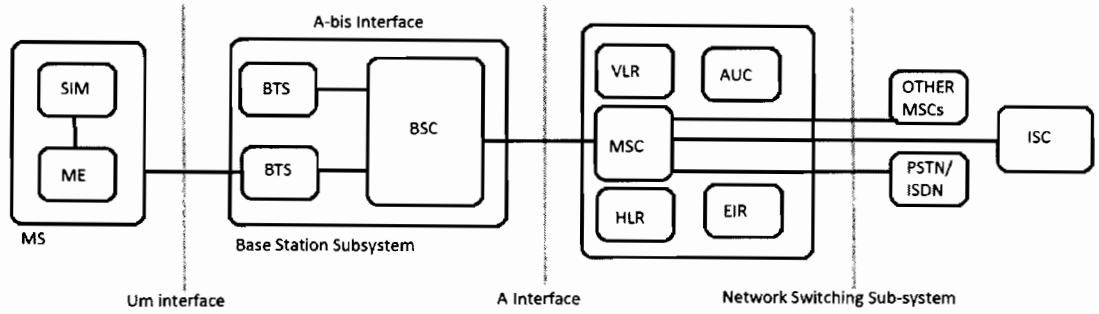
A brief history of GSM development from 1982 to 2008 is shown in table 2.1.

Table 2.1 Brief history of GSM (GSM World, 2010).

Year	Events
1982	Groupe Speciale Mobile (GSM) is formed by the Confederation of European Posts and Telecommunications (CEPT) to design a pan-European mobile technology.
1984	France & Germany sign a joint development agreement for GSM.
1986	• EU Heads of State endorse the GSM project. The European Commission initiative proposes to reserve 900MHz spectrum band for GSM, agreed in the EC Telecommunications Council. • Quadripartite agreement between France, Germany, Italy and the UK cooperation agreement signed (to support the standards work and exchange research data). • Trials of different digital radio transmission schemes and different speech codecs in several countries, with comparative evaluation by CEPT GSM in Paris.
1987	• Basic parameters of the GSM standard agreed in February.
1988	• Completion of first set of detailed GSM specifications for infrastructure tendering purposes. • Simultaneous issue of invitation to tender for networks by ten GSM network operators – all subsequently signed in the same year.
1989	• Groupe Speciale Mobile (transferred to an ETSI technical committee) defines the GSM standard as the internationally accepted digital cellular telephony standard. • The UK's Department of Trade & Industry (DTI) produced a document 'Phones on the Move' that first proposed PCN (Personal Communications Networks (later known as DCS 1800 and subsequently GSM 1800) networks to operate in the 1800 MGhz frequency band.
1990	GSM adaptation work started for the DCS1800 band.
1991	First GSM call made by Radiolinja in Finland.
1992	• First international roaming agreement signed between Telecom Finland and Vodafone (UK). • First SMS sent.
1993	First truly hand portable terminals are launched commercially. World's first DCS1800 (later GSM1800) network opened in the UK.
1994	• GSM Phase 2 data/fax bearer services launched. • GSM subscribers hit one million.
1995	• Global GSM subscribers exceed 10 million. • Fax, data and SMS services started, video over GSM demonstrated. • The first North American PCS 1900 (now GSM 1900) network opened – via a phone call by US Vice President Al Gore.
1996	• First GSM networks in Russia and China go live. • Pre-paid GSM SIM cards launched.

Year	Events
	• 167 networks live in 94 countries. • GSM subscribers hit 50 million.
1997	• 15 GSM networks on air in the USA using the 1900MHz band. • 100 countries on air globally • First tri-band handsets launched.
1998	Global GSM subscribers surpass 100 million.
1999	• WAP trials begin in France and Italy. • Contracts placed for GPRS systems.
2000	• First commercial GPRS services launched. • 3G license auctions commence. • First GPRS handsets enter the market. • Five billion SMS messages sent in one month.
2001	• First 3GSM (W-CDMA) network goes live. • Fifty billion SMS messages sent in first three months. • GSM subscribers exceed 500 million. • First mobile phone color screens launched.
2002	• GSM introduced for 800MHz band. • First Multimedia Messaging Services go live. • 95% of nations worldwide have GSM networks. • 400 billion SMS messages sent in the year. • First mobile camera phones launched.
2003	• First EDGE networks go live. • Over half a billion handsets produced in a year.
2004	• GSM SURPASSES ONE BILLION CUSTOMERS. • More than 50 3GSM networks live.
2005	• GSM surpasses 1.5 billion customers. • GSM dominates over 3/4 of wireless market. • First HSDPA network goes live. • Over 100 3GSM networks launched. • 120+ 3GSM handset models launched or announced. • First ever sub-$30 mobile phone announced. • Over one trillion SMS sent in the year.
2006	• GSM SURPASSES TWO BILLION CUSTOMERS. • Over 120 commercial 3GSM networks in more than 50 countries and almost 100 million subscriptions. • Approximately 85 HSDPA networks in commercial launch by year end. • 66 HSDPA devices available from 19 suppliers, including 32 handset models. • Over 980 million handsets sold by year end.
2007	• Heading towards 2.5 billion GSM connections. • Further HSDPA network launches and introduction of HSUPA.
2008	• GSM surpasses 3 Billion connections.

2.2 GSM's Architecture and it's Essential Components



SIM	Subscriber Identity Module	HLR	Home Location Register
MS	Mobile Station	VLR	Vistor Location Register
BTS	Base Transceiver Station	EIR	Equipment Identity Register
BSC	Base Station Controller	AC	Authentication Center
MSC	Mobile services Switching Center	PSTN Network	Public Switched Telecomm
VLR	Visitor Location Register	ISDN Network	Integrated Services Digital

Figure 2.1 GSM's Architecture (M-INDIYA, 2006)

GSM can be divided into two types which are; the Mobile Subscribers and the fixed built infrastructure. The fixed built network is then sub-divided into Base Station Subsystem, Switching and Management Subsystem and Maintenance Subsystem.

2.2.1 Mobile Station (MS)

Mobile Station is shortly the combination of Mobile Equipment (ME) and Subscriber Identity Module (SIM). Together they provide various kinds of GSM services such as bearer services, tele-services and supplementary services. Each Mobile Equipment has its own exclusive identification, which is known as International Mobile Equipment Identity (IMEI) whilst SIM has its own

identification that is International Mobile Subscriber Identity (IMSI) (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.2.2 International Mobile Station Equipment Identity (IMEI)

The International Mobile Station Equipment Identity differentiates between each and every one of the Mobile Station and is assigned to each of the Mobile Station by the equipment manufacturer. Next, they are registered by network operator and stored in the Equipment Identity Register (EIR). Through this, any reported stolen MS, obsolete or nonfictional equipment can be identified quickly and thus denying services provided to the MS. IMEI has three main components within the EIR:

- White List – Is the list which contains all the IMEI numbers of all equipment
- Black List – Is the list which contains all the IMEI numbers of the suspended equipment. Network Operator exchanges this list periodically.
- Gray List – Is the list which contains all the IMEI numbers which the malfunctioning equipment or the equipment which operating with obsolete software. The equipment however, can still be used but its use is reported to the operating personnel (end user) (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.2.3 International Mobile Subscriber Identity (IMSI)

Each and every subscriber of the mobile network service provider will receive a exclusive identifier which is known as International Mobile Subscriber Identity. IMSI is stored in SIM and used to identify SIM when MS is operated. This is to

prevent SIM card from being duplicated by having only one exclusive IMSI subscribe to the network operator at one time. It is also to ensure the privacy of the mobile subscriber and correct billing for the services (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.2.4 Mobile Subscriber ISDN Number (MSISDN)

MSISDN is the „phone number" of a Mobile Station. Each SIM can have only one IMSI but can have multiple MSISDN (depending on the SIM) for the selection of different services (voice, data, fax and etc.) [3, 18]

2.2.5 Base Station Subsystem (BSS)

Base Station Subsystem is needed when managing and maintaining the radio network and is controlled by an MSC, which can control multiple BSS at a time. BSS covers a moderately large geographical area which insides located many cells. This comprises of two, which is Base Transceiver Station (BTS) and Base Station Controller (BSC). BSS is providing the radio resources which are the radio channel allocation and quality of the radio connection (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.2.6 Base Station Controller (BSC)

BSC is the central network component that controls the radio network. It launches connection between the MS and the NSS (Network Switching Subsystem) and performs calling operation through the group switch of the BSC. Since the ME might change from cells to cells, as the BSC is responsible for most of the handovers,

performing specific handover decision based on the calculations report sent by the MS during a call. The data from the BTS, Transcoders and BSC are composed in the BSC and forwarded to NMS to perform statistical calculations, and thus quality of network and status can be attained (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.2.7 Base Transceiver Station (BTS)

BTS is the hardware architecture in charge of managing the air interface and reducing the transmission problems since the air interface is very liable towards disturbances. Roughly more than 120 parameters used in designing BTS to solve the problems such as handovers, paging, radio power level control, and identification of BTS (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.2.8 Network Switching Subsystem (NSS)

Network Switching Subsystem is the switching centre where databases store the data needed for routing and providing service such as call control, charging information, mobility management, signaling and subscriber data handling. It is the combination of different network elements such as MSC, VLR, HLR, AC and EIR (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.2.9 Mobile Switching Centre (MSC)

MSC is liable for all the switching functions of a fixed network switching node. The responsibility is based on performing call origin and destination identification for mobile station or fixed line and for different type of call. In

addition, MSC identifies the destination, the origin of a call and also the type of call. It is also dependable for setting up, supervising, and clearing connections for every call. MSC initiates paging to locate a particular MS in case of mobile terminate or moving to another cell. It collects the charging data too (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.2.10 Home Location Register (HLR)

HLR is responsible for storing every entry of every subscriber. Each mobile subscriber ISDN number has their respective "home" which is HLR. HLR stores relevant temporary information and permanent data of all subscribers permanently registered in the HLR. Besides, HLR also periodically tracks the location of the subscribers. In Nokia implementation, two of the network elements, which are Authentication Centre (AC) and Equipment Identity Register (EIR), are located in the HLR (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.2.11 Visitor Location Register (VLR)

VLR is a database responsible for storing information about the subscribers currently locating in the service are of the MSC/VLR such as identification numbers (IMEI, IMSI and etc.) of the subscribers and the services that be provided to the subscriber. The information of the subscribers at VLR is transitory and is held only when the subscriber is within its service area. The information stores temporary at VLR is such as the address to every subscriber"s HLR (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.2.12 Authentication Centre (AC)

AC is created to provide security information to the network in order to verify the SIM across the interfaces (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002). The verification of the SIM across the interfaces is due to security purposes.

2.2.13 Equipment Identity Register (EIR)

EIR is in charge of IMEI checking. When performing this operation, the MS will provide the IMEI number which consists of type approval code, final assembly code and serial number of the MS. EIR contains three lists which have been discussed above that are white list, black list and grey list (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.2.14 Operation and Maintenance Subsystem (OMSS)

OMSS controls and maintains the ongoing network operation. OMC initiates and monitor s network control functions such as:

1. Commercial and administration operation (end terminals, subscribers, charging, statistics)
2. Security Management
3. Network operation, configuration, and performance management
4. Maintenance tasks list (Eberspaecher, Voegel & Bettstetter, 2001; Nokia, 2002).

2.3 SMS (Short Messaging Service)

Known also a Short Message Service (100-200 characters in length) contains only text.

Developers' Home (2008) has sited that the first appearance for the SMS in Europe was in 1992. It was included in the GSM standards right at the beginning. Later, it was ported to wireless technologies like CDMA and TDMA. The GSM and SMS standards were originally developed by ETSI (European Telecommunications Standards Institute). Now the 3GPP (Third Generation Partnership Project) is responsible for the development and maintenance of the GSM and SMS standards (Developers' Home, 2008).

The SMS stands for Short Message Service, a mobile device allowing sending and receiving text or binary messages between mobile phones. Users can make use of it to send person to person messaging, email notifications, information services, and alerts and so on (Infosec, 2008).

The SMS is a service for sending messages can contain up to 160 characters to mobile phones that use Global System for Mobile (GSM) communication. These messages are comprise of words, numbers or an alphanumeric combination (Hs1 Mobile Messaging, 2007).

Sachpazidis *et. al.,(*2004), reveal that SMS is typically used to carry different types of information. It is used to notify patients regarding their next medication time and students at the university to get the result of their exams, Etc.

Table 2.2 Development of SMS in the market (Hillebrand, Trosby, Holley & Harris, 2010)

Milestone	Achievements
1992	First acceptance tests by various operators in Europe.
1993	First SMS point-to-point mobile-terminated-enabled phones available. First uses by network operators for alerting of received voice mails.
1994	Every new terminal was capable of SMS point-to-point mobile-terminated.
1995	Every network was capable of SMS. International roaming for SMS available.
1995	Discovered by youngsters, and began to become a part of the youth culture.

1996	Every new terminal was also capable of SMS point-to-point mobile-originated. National interworking between operators was in place between most operators Substantial traffic.
2008	3–4 trillion short messages sent, with a revenue of $80–100 billion worldwide.

2.4 SMSC (Short Messaging Service Center)

The SMS messages are transferred between mobile phones via a Short Message Service Center. It is may need to pass through more than one network entity (e.g. SMSC and SMS gateway) before reaching the destination. When an SMS message is sent from a mobile phone, it will reach an SMS center first. The SMS center then forwards the SMS message towards the destination (Developers' Home, 2008).

The SMSC is software that resides in the operators network and manages the processes including queuing the messages, billing the sender and returning receipts if necessary (calsoftlabs, 2002).

If the recipient is unavailable, the SMSC will store the SMS message. It will send the SMS message when the recipient is available. According to developershome (2007) the main task for SMSC is to route SMS messages and regulate the process (Developers' Home, 2008) .

2.5 Bulk SMS

Institutions and organizations have the options to choose from various technologies when sending SMS text from a computer. A very irregular classification of the choices might be:

- Bought-in standalone SMS texting systems.

- Component systems that integrate SMS functionality into other applications.
- Existing systems that offer SMS texting as a feature to enhance their core functionality.

Any of these systems will enable a user to send an SMS text but the user will also need to have bought messages, preferably in bulk at a discount. It is the role of 'aggregators' to act as intermediaries and buffers between the networks and the customers (since the customers cannot anticipate the exact mix of networks of their recipients) (Riordan & Traxler, 2005).

The bulk SMS allows service providers to purchase SMS resources from operators at wholesale price for huge number. It's a business model placed by operators to cope with the high demand for transferring short messages in the machine-to-person scenario (Bodic, 2005).

2.6 Related Work

Recently, with the substantial usage of technology, mobile devices were used in fields of agriculture, medical (Carlsson, *et al.,* 2005), as well as business (Alahuhta, et al., 2005). Mobile phones have become widely used technology and for many people a daily companion (Gu & Gil, 2003). This is due to the fact one of the main functions is to facilitate communication and information access anywhere and anytime (Fogg, 1999).

Depending on market situation of parallel, mobile application software is developed for each mobile platform including Wireless Internet Platform and Interoperability (Choi, et al., 2009).

Hence, there is an increasing number of academic researches conducted on mobile services from management perspective rather than a technological one (Heinonen & Pura, 2006).

2.6.1 Islamic Mobile Contents

Maxis Developer Programme has offered a successful "Solat Times" Java application. "Solat Times" is the world's first mobile application of its kind that notifies users of the five daily Islamic prayer times in major cities in Malaysia, the United Kingdom and South Africa (Maxis Media Centre, 2005).

A system of context awareness was proposed by Ali *et al.* (2008) to provide Muslim users with Islamic information and services according to user context in terms of user location, current time and date, and user profile.

Wyche *et al.* (2008) developed a cell phone application to support Muslims of America in keeping track of prayer times.

2.6.2 SMS Alert

Ching and Garg (2002) developed public transport notification system in Singapore. The work delineates a wireless service system that provides real-time information using SMS on demand especially regarding on travel information. The system integrates bus and mass rapid transit information together. This enable user to the arrival information and flag the particular bus on the way.

Zarka, Al-Houshi and Akhkobek (2006) presented an electronic system to control temperature via Short Message Services (SMS). The system is deliberate to measure the ambient temperature and send it to subscribers via SMS. The main

implementation of the system is sending an alert SMS when the temperature is below or above a predetermined threshold to prevent from fire or frost.

In Ramadan 1431 Aug.-Sep. 2010 Maxis (Malaysian mobile operator) offered Ramadan contents which include many services including alert SMS for daily prayer times, and also times for the starting and breaking of fast (Maxis Media Centre, 2010).

2.7 JavaServer Page (JSP)

Java Server Pages (JSPs) in the simplest sense are web pages with embedded Java's code. The execution of the embedded Java code is on the server before the page is returned to the browser (Wutka, Moffet & Mittal, 2003).

JSP merges the most significant characteristics found in the preferences (Bergsten, 2003):

- JSP upholds both scripting- and element-based dynamic content, and enables developers to design custom tag libraries to meet application-specific requires.
- JSP pages are compiled for effective server handling.
- JSP pages can be used in composite with servlets that hold the business logic and the model preferred by Java servlet template engines.

In addition, JSP has a pair of singular advantages that make it stand out from the crowd (Bergsten, 2003):

- JSP is a specification, not a product. This means suppliers can rival with various implementations, leading to best performance and quality. It also

leads to a less obvious advantage, that is when so many corporations have expended time and money in the technology, opportunities are it will be nearby for a long time, with acceptable assurances that new versions will be backward compatible; with a proprietary technology, this is not always a given.

- JSP is an essential part of J2EE (Java 2 Enterprise Edition), an accomplished platform for enterprise class applications. This means that JSP can act as a part in the simplest applications to the most complex and demanding.

According to Yüksel and Zaim (2009) JSPs can be used to create Web applications and dynamic content forms. Although, there are many applications for this job today the most noticeable Java Server Pages technology. Unlike other technologies, JSP is a cross-platform and cross-application server, making use of facilities. JSP pages are usually:

- Static HTML and XML components.
- Custom JSP tags.
- Optionally, the script-let consists of particles called the Java programming language code.

Gupta et al (2008) presented a system uses SMS service to help counselors working with homeless women with special needs they called it aSister. They built a working prototype of the application using JSP to test the system.

2.8 Apache Tomcat

Apache Tomcat (or Jakarta Tomcat or simply Tomcat) is an open source servlet container developed by the Apache Software Foundation (ASF). Tomcat

implements the Java Servlet and the JavaServer Pages (JSP) specifications from Sun Microsystems, and provides a "pure Java" HTTP web server environment for Java code to run (Wikipedia, n. d.).

Tomcat can be used either as a stand-alone server or with another web server that doesn't support JSP on its own (Heaton, 2003). Gupta et al (2008) used Apache Tomcat 5.5 server to host the aSister system which is a JSP application.

2.9 Microsoft FrontPage 2003

Microsoft FrontPage (full name Microsoft Office FrontPage) is a WYSIWYG (What You See Is What You Get) HTML editor and web site administration tool from Microsoft for the Microsoft Windows line of operating systems. It was branded as part of the Microsoft Office suite from 1997 to 2003. Microsoft FrontPage has since been replaced by Microsoft Expression Web and Sharepoint Designer, which were first released in December 2006 (Wikipedia, n. d.).

JSP allows you to embed Java's code directly into HTML-like documents. JSP files can also be created with HTML editing tools such as FrontPage (Heaton, 2003).

CHAPTER THREE

RESEARCH METHODOLOGY

The research methods refer to the methods and techniques employed by the researcher in the stage of the research comprising data collection technique, data processing techniques and instruments. The research methodology suggested in this study is the general Research Design Methodology developed by Vaishnavi and Kuechler (2008). The methodology consists of five basic phases namely: Awareness of problem, Suggestion, Development, Evaluation and Conclusion phase respectively. Each of these phases are elaborated afterwards.

3.1Design Research Methodology

According to Vaishnavi & Kuechler (2008), the design research methodology includes the main steps as shown in Figure 3.1 these phases are:

- Awareness of Problem
- Suggestion,
- Development
- Evaluation
- Conclusion.

Design research in IS (Information System) aims to build and evaluate IT (Information Technology) artifact to meet business requirements.

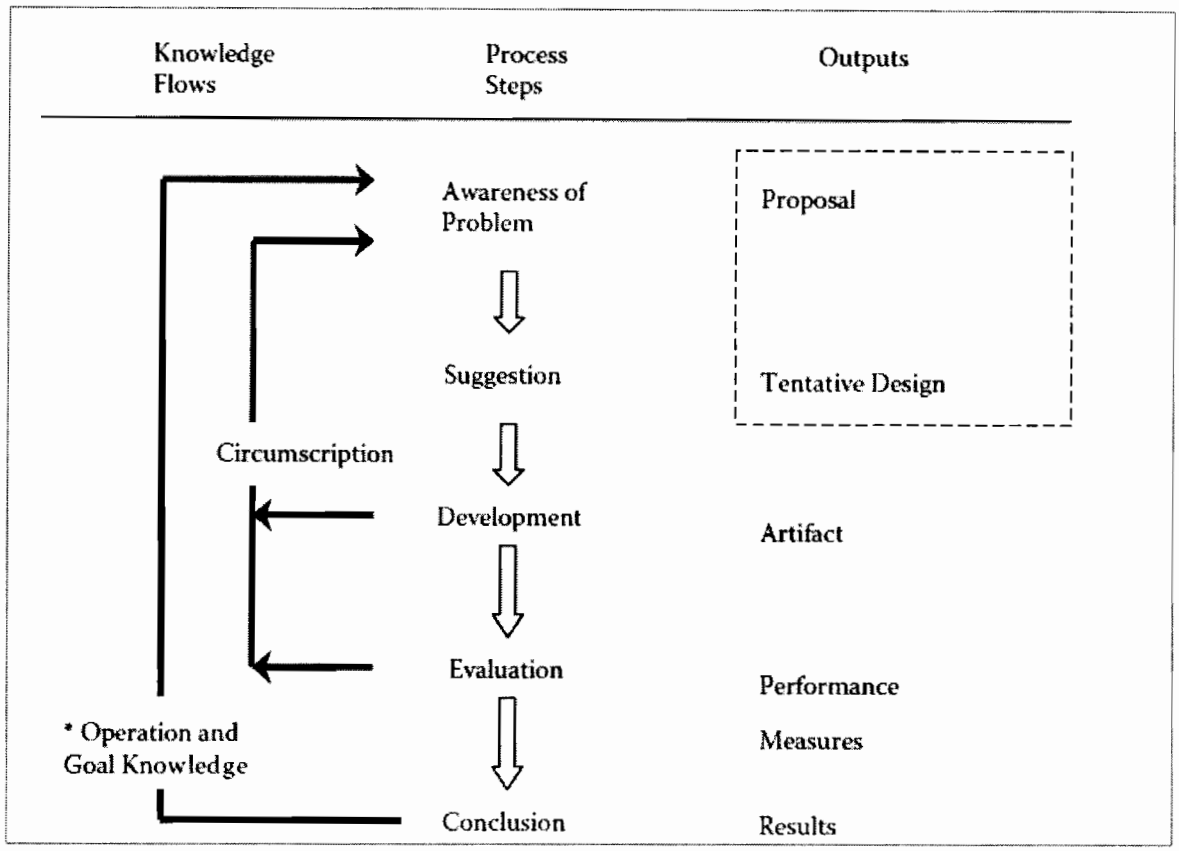


Figure 3.1 The general methodology of design science research (Vaishnavi & Kuechler, 2008)

3.1.1 Awareness of problem

One of the main elements in the methodology is to recognize the requirements of the prototype; requirement identification is a most important phase in the prototype. Moreover, this stage is concerned with the understanding of the objectives and the scope, and also the problems. So, the awareness of the problem when sometimes a Muslim misses some of Islamic events and nobody reminds him/her. After that the problem statement, the objective and the scope will be clear.

Data collection is necessary in producing a requirement model and prototype that actually satisfied the users' needs.

3.1.2 Suggestion

The suggestion to solve the problem is to design an SMS mobile prototype to alerts, notifies and reminds the user for the Islamic events. The output of this phase is the temporary Design. The analysis and design of the system will include UML diagrams. The UML diagrams are general use case diagrams, detailed sequence diagrams for each use case, and class diagrams.

3.1.3 Development

The development stage consists of developing a prototype model. UML model diagrams will be developed to analyze the requirement of the system; prototyping is a technique that involves developing a small-scaling working model of a system or sub-system (Whitten & Bentley, 2007).

In this study, the prototype will be developed by using JSP programming language environment. Moreover apache tomcat server will use; These services can facilitate communication between clients and jsp application servers (such as database servers and so on) through the use of XML queries issued by the client. This environment is attractive to developers because it is a language-neutral environment that can deliver content to end users, regardless of the platform in use. In this level the design web based system Prototype will be developed. The researcher will finally develop the web site by using requirement of Usability Guidelines.

3.1.4 Evaluation

Evaluation is performed to ensure that the system is working correctly and efficiently. The evaluation will be made possible through the web site by Usability Guidelines factors and test case.

3.1.5 Conclusion

This phase is the final pace in the research effort. The results will be consolidated and led to the future works that may unify with this application to implement the overall in prototype. The goal of this research is to design an SMS mobile prototype to alerts, notifies and reminds the user for the Islamic events.

3.2Summary

This chapter show the five phases in research design methodology suggested in this study. The researcher used this methodology to improve and to test the prototype. Furthermore, the development of the system will be presented in the next chapter.

CHAPTER FOUR

ANALYSIS AND DESIGN

4.1 Introduction

In this chapter, the study Mobile SMS Alerts for Islamic Events and Worships system requirements and build database design. Many tools can help create a prototype. As a Rational Rose 2000, UML Studio, Macromedia Dreamweaver 8, FrontPage 2003, MySQL, etc. The chapter will start with the system requirements and design collected throughout the methodology which is designed according to the research objectives. In this chapter, the proposed model, application architecture design, integration, the process flow of design.

4.2 System Requirements

4.2.1 Functional Requirements

Functional requirements are intended to capture the anticipated behavior of the system. There are several functional requirements to the proposed system. The system consists of many users. The users will interact with the system through interfaces as well as the requirements appear when it is base on the users interface. Table (4.1) summarizes the functional requirements for the system and gives a brief description of the different requirements.

- M – mandatory requirements (something the system must do)
- D – desirable requirements (something the system preferably should do)
- O– optional requirements (something the system may do)

Table 4.1 List of Functional Requirements

No.	Requirement ID	Requirement Description	Priority
	M_SMS_IEW_01	**Homepage**	
1.	M_SMS_IEW_01_01	The user can put the link in address and see the home page.	M
	M_SMS_IEW_02	**Subscribe**	
2.	M_SMS_IEW_02_01	The user: can create new account include information about the user and password.	M
	M_SMS_IEW_03	**Login**	
3.	M_SMS_IEW_03_01	To authenticate user (the user must enter validate his/her user name and password).	D
4.	M_SMS_IEW_03_02	To inform invalid password and user name.	D
	M_SMS_IEW_04	**Manage Profile**	
5.	M_SMS_IEW_04_01	User can view and update the information	O
	M_SMS_IEW_05	**View Events**	
7.	M_SMS_IEW_05_01	The user can see all the Islamic Events	O
	M_SMS_IEW_06	**Manage Events**	
8.	M_SMS_IEW_06_01	The Admin can update and delete and view and run events	O
	M_SMS_IEW_07	**Manage Doaa**	
9.	M_SMS_IEW_07_01	The Admin can update and delete and view and run doaa	O
	M_SMS_IEW_08	**Logout**	
10.	M_SMS_IEW_08_01	The user make log out of the system	O

4.2.2 Non Functional Requirements

The non-functional requirements will capture properties of the system that has to do with performance, quality or features that are not fundamental for the system to work. They are however very important because they are often properties that highly desired by the user and can help the system gain competitive advantage over other systems. Table (4.2) summarizes the non-functional requirements for the system.

Table 4.2 List of Non-Functional Requirements

No.	Requirement ID	Requirement Description	Priority
	M_SMS_IEW _09	**Usability issues**	
11.	M_SMS_IEW_09_01	The system must provide the easy access.	M
12.	M_SMS_IEW_09_02	The system must be easy to deal with.	M
	M_SMS_IEW_10	**Understandability**	
13.	M_SMS_IEW_10_01	The system should be easy to understand	M
	M_SMS_IEW_11	**Operational requirements**	
13.	M_SMS_IEW_11_01	The system will have server for the database and connection to the main database.	M
14.	M_SMS_IEW_11_02	The system will work over the web environment with all web browsers.	M
15.	M_SMS_IEW_11_03	The system must be current with evolving web standard.	M
	M_SMS_IEW_12	**Performance requirement**	
16.	M_SMS_IEW_12_01	The system database must be updated in real time.	M
	M_SMS_IEW_12_02	The system must have reasonable speed according to technology use to access many of users at the same time.	M
17.	M_SMS_IEW_12_03	The system should be available 24x7.	M
	M_SMS_IEW_13	**Security requirements**	
18.	M_SMS_IEW_14_01	Only the person who has user name and password can access the system.	M
19.	M_SMS_IEW_14_02	Unauthorized person should not use the system, just view the main page.	M
20.	M_SMS_IEW_14_03	No one can change the password without login to the system.	M

4.3.1 Scenarios

The scenarios are description of the system as seen by a user. It is a non-formal way of describing the system and is helpful in gaining insight to which behavior and functionality the system should offer (Egeberg, 2006).The following scenarios describe how student would use (M_SMS_IEW). This will help to gain insight in the problem domain and elicit requirements the system has to meet.

4.3.1.1 User of the System

The user can put the link in the Address and see the home page. The user can register through the Enter the required information. The user can also enter main page through the introduction of the name and password and can access the site on the Internet through the name and password, and then the system will verify the information, and then enter the user can work events as download, upload...

4.3.1.2 Use Case Diagram

The use cases are more formal methodology means to show how the functionality the system offers meet some need of the user. They are not meant to indicate how the communication between participants of the system is, but rather a tool to identify the functionality the different actors have to offer (Egeberg, 2006). A use case and measurable value of actor to provide something that describes a series of actions can be made as a horizontal ellipse (Ambler, 2004). Using use cases to determine the best way to run a project. Common to two or more use cases should be applied only once and then can be reused.

Use case is a functional requirement that is described in terms of users of a use case defines a functional requirements system. That described as a series of steps,

including actions by a system and interactions between the system and actors. Use cases address the question of how to interact with the actors of a system, and describe the actions that the system works (Alhir, 2003).

According to the use case diagram the system has two main components (actor/use case). In this study actor represent by user and admin. Use case it represented in the following the user can login and view the main page and see the events and subscription, the admin control the system like delete, add and update the event and doaa Figure (4.1): Represents to Mobile SMS Alerts for Islamic Events and Worships system

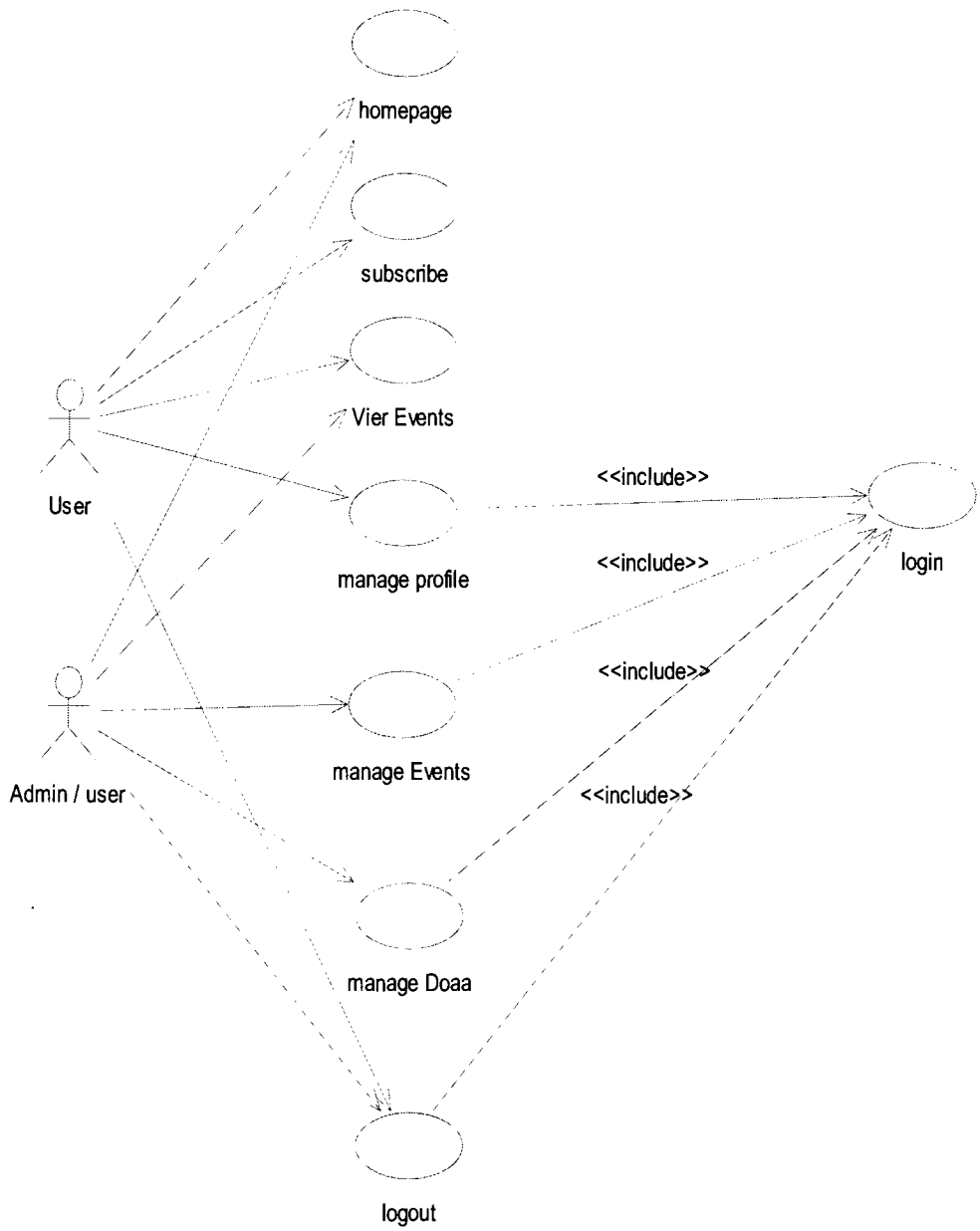


Figure 4.1 Use Case Diagram for M_SMS_IEW system

4.4 Use Case Specification for (M_SMS_IEW)

4.4.1 Homepage Use Case

Figure 4 2 Homepage Use Case for M_SMS_IEW system

4.4.1.1 Brief Description

This use case is initiated by the user (visitor/Admin) . This use case will enable the user to see the home page of the web site that contains general information and instruction to users. And by which the user can select log in and another activate.

4.4.1.2 Pre-Conditions

The computer is connected to internet.

4.4.1.3 Characteristic Of Activation

Event Driven (on user's demand)

4.4.1.4 Flow of Events

4.4.1.4.1 Basic Flow (M_SMS_IEW_01_01)

- This use case begins when the user writes the URL of the site in the internet explorer address bar and presses enter to access the website.
- The system will display the main page of the site on the screen.

- The user can surf the information and the instructions and select the log in option.

4.4.1.4.2 Alternative Flow

Not Applicable.

4.4.1.4.3 Exceptional Flow

Not Applicable.

4.4.1.4.4 POST-CONDITIONS

Not Applicable.

4.4.1.4.5 RULE(S)

Not Applicable.

4.4.1.5 Constraint(S)

The user must write the correct domain for the web site.

4.4.2 Subscribe Use Case

Figure 4.3 Subscribe Use Case for M_SMS_IEW system

4.4.2.1 Brief Description

This use case is initiated by the user . This use case will enable the user to Registration during fill fields.

4.4.2.2 Pre-Conditions

Not Applicable.

4.4.2.3 Characteristic Of Activation

Event Driven (on user's demand)

4.4.2.4 Flow Of Events

4.4.2.4.1 Basic Flow (M_SMS_IEW_02_01)

- This use case begins when the user press Subscribe Button.
- The system will Display Subscribe page.
- The user will fill fields and press submit button.
- The system will display message successful.

4.4.2.4.2 Alternative Flow

A1: reset

4.4.2.4.3 Exceptional Flow

E-1: Display message error if the user forgets some field empty.

4.4.2.5 Post-Conditions

Not Applicable.

4.4.2.6 Rule(S)

Not Applicable.

4.4.2.7 Constraint(S)

Not Applicable.

4.4.3 Login Use Case

Figure 4.4 Login Use Case for M_SMS_IEW system

4.4.3.1 Brief Description

This use case is initiated by the user . This use case will enable the user to login during use username and password.

4.4.3.2 Pre-Conditions

The user must be Subscribe.

4.4.3.3 Characteristic Of Activation

Event Driven (on user's demand)

4.4.3.4 Flow of Events

4.4.3.4.1 Basic Flow (M_SMS_IEW_03_01)

- This use case begins when the user press Login Button.
- The system will display login page.
- The user insert username and password
- The systems will Verification from username and password and then display main page.

4.4.3.4.2 Alternative Flow

Not Applicable.

4.4.3.4.3 Exceptional Flow

E-2: the username or password in not correct.

4.4.3.5 Post-Conditions

User will be able to proceed to other activities.

4.4.3.6 Rule(S)

Not Applicable.

4.4.3.7 Constraint(S)

Not Applicable.

4.4.4 Manage Profile Use Case

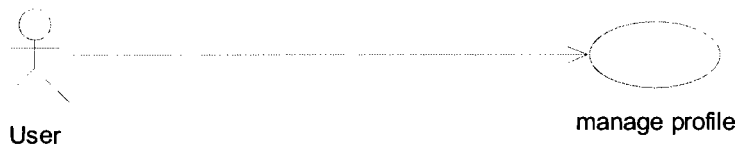


Figure 4 5 Manage Profile Use Case for M_SMS_IEW system

4.4.4.1 Brief Description

This use case is initiated by the user. This use case will enable the user to see the all information about him.

4.4.4.2 Pre-Conditions

The user already login into the system

4.4.4.3 Characteristic of Activation

Event Driven (on user's demand)

4.4.4.4 Flow of Events

4.4.4.4.1 Basic Flow (M_SMS_IEW_04_01)

- This use case initial when the user press Manage Profile button.
- The system will display Manage Profile page include information the user.

4.4.4.4.2 Alternative Flow

Not Applicable.

4.4.4.4.3 Exceptional Flow

Not Applicable.

4.4.4.5 Post-Conditions

Not Applicable.

4.4.4.6 Rule(S)

Not Applicable.

4.4.4.7 Constraint(S)

Not Applicable.

4.4.5 View Events Use Case

Figure 4.6 View Events Use Case for M_SMS_IEW system

4.4.5.1 Brief Description

This use case is initiated by the user. This use case will enable the user to View Events.

4.4.5.2 Pre-Conditions

The user already login into the system

4.4.5.3 Characteristic Of Activation

Event Driven (on user's demand)

4.4.5.4 Flow Of Events

4.4.5.4.1 Basic Flow (M_SMS_IEW_05_01)

- The user will press View Events button
- The system will display View Events page
- The user can see the events.

4.4.5.4.2 Alternative Flow

Not Applicable.

4.4.5.4.3 Exceptional Flow

Not Applicable.

4.4.5.5 Post-Conditions

Not Applicable.

4.4.5.6 Rule(S)

Not Applicable.

4.4.5.7 Constraint(S)

Not Applicable.

4.4.6 Manage Events Use Case (delete)

Figure 4.7 Manage Events Use Case for M_SMS_IEW system

4.4.6.1 Brief Description

This use case is initiated by the Admin. This use case will enable the Admin to add new Event and delete and update.

4.4.6.2 Pre-Conditions

The user already login into the system

4.4.6.7 Constraint(S)

Not Applicable.

4.4.7 Manage Doaa Use Case (delete)

Figure 4.8 Manage Doaa Use Case for M_SMS_IEW system

4.4.7.1 Brief Description

This use case is initiated by the Admin. This use case will enable the Admin to add new Doaa and delete and update.

4.4.7.2 Pre-Conditions

The user already login into the system

4.4.7.3 Characteristic Of Activation

Event Driven (on user's demand)

4.4.7.4 Flow Of Events

4.4.7.4.1 Basic Flow (M_SMS_IEW_07_01)

- This admin case initial when the user press Manage Doaa button.
- The system will display Manage Doaa page.
- The admin can press delete button.
- The system will delete the Doaa.

4.4.7.4.2 Alternative Flow

A1: update event.

A2: Add event.

4.4.7.4.3 Exceptional Flow

Not Applicable.

4.4.7.5 Post-Conditions

Not Applicable.

4.4.7.6 Rule(S)

Not Applicable.

4.4.7.7 Constraint(S)

Not Applicable.

4.4.8 Log out Use Case

Figure 4.9 Log out Use Case for M_SMS_IEW system

4.4.8.1 Brief Description

This use case starts when the user (User, Admin) want to exit or close by terminate the process or any operations of the system. When the user uses this use case the system stop to provide the operations or functions to users.

4.4.8.2 Pre-Conditions

The user must be log in.

4.4.8.3 Characteristic Of Activation

Event Driven (on user demand).

4.4.8.4 Flow Of Events

4.4.8.4.1 Basic Flow (M_SMS_IEW_08_01)

- The use case begins when the user (User, Admin) click on the <<Log Out>> Button,
- Then the system disconnected from the database,
- After that, the user successfully to terminate the process or any operations, and display the main page.

4.4.8.4.2 Alternative Flow

Not applicable.

4.4.8.4.3 Exceptional Flow

Not applicable.

4.4.8.5 Post-Conditions

The System should display the home page.

4.4.8.6 Rule(S)

The users of system must have account.

4.5 Sequence Diagram

A sequence diagram consists of objects and messages. Objects are represented exactly how they are represented in all UML diagrams as rectangles to emphasize the class name in the rectangle. This is the most popular UML diagram for modeling dynamic artifact and used for the purposes of analysis and design, which focuses on identifying the behavior within the system (Chitins, Tiwari & Ananthamurthy, 2002).The sequence diagram for each Use Case as illustrates in the flowing:

4.5.1 Sequence Diagram for Home Page

In this sequence diagram as in Figure 4.10, the User can access his/her page by put link in address.

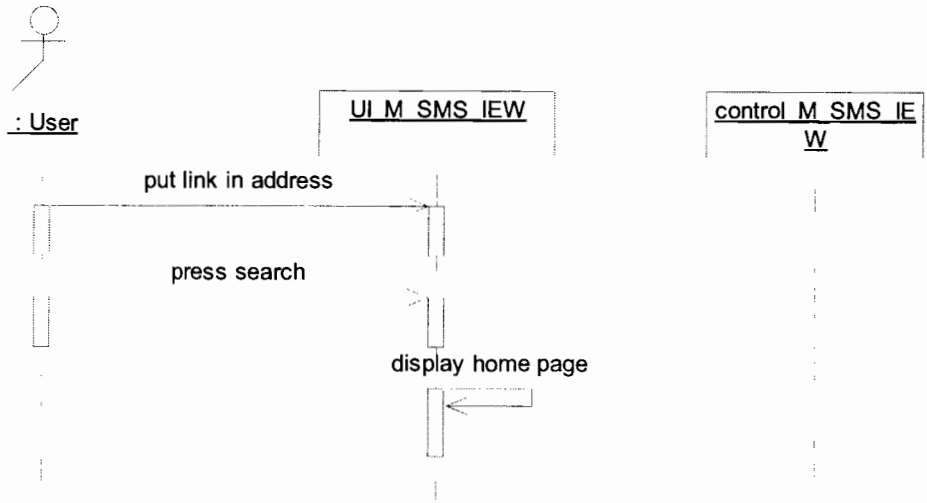


Figure 4 10 User Home page Sequence Diagram

4.5.2 Sequence Diagram for Subscribe

The Visitor in this sequence diagram has the ability to registration and become the member in the system. Figure 4.11.

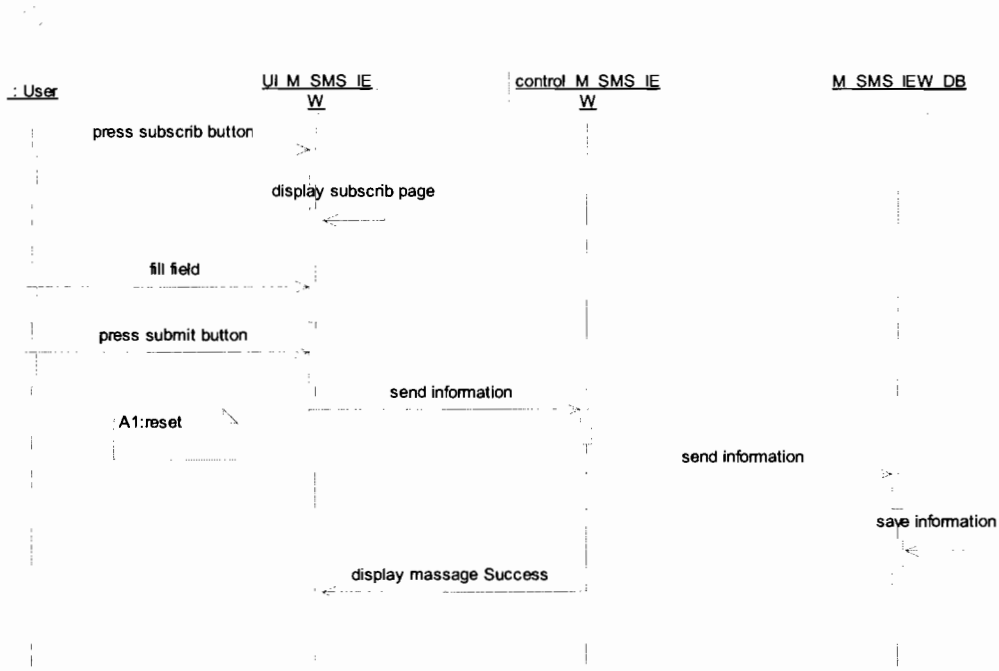


Figure 4.11 User Subscription Sequence Diagram

4.5.3 equence Diagram for Login

In this sequence diagram as in Figure 4.12, the User can access his/her pages by login his/her account through the username and the password.

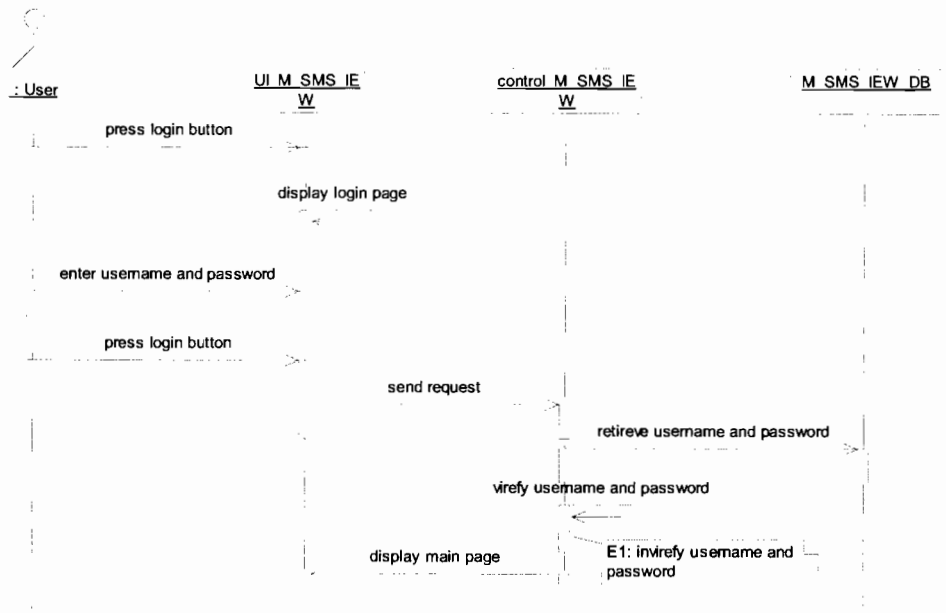


Figure 4.12 User Login Sequence Diagram

4.5.4 Sequence Diagram for Manage Profile

The user in this sequence diagram has the ability to view and update the information. Figure 4.13 show that.

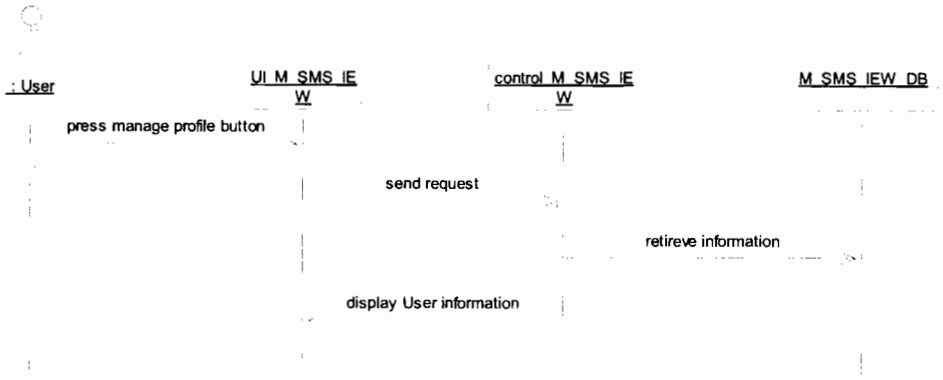


Figure 4.13 Manage Profile Sequence Diagram

4.5.5 View Events

The user in this sequence diagram has the ability to see all the Islamic Events. Figure 4.14 show that:

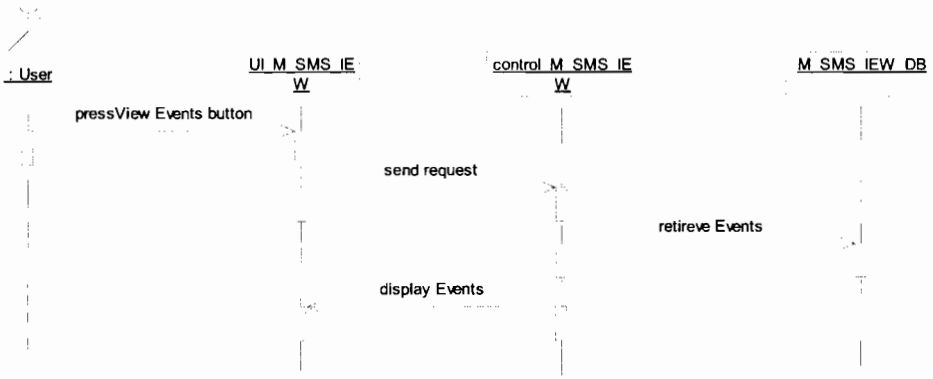


Figure 4.14 View Events Sequence Diagram

4.5.6 Manage Events

The Admin in this sequence diagram has the ability to Add, Remove and Update Events. Figure 4.15 show that

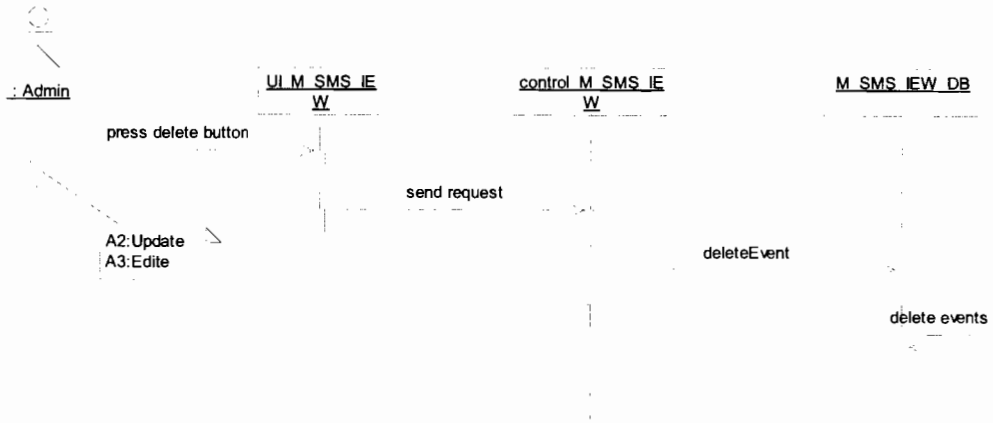


Figure 4.15 Admin Manage Events Sequence Diagram

4.5.7 Manage Doaa

The Admin in this sequence diagram has the ability to Add, Remove and Update Doaa. Figure 4.16 show that.

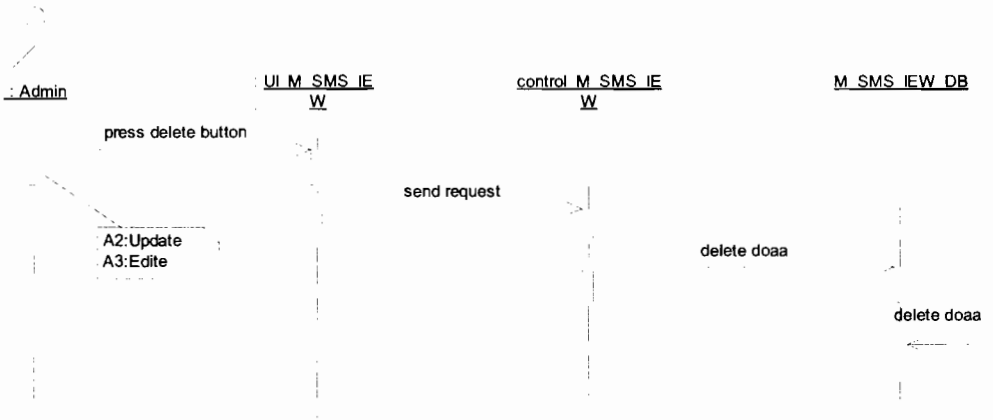


Figure 4.16 Admin Manage Doaa Sequence Diagram

4.5.8 Logout

The user and admin in this sequence diagram has the ability to logout from the page and go to home page through the system. Figure 4.17

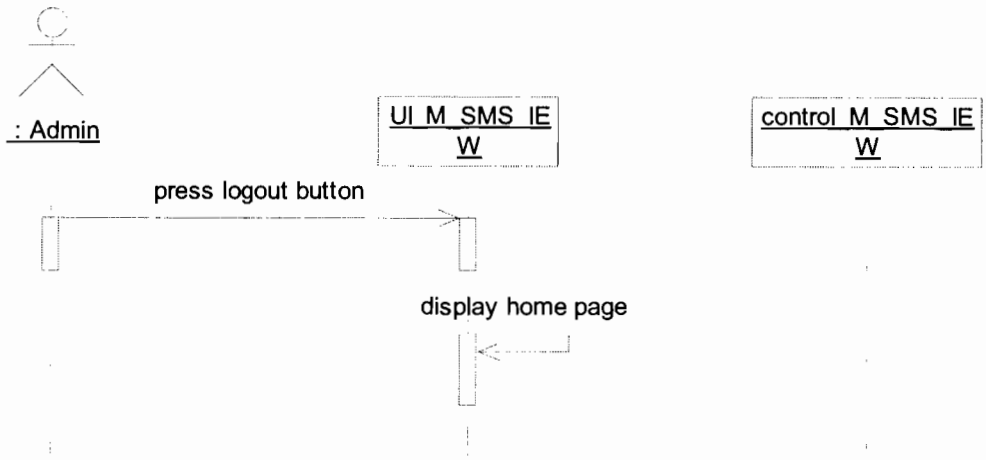


Figure 4.17 User Logout Sequence Diagram

4.6 COLLABORATION DIAGRAM FOR (M_SMS_IEW)

4.6.1 Collaboration Diagram for Home Page

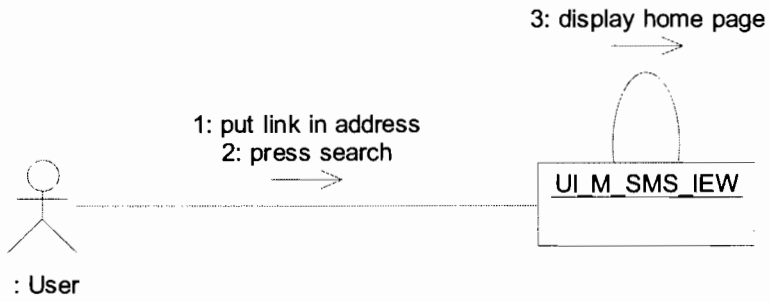


Figure 4.18 Homepage Collaboration Diagram

4.6.2 Collaboration Diagram for Subscribe

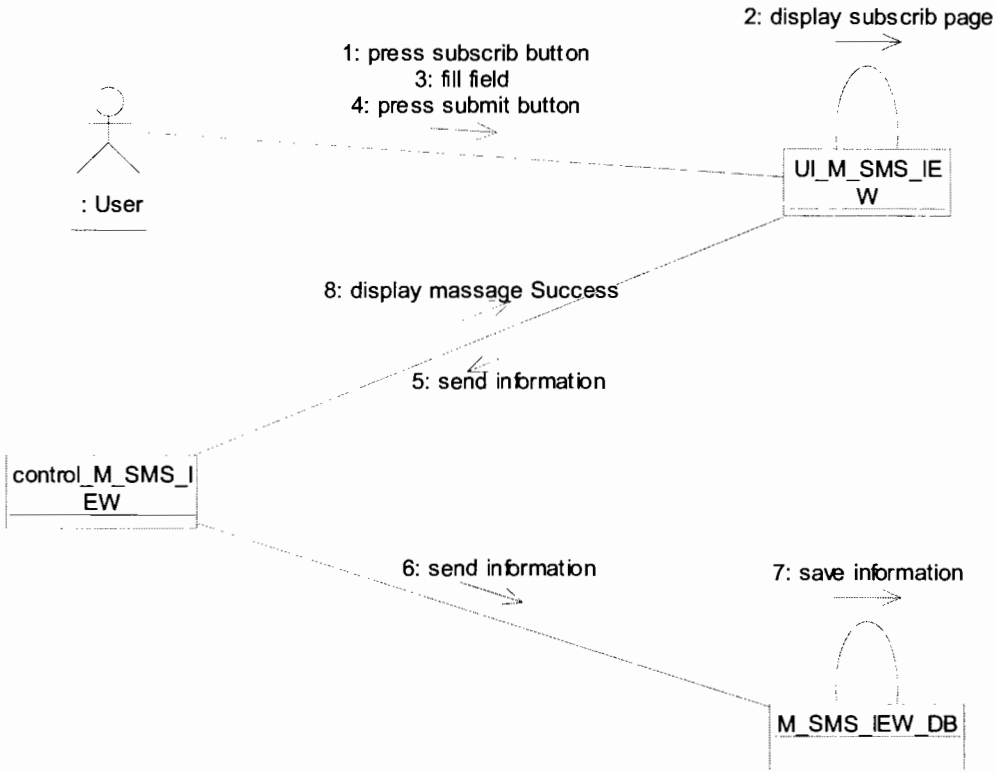


Figure 4.19 Subscribe Collaboration Diagram

4.6.3 Collaboration Diagram for Login

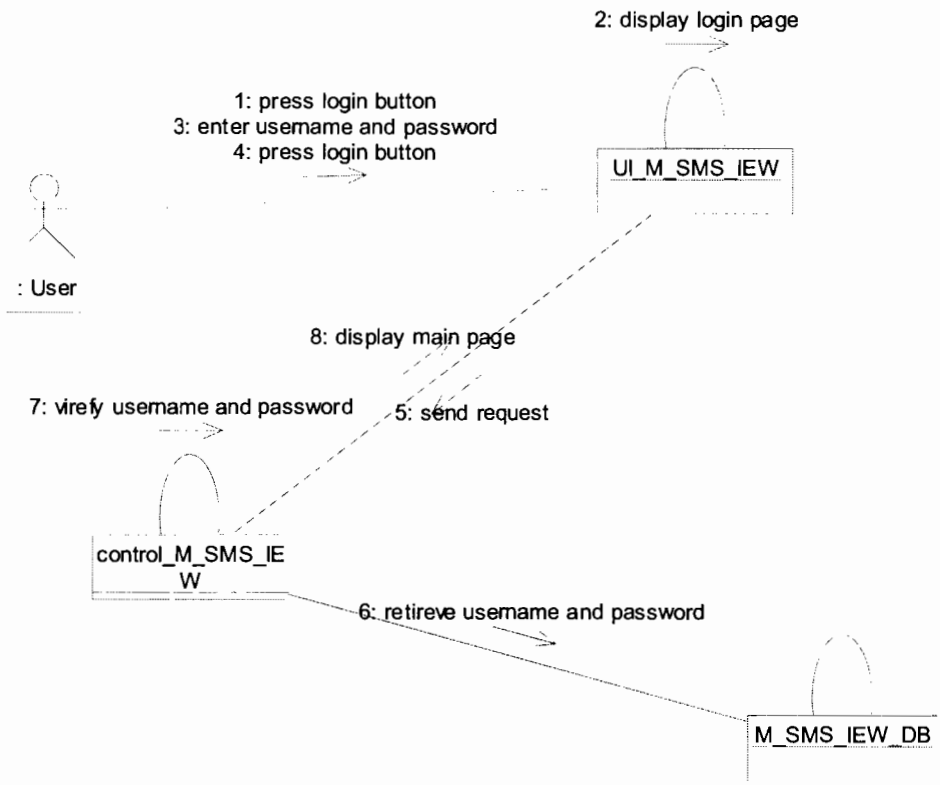


Figure 4.20 Login Collaboration Diagram

4.6.4 Collaboration Diagram for Manage Profile

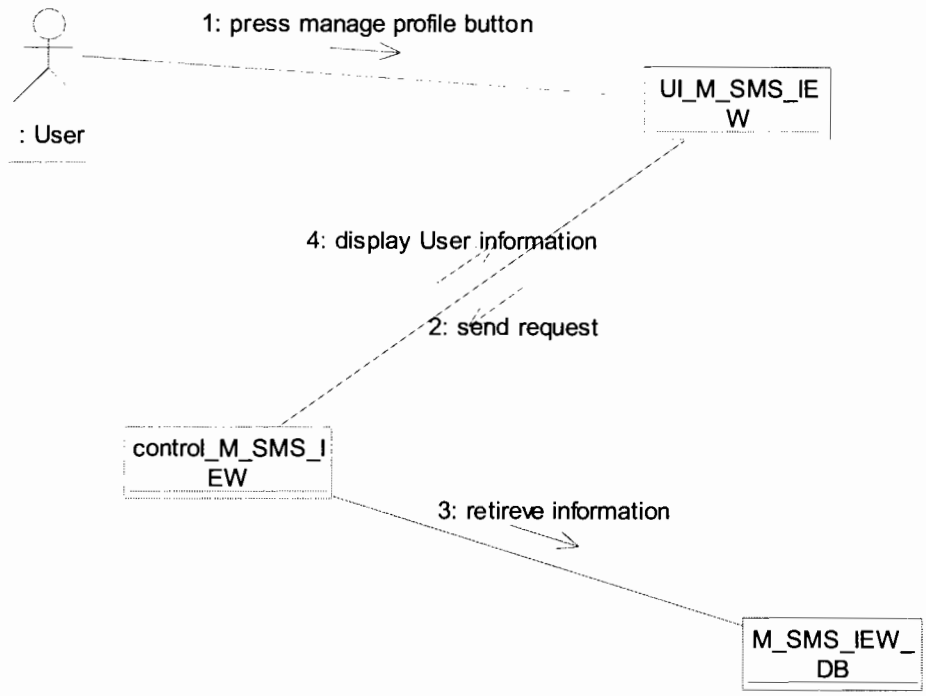


Figure 4.21 Manage Profile Collaboration Diagram

4.6.5 Collaboration Diagram for View Events

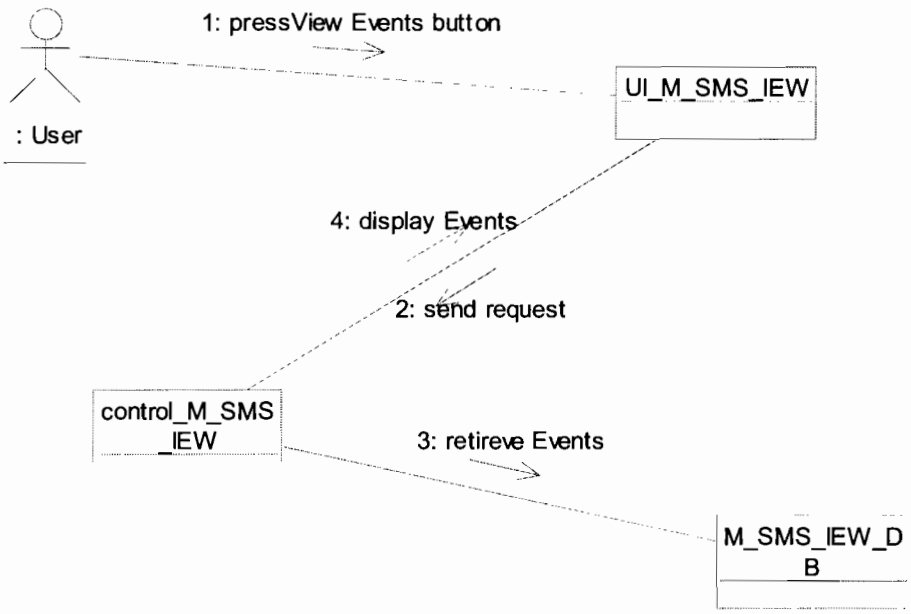


Figure 4.22 View Events Collaboration Diagram

4.6.6 Collaboration Diagram for Manage Events (Delete)

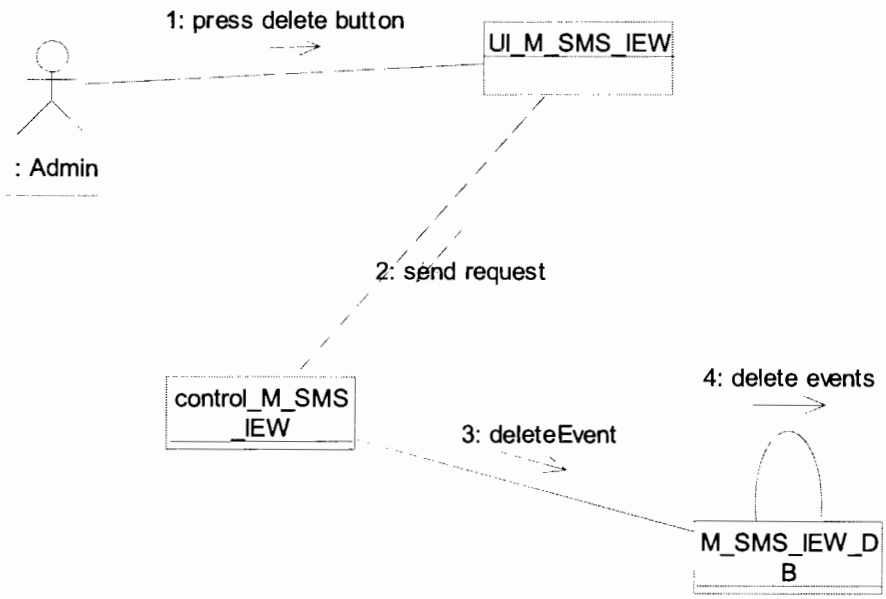


Figure 4.23 Manage Events (delete) Collaboration Diagram

4.6.7 Collaboration Diagram for Logout

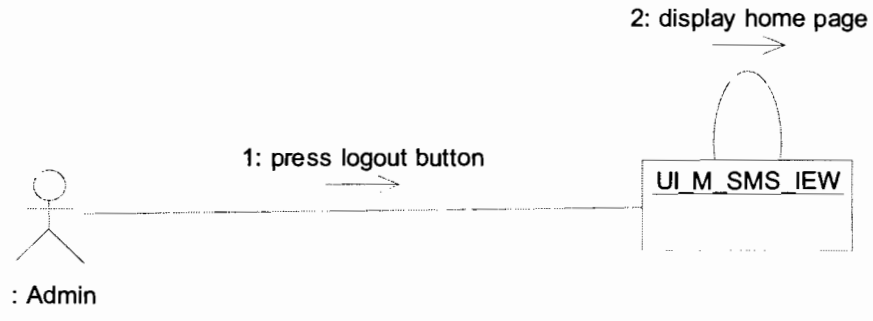


Figure 4.24 Log out Collaboration Diagram

4.7 Class Diagram

According Martin (2003) class diagrams are the basis for object-oriented analysis and design. The purpose of a class diagrams to represent the classes within a model. In an object-oriented application, classes have attributes (member variables), operations (member functions) and relationships with other classes. The UML class diagram can illustrate all these things fairly easily. Moreover Class diagrams show the classes of the system, their relationships (including inheritance, aggregation and association), and the operations and attributes of classes. So Class diagrams are used for a wide range of uses, including conceptual / domain modeling and detailed design modeling.

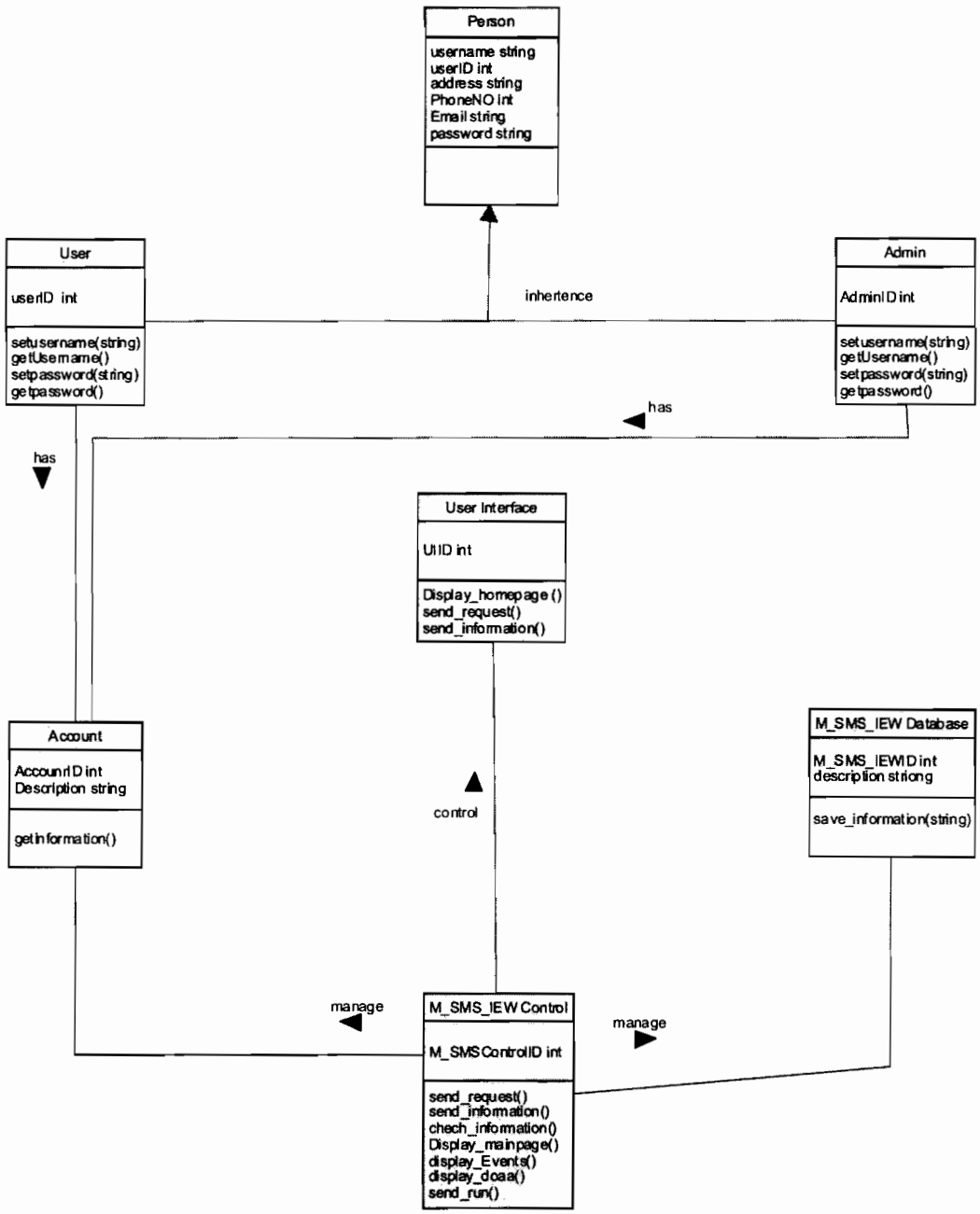


Figure 4.25 Class Diagram for M_SMS_IEW system

According figure 4.25, the class diagram of this system consists of five classes that represented is. The user class contains all of the information that related with their studies and all operations their can do it.

4.8.2 Event Table

Table 4.3 illustrates Materials Table. This table contains Material as video, audio and document:

Table 4.4 Events Table

Field Name	Data Type
EventID [PK]	INT
Name	VARCHAR
Date	VARCHAR
Type	VARCHAR
Description	VARCHAR
Flag	VARCHAR

4.8.3 User Information Table

Table 4.4 illustrates Chatting Table. This table can Student share the idea together:

Table 4.5 Chatting Table

Field Name	Data Type
UserID	INT
FirstName	VARCHAR
LastName	VARCHAR
Email	VARCHAR
PhoneNumber	VARCHAR
Service	VARCHAR
UserName	VARCHAR
Password	VARCHAR

4.9 System Development

Jsp we can use frontpage or jCreator or Netbeans is used in this study to develop the prototype.

4.9.1 System Architecture

The user can access to SMS Alerts for Islamic Events and Worships system by using the website to do their demands. For example, the students can view class that uploaded from another student and also can chatting together. The prototype development environment as illustrated in Table 4.5:

Table 4.6 Prototype Development Environment

Prototype Development Environment	
Programming Language	jsp
Server	Apache Tomcat server
Database	MySQL
Operating System	Windows XP
Computer Browser	Internet Explorer 7

CHAPTER FIVE

DISCUSSION AND EVALUATION

5.1 Introduction

The goal in this chapter is to demonstrate how to apply the system developed in a real situation. As illustrate in Figure5.1

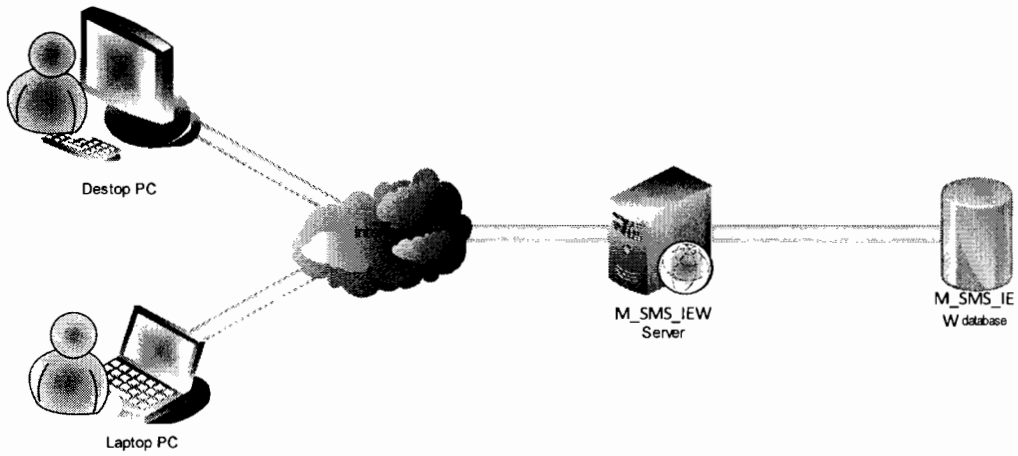


Figure 5.1 M_SMS_IEW System Architrave functionality through online

5.2 Using Usability Guideline (UG) in System Development

Usability Guideline (UG) using in this study to develop the system. This usability guidelines that are specific to online interfaces .This section refers to use this usability guideline in prototype development.

- Make it easy for users to find the forms: The user can access to any form from the short cuts menu in home page. Also each page in the system provides users by menus as short cuts to any form.

- Encourage user trust: The spelling and grammar have been reviewed in the system (M_SMS_IEW). Also the links throughout the form have been reviewed to rectify any broken links. The user can print his information by press one click in bottom print in his page.

- Create a good first impression: The system does not use embedded fonts in PDF files; because these fonts are enlarging the size of the file. Also all forms are clearing to user if he/she wants to use it. These forms do not contain huge information.

- In designing forms has been avoided using "Submit" inside the system as some users feel this language is this too technical, unfriendly or authoritative.

- Provide users with a quick, efficient workflow: The system uses screen controls such as Drop-downs control and Check boxes control it is easier to the users to enter the data.

- Style of language: All texts and labeling used throughout the system is as brief as possible without losing clarity of meaning. The forms of the system used "send" instead of "submit", and used "required fields" instead of "mandatory fields". The messages in the system used positive language.

- Each pages contained related data.
- The system have first page (Homepage) Figure 5.2 illustrate this page

Figure 5 2 Homepage for M_SMS_IEW system

- The Subscription page the user cans registration. Figure 5.3 illustrate this page :

Figure 5.3 The Subscription page for M_SMS_IEW system

- The Login page this page will appear when the user press login button. Figure 5.4 illustrate this page :

Figure 5.4 The Login page

- In the View all Events page the user and admin can see all events. Figure 5.5 illustrate this page :

Figure 5 5 View all Events page

- Update Profile page Figure 5.6 illustrate page :

Figure 5.6 Update Profile page

- View profile page in this page the user can see profile, as illustrate in Figure 5.7

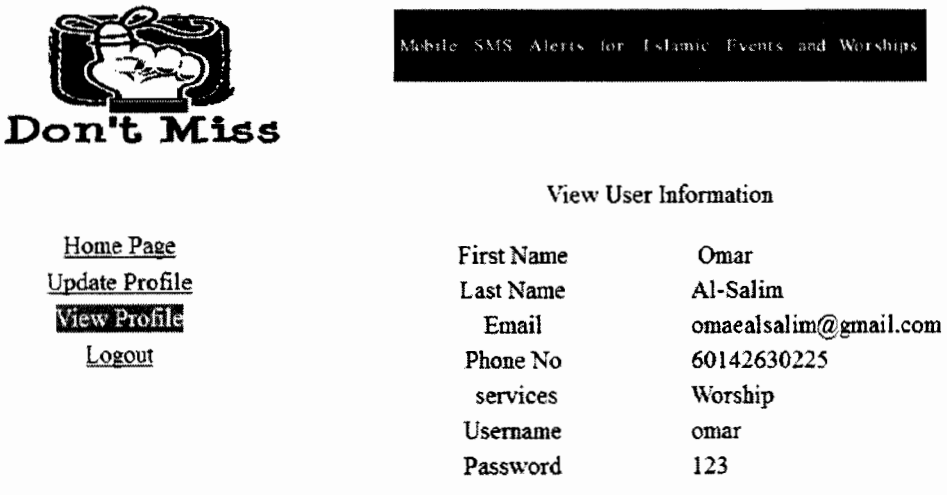


Figure 5.7 View profile page

- The Manage Doaa Figure 5.8 illustrate page:

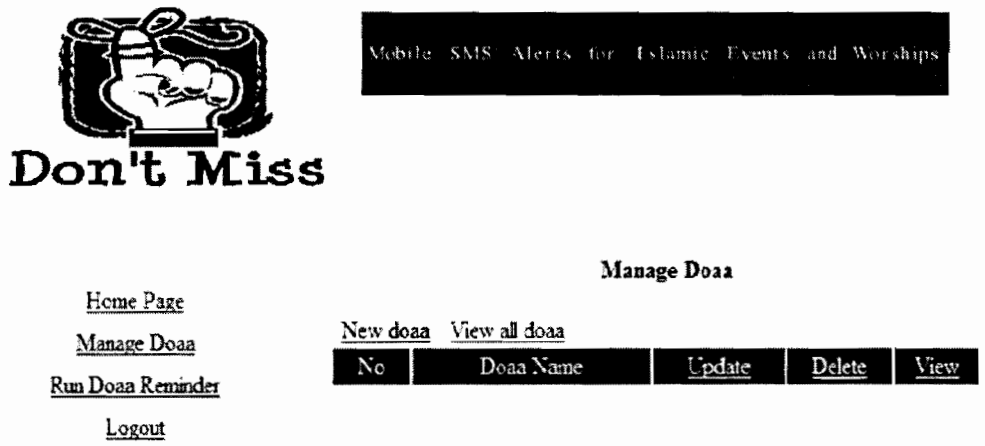


Figure 5.8 The Manage Doaa page

- The Manage Events page. Figure 5.9 illustrate page:

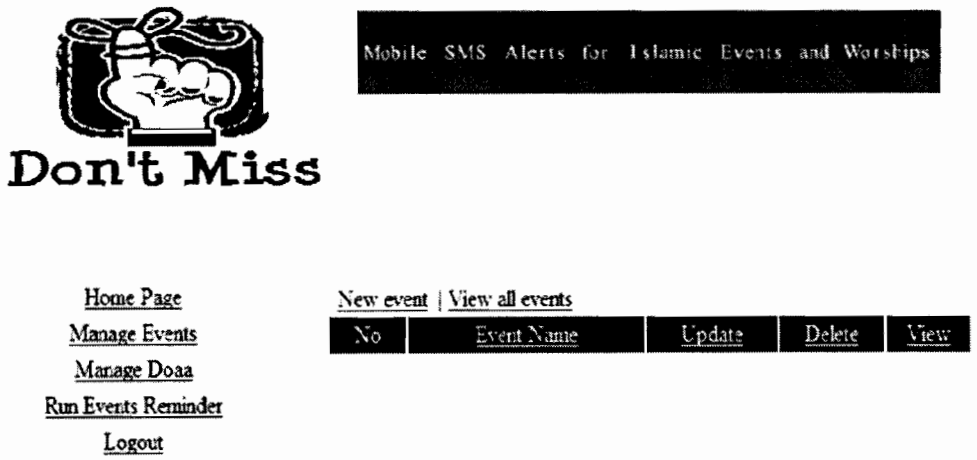


Figure 5.9 The Manage Events page

- Delete Events page Figure 5.10 illustrate page

Figure 5.10 Delete Events page Figure

- The system will display massage to delete successfully. Figure 5.11 illustrate page:

Figure 5.11 display massage

- New Event page Figure 5.12 illustrate page:

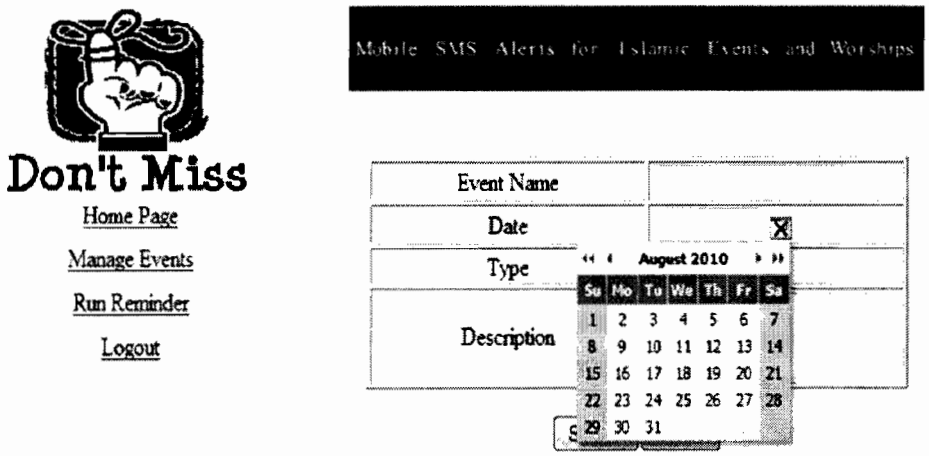


Figure 5.12 New Event page

- The system will display massage to Added successfully. Figure 5.13 illustrate this page and Appendix A:

Figure 5.13 Massage to Added successfully

- Update Event page. Figure 5.14 illustrate page:

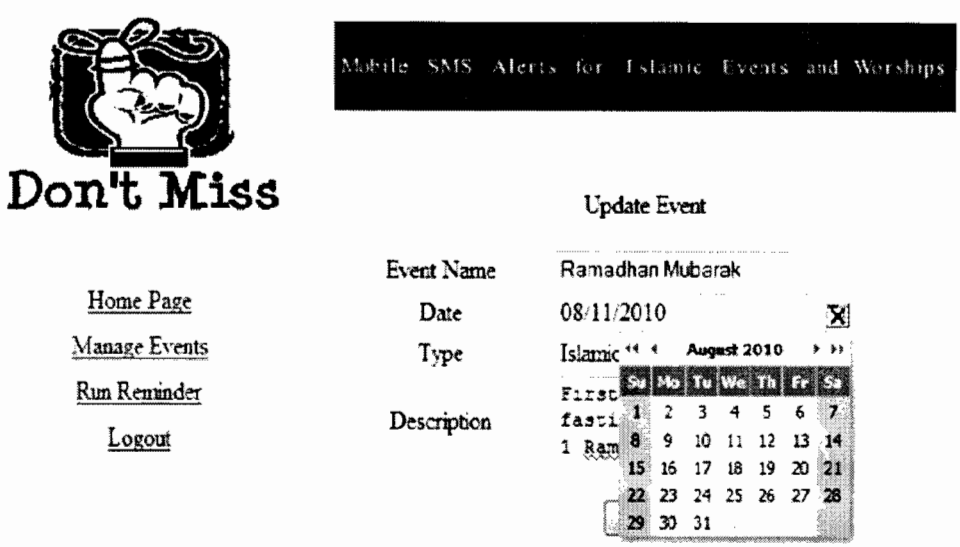


Figure 5.14 Update Event page

- The system will display massage to update successfully. Figure 5.15 illustrate this page:

Figure 5.15 Massage to update successfully

- When run the alerts the subscriber will receive a message depending on the services that he subscribed.

- A subscriber who subscribed to Events will receive a message like shown in figure 5.16:

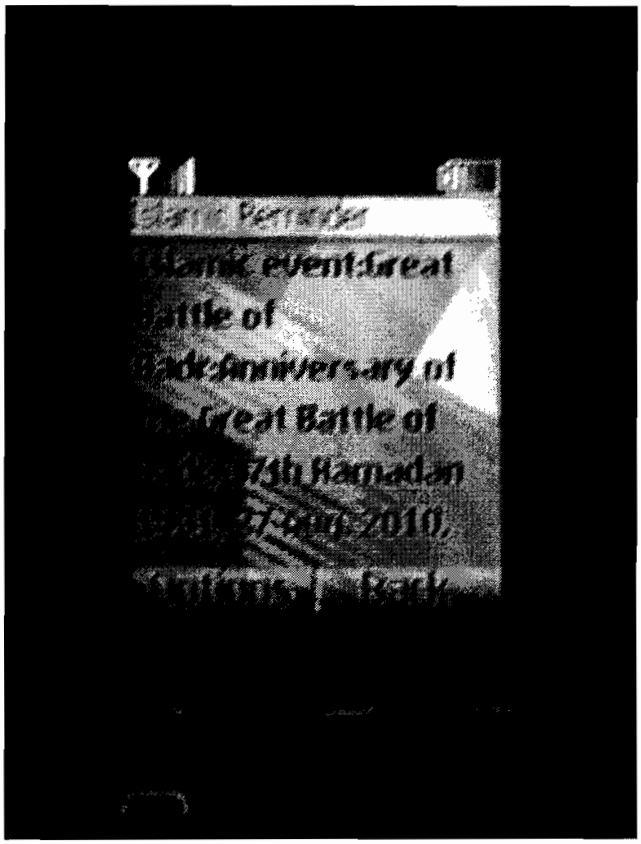


Figure 5.16 An Islamic event message on subscriber's mobile

- A subscriber who subscribed to Events will receive a message like shown in figure 5.17:

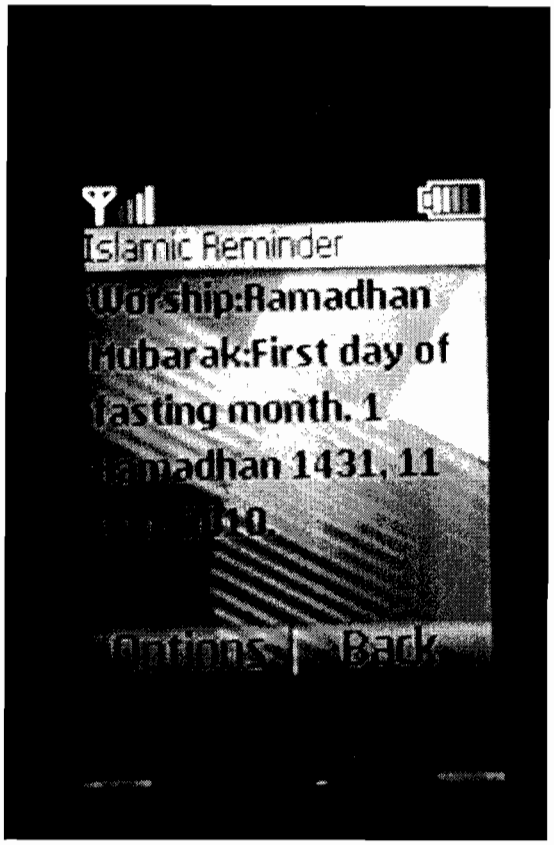


Figure 5.17 An Islamic worship message on subscriber's mobile

5.3 Finding of System Design

We need to find the M_SMS_IEW system of correctness, portability. Finding the system is based on system requirements testing. The aim is to see the level of functionality and operability of the system.

5.3.1 System Requirement Testing and Results

The system was tested using one web browser, which is Internet Explore 8.0 .All the tests were carried out network through stand-alone personal computers and multi user, the operation system windows 7 .the computer processor speed 2.0 GHz .the testing and Integration requirement results can be seen in Table 5.1

5.3.2 System Requirement Testing

Table 5.1 System Requirement Testing

Capabilities	**Test**	**Description**	**Performance of System**
Single User Interface	User of Mobile SMS Alerts for Islamic Events and Worships	User test the M_SMS_IEW web page (Home , Login , Subscrib , View Events , Manage prfile)	The system working fine
Performance		The Consistency of	The Consistency of

	Client side Scripting	M_SMS_IEW web based Application in client performance	M_SMS_IEW web based Application is able to run client web browser as microsoft internet explorer 8 or mozilla firefox
Availability	Requirement 1	The integration solution	The integration solution available for user every time M_SMS_IEW application
Backup data	Requirement 2	The consistency solution needs to access the backup data in	Not all the integration consistency solution needs to

		real time	access the backup data in real time student social networking community in different location.
Client Complain	Feedback Complain or information form	Client Complain Form	Client complains success fully received in web page
Client Knowledge	Client status	Client Complain Status view	Client can see his complain Status in web immediately
Browser specification	microsoft internet explorer version 8 or mozilla firefox	The system shall be able to run on most browsers.	The system can run microsoft internet explorer 8 and mozilla firefox is tested

5.3.3 Evaluation

The system all Requirements were not achieved but Client view any information of the M_SMS_IEW. Besides that, the Client can fill the form and he can see his status through internet immediate, and data store in database support (MySql)

On the whole, the testing proves that the system fulfills the system functionality requirements. But, improvements have to be made to fulfill the other M_SMS_IEW application integration requirements

5.4 Summary

This chapter covers brief details about the implementation of the M_SMS_IEW in terms of its components and concludes with a discussion of the system requirements and evaluations of the prototype of system.

CHAPTER SIX

CONCLUTION AND RECOMMENDATIONS

6.1 Introduction

This chapter reviews this project finding to explain the outcome of the project and its contributions, the limitation of this study, and the recommendations for future work on this project.

This project proposed a (M_SMS_IEW) system will help Muslims by reminding or notifying them about the Islamic events and worships in their lives. By use the SMS message where send messages from time to time.

6.2 Conclusion of the Study

The purpose of this study focuses on designing and developing an SMS mobile prototype to alerts, notifies and reminds the user for the Islamic events and worships to make the user on up to date for the events and worships.

6.3 Problems and Limitations

The prototype was tested using localhost server, namely (HTTP://localhost :.....) and it needs to be integrated with the current system. However this prototype is

not published on the internet and it needs the service of internet in order to be uploaded for the users.

6.4 Recommendations

In my opinion, prefer to use and fast means of communication knew the dates of religious events because people take life and work, are reminded through SMS text, audio, and also to remind him of the dates of Prayer.

6.5 Summary

The use of mobile phones increased by increasing the number of users, where mobile phones have become part of people's lives. Mobile phones now offer voice service call. Goal of this project is to help Muslims achieve Islamic events, and worship the help of mobile phone technology, sending SMS messages via their mobile phone devices will remain for a time. Users will subscribe to the services it wants to be notified about them. He can choose all kinds of SMS services, or choose a favorite SMS service to it.

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