BORANG PENGESAHAN STATUS TESIS^

JUDUL: **MALAYSIA'S PRAYER TIMES AND QIBLAH DIRECTION FOR PDA**

SESI PENGAJIAN: **2005/2006**

Saya **SHARIFAH NAJMI BT SHARIFF ABDUL AZIZ**

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(SHARIFAH NAJMI BT SHARIFF ABDUL AZIZ)
Alamat Tetap: 12-1-40 Cendana Apt, No.11 Jln Metafasa U16/3, Bukit Subang,Shah Alam ,40160 Selangor DE
Tarikh: 20/11/2006

(EN. MUHAMMAD SUHAIZAN BIN SULONG)
Tarikh: 20/11/2006

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MALAYSIA'S PRAYER TIMES AND QIBLAH DIRECTION FOR PDA

SHARIFAH NAJMI BT SHARIFF ABDUL AZIZ

This report is submitted in partial fulfillment of the requirements for the
Bachelor of Computer Science (Software Development)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA
2006

DECLARATION

I hereby declare that this project report entitled

MALAYSIA'S PRAYER TIMES AND QIBLAH DIRECTION FOR PDA

Is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENTS : _____ Date: 20/11/2006

(SHARIFAH NAJMI BT SHARIFF ABDUL AZIZ)

SUPERVISOR : _____ Date: 20/11/2006.

(MR. MUHAMMAD SUHAIZAN B SULONG)

DEDICATION

To all the people around me, for helping me in finishing this project.

ACKNOWLEDGEMENTS

First of all, I would like to express my heartfelt gratitude to Allah S.W.T, for giving me the chance, means, and ability to complete my PSM II.

My deepest appreciations to Mr. Suhaizan for his willingness to accept me under his supervision, giving me his full attention, support and guidance during PSM I. His boundless generosity and trust in my ability has lent me the motivation to go forward.

To my assessor, Mrs. Mashanum bt Othman, I would like to express my heartfelt thanks for her support and time.

Not forgetting my colleagues, I'm forever thankful for their guidance and support during this project. Without those helping hands you have lent me, I'm sure I'll face many problems and difficulties. For all that that you've done, thanks alone could not express how I felt.

Those who have helped me in any way that counts, thanks you.

ABSTRACT

System that is developed for Projek Sarjana Muda II (PSM II) is using the mobility application concept and entitled Malaysia's Prayer Time and Qiblah Direction. This system was proposed for the final project based on the current user's requirements and as an effort to implement one of the mobile devices without the need to establish internet connection. The aim of this system is to provide the information on prayer times of each Fajr, Zuhr, Asr, Maghrib and Isya' together with the Qiblah direction for them to perform the basic obligation to Islam no matter where there are at the moment. Therefore, the system offers the information for every state and zones existed in it. The available system in the market does provide the information for user but the target is worldwide, which means that the user need to key in a few details to setup the system to match their location and get the precise information. Therefore, the to-be system will address this problem by focusing on Malaysian Muslim's as the target user and build this system tailored to their needs. The system will be using the Rapid Application Development (RAD) methodology together with the UML approach to represent the system visually, to capture the system and users' requirements and system's functionalities. This approach is selected as it suits the system's requirements and the environment in which the system will be developed.

ABSTRAK

Sistem yang bakal dibangunkan untuk Projek Sarjana Muda II (PSM II) adalah sistem yang berkonsepkan mobiliti aplikasi iaitu Waktu Solat dan Arah Qiblah di Malaysia untuk *Personal Digital Assistant* (PDA). Sistem ini dicadangkan sebagai projek akhir berdasarkan keperluan pengguna masa kini serta sebagai usaha untuk mengimplementasikan penggunaan *mobile devices* tanpa menggunakan sambungan internet. Sistem ini akan membantu golongan pengguna Muslim untuk menjalankan ibadat harian mereka iaitu mengerjakan solat Subuh, Zohor, Asar, Maghrib dan Isya' tanpa mengira di mana sahaja mereka berada kerana sistem ini juga menyediakan panduan arah Qiblah. Maka sistem ini menawarkan informasi bagi setiap negeri dan zon yang terdapat di Malaysia. Sistem yang sedia ada menyediakan informasi berkaitan waktu solat dan arah Qiblah tetapi bagi penggunaan seluruh dunia. Ini menyusahkan pengguna kerana mereka perlu menetapkan beberapa butiran agar informasi yang diberikan tepat. Oleh itu, sistem yang bakal dibangunkan ini akan mengatasi masalah ini dengan menumpukan kepada pengguna Muslim Malaysia. Sistem ini dibangunkan dengan menggunakan metodologi Rapid Application Development (RAD), yang digabungkan dengan penggunaaan kaedah Unified Modeling Language (UML) bagi memperlihatkan kualiti sistem, keperluan dan pembangunan sistem serta pengawalan perubahan dalam sesuatu sistem kerana ia lebih bersesuaian dengan konsep sistem ini serta persekitarannya.

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INTRODUCTION

1.1 Project Background

People nowadays are always on the move and require mobile devices to organize their daily lives and to communicate with others. Devices such as smartphones and PDAs are on their top list. The growth of this mobile technology is very heartening in Malaysia, creating new possibilities and providing solutions to various problems. Simple task such as getting the prayer time and qiblah direction will be easier. Malaysia Prayer Time and Qiblah for PDA will bridge the hectic lifestyles and high-tech gadgets, thus allowing Muslims to complete their obligation without any hindrance.

The manual method of getting the information on prayer time include using the printed schedules or from electronic media such as television or radio. This method such prove to be a burden for those Muslims who are constantly on the moves. This system targets these group of people to enable them carry on with their lives, yet able to also perform their obligations to Islam. So, to overcome these problems, the project will strive on giving the user exactly what they need by providing the prayer times for every Fajr, Zuhr, Asr, Maghrib and Isya and also the qiblah direction, in case they'll be needing it if they happen to be in unfamiliar places.

1.2 Problem statement(s)

There are several problems that were analyzed in order for the system to provide the solutions.

1.2.1 No embedded software for prayer time and qiblah direction for PDAs

There are many PDAs in the market from various manufacturers such as Palm Solutions, Pocket PC by Microsoft and Blackberry. However these PDAs don't have embedded program for providing information on prayer time and qiblah direction. These devices require internet connection to get the information in related websites.

1.2.2 Connection to internet involved cost and in some instances hard to establish connection

User who wishes to browse the websites that contain prayer time and qiblah direction using PDA will have to pay for it. If that is not enough to be called a burden, then there is another problem that might arise. User that might happen to be in a remote place and it is hard to establish the connection. So, depending on the internet for the information needed might seem to be unreliable.

1.2.3 No existing software for PDAs that gives the information on prayer time and qiblah direction, developed for Malaysian Muslims.

There are various softwares for displaying this information, yet most are developed for PCs use. However, what is needed now is software for mobile devices that people carry everywhere such as PDAs that is tailored to Muslims in Malaysia requirement.

1.3 Objective

This project is formulated with its goals as guidance. The objectives for this project are as below;

1.3.1 To simplify the process of procuring the information of the prayer time and qiblah direction

Users will be able to get the information, anytime and anywhere, regardless whether they are on the move. The information will be available in just few clicks of buttons.

1.3.2 Providing alternative solution/method of acquiring prayer time and qiblah direction by using PDA

The usual way to get the information is through the television or radio and by looking at the printed prayer time schedule and compass for qiblah direction. The new system requires the users to complete a few steps to get the result.

1.3.3 Enable the PDA to get the information without having to connect to the internet

There are few occurrences where establishing internet connection is hard especially in remote places, where there is no network coverage. This is where the system will benefit the user as it doesn't require internet connection.

1.3.4 Provide free information for all Muslims in Malaysia

The new system will be made as freeware for the benefit of all Muslims in Malaysia.

1.4 Scopes

This system targets the Malaysian Muslim users with PDAs. The system will be developed for every federals and states in Malaysia according to the zones available in it. As such this system will be built tailored to the Malaysian Muslims' needs and more importantly, the method of calculating the prayer time will follow the one for Malaysia which is the Egyptian General Organization of Surveying and in this case, provided by the JAKIM. For the complete list of zones available in Malaysia with its respective longitudes and latitudes, please refer to Appendix A.

The techniques of calculation will be based on the ones provided by Falak Unit, JAKIM Department of Research in collaboration with Almanac Office, Faculty of Engineering and Geoinformatic Science, UTM. The data given is reliable as the calculation was based directly on the basic theories of the planets movement and none of the data was adopted from any existing almanac or other ephemeris. Using this calculation, the system will provide the prayer time for Fajr, Zuhr, Asr, Maghrib and Isya.

The user will have the choice of selecting whether to display the prayer time for the current day or weekly of a place and also they can search the prayer time for specific day. So, they are not restricted to viewing the current prayer time schedule. Also, the system will display the Qiblah direction according to place user has selected. This feature becomes handy when and if the user chanced to be in an unfamiliar place where it's hard to get the Qiblah direction.

1.5 Project Significance

This project will benefit the Malaysian Muslim as the target users immensely. It will enable users to get the information needed and perform their obligation to their religion with any setbacks and without any cost. The prayer times for any given location on earth may be determined mathematically if the latitude and longitude of the location are known. However, the theoretical determination of prayer times is a lengthy process, which may be hard to follow by most people. Much of this tedium may be alleviated by using computer program, thus making this project even more worthwhile as it will be integrated into mobile device (PDA).

Also, this project will yield the program that fit into the Muslim in Malaysia nicely, that caters to their needs and lifestyles. Though Muslims all over the world have same responsibilities towards Islam, each nation or countries don't have the simultaneous time for prayer due to the differences in term of geological and astronomical. This happens because of the location of the sun and the twilight which plays an important part in determining the prayer time and the latitude and longitude of a location which affect the Qiblah direction. That is why developing a program to calculate the time for local use is important as it will take into account all the element for that place and build the program accordingly.

1.6 Conclusion

From what have been discussed in detail in previous sections, it is clear that this system will yield lots of benefits to the users and also it will implement hi-tech device, which is the PDAs. Next activities to be done are the literature review and figure out the project methodology that will be used.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This chapter focuses on literature review and project methodology. The first section will discuss the fact and finding, which basically reviews on the related research, reference and other findings on the system. In term of this project, the fundamental reason as to why this system needed to be developed will be discussed and comparison to existing system will be analyzed. In the methodology section, as usual it will highlight on the methodology that will be used for the system development.

2.2 Fact and Finding (Based on topic)

2.2.1 Domain

Mobile applications are undoubtedly the next wave in the evolution of e-business and personal use and that is why PDA is chosen for this project. Possessing features and functions that are unique to mobile devices, such as mobility, personality, and flexibility, mobile applications are able to provide end-users' added values such as can be use anytime, anywhere access and flexibility in managing tasks. All these elements make it the perfect candidate for hosting the Prayer Time and Qiblah application. To that extend, the possibility of it become the Malaysian Muslims companion is looking quite good indeed.

PDA (Personal Digital Assistant), according to Webopedia [*access on 1st June 2006*] is a term for any small mobile hand-held device that provides computing and information storage and retrieval capabilities for personal or business use, often for keeping schedule calendars and address book information handy. The term handheld is a synonym. Many people use the name of one of the popular PDA products as a generic term. These include Hewlett-Packard's Palmtop and 3Com's PalmPilot.

Using this technology, the obligation of every Muslim to Islam can be fulfill as it has the power to fit into busy lifestyles. Based on International Journal of Mobile Learning and Organization (2006), as mobile devices are gradually converging into Individual Information Centers, mobile learning becomes a viable learning channel that would fit the living style of today [1].

Prayer or Solat (also known as salah, solat, salah and several other spellings) refers to the five daily ritual prayers that Muslims offer to Allah (God). It is a pillar of the Five Pillars of Islam in Sunni Islam, and one of the ten Branches of Religion in Shi'a Islam. As such, it is compulsory (fard) upon every Muslim [2]. Muslims perform these prayers facing the Qiblah, which is direction of the Kaaba toward which Muslims turn for their daily prayers [3]. However this does not mean that Muslims worship Kaaba or its contents rather it is simply a sacred focal point. Therefore, it can be concluded that Salat is the most important thing in Islam and to guard it is the most important thing in a Muslim's life.

According to Muwatta Imam Malik. Hadith No. 5, in one of his circulars Sayyidna Umar ibn Khattab, Radi-Allahu anhu, sent instructions to all his administrators saying, "In my opinion, salat (solat) is the most important of your obligations. Whoever takes good care of it and safeguards it safeguards his religion and whoever neglects it will neglect other things even more." He then added instructions about the times for the five solats and admonition against dozing off before Isha. This show the huge significant of prayer and by combining the method of getting the information on prayer times with the mobile devices, Muslims can gain advantage.

2.2.2 Existing System

There are various software for information on prayer time and qiblah direction and mostly are made for PCs and very few for mobile devices. As for the websites, there is quite an amount of this prayer time calculator available ranging from local to foreign websites. Below are few examples of software available;

i. E-Solat by JAKIM [4]

E-solat is available at Jabatan Kemajuan Islam Malaysia (JAKIM) websites for user using pc or mobile devices with internet connection. E-Solat provides reliable information on prayer time and qiblah direction for Malaysian and other countries as well. The only drawback of this system is that it requires internet connection that as discussed before might prove to be a problem. Below are the screen shots of the website;

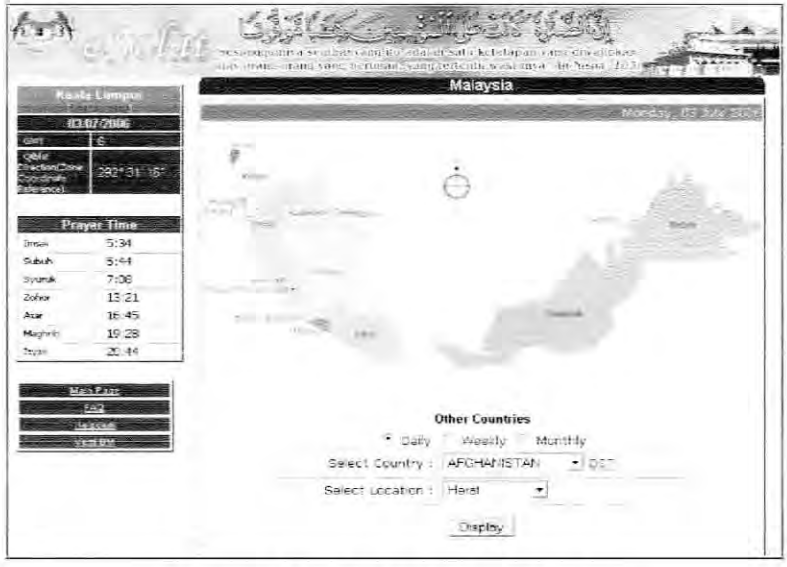

Figure 2.1: Main Page of eSolat

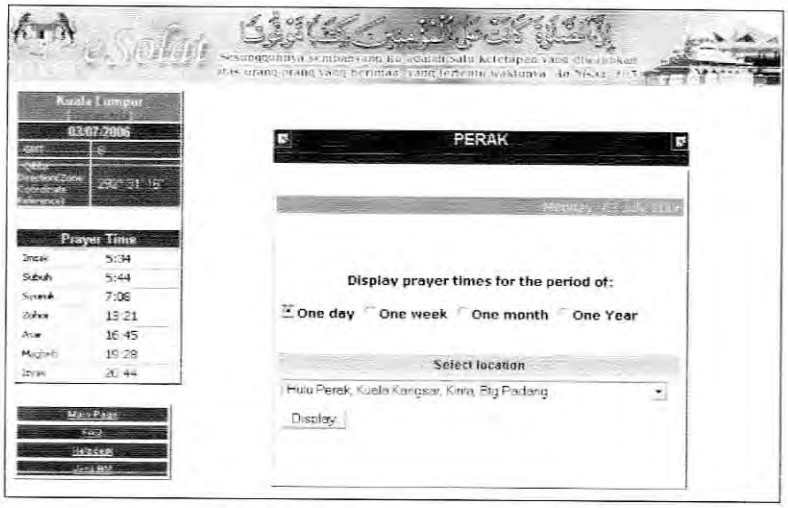

Figure 2.2: Mode of Display and Location Form of eSolat

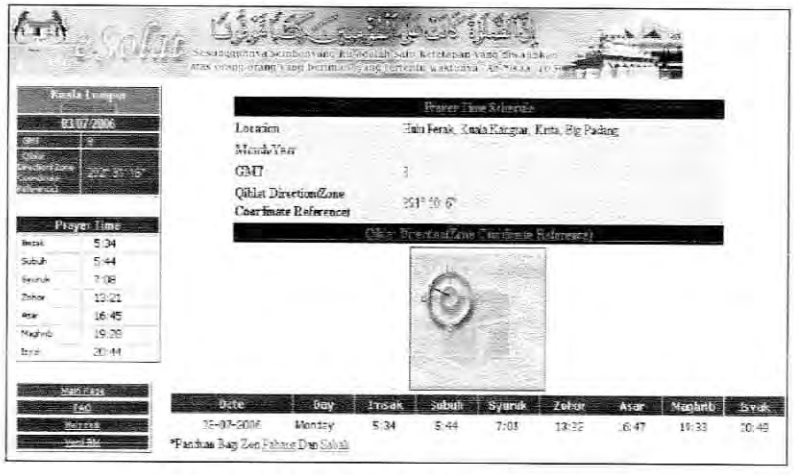

Figure 2.3: Display Page of eSolat

ii. Salat Almanac Version 1.0 [5]

This is software for PCs and Pocket PCs' use without having to connect to the internet. Besides just giving information of prayer time and qiblah direction, it also notifies users by reciting Azan when it's time for prayer. This software has two extra features such as Asma Ul Husna and Fasting Schedule. Below are several screen shots of the software;

Figure 2.4: Menu Display

Figure 2.5: Prayer Time Display

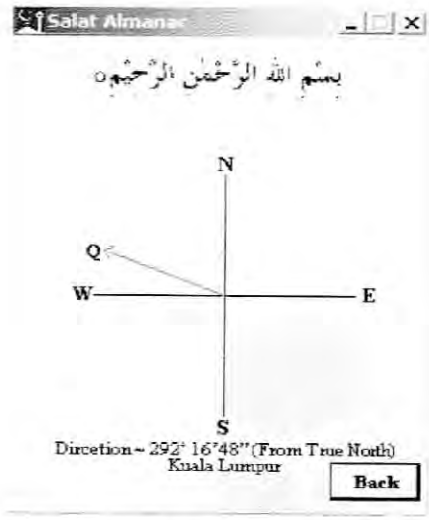

Figure 2.6: Qiblah Direction Display

Figure 2.7: Setup for the Prayer Time and Qiblah

However, there is a problem with this system as the method used for prayer calculation is not mentioned. Calculation for several countries might differ from other countries depending on several factors that will be described in the next section. Also, based on Figure 4, user needs to enter the degrees of Fajr-twilight angle and several more degrees that related to the angle of the sun desired location. According to Moosighting.com (2006), generally, people

have no information about latitudes and longitudes, and even if they know it, they may enter it incorrectly in the computer program mixing North, South, East and West; Degrees and minutes vs. decimal degrees (this has been real experience even by professional astronomers who occasionally enter such information as users and make mistakes because of different conventions in different software).

Also, having to input the data to get the result is not very convenient, even though the user are familiar with the longitude and latitude as it rules out the user friendly factor. ITs that are easy to use will be less threatening to an individual [6]. Ease of use will promote the system better than the appearance of it.

2.2.3 Techniques

The calculation for prayer time itself has several versions. The prayer times for any given location on earth may be determined mathematically if the latitude and longitude of the location are known. However, the theoretical determination of prayer times is a lengthy process [7].

Table 2.1: Prayer Times Indications [8]

	Start	End
Fajr	When whitishness begins to appear on the horizon (dawn)	At beginning of sunrise
Zuhr	After sun's trailing limb crosses meridian	At beginning of sunrise
Asr	When length of shadow =2x length of object + noon shadow (Hanafi) or When length of shadow = length of object + noon shadow (Shafi)	Before sunset
Maghrib	Sunset	Reddishness in the sky
Isha	After reddishness in sky (dusk) ends	Midnight (afzal), next fajr (makruh)