My E-Mosque System: An Islamic Android Companion

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ABSTRACT
This paper describes the documentation for the system development of an android application, My E-Mosque. This mobile application will include different type of functions such as Qiblat direction, Prayer Time, D'zikir, Al-Quran, NFC silent mode and daily du'a. This paper explains about the system development and its entire process by describing the problem, its comparison with the existing mobile application and the difference between the existing mobile applications.

Keywords: Islamic tool; E-mosque; Mobile Application.

1. Introduction

Technology is a tool that should be used by Muslims in their daily life to assist in their *ibadah* (Noordin, 2009). It is surprising to see why some people do not consider technology as an important tool in Islam environment. Currently the *Jemaah* performed most of their *ibadah* in the Mosque using the physical or the hard copy of *Al-Quran mushaf*, the *du'a* compilation, and references or booklets on the *Sunnah* prayers, which the Mosque has to provide or the *Jemaah have to* bring to them. When the *Jemaah* enter the Mosque, they forgot to turn their hand phones on silent mode, and because their hand phones were often ringing in the Mosque, they disturbed other *Jemaah*.
The main reason for the development of this application is to provide Muslims with a more convenient and portable way to perform ibadah, and give non-Muslims a better impression about the Muslims with the fact that Muslims are able to develop a good mobile applications. This project will also show the unity of Muslims through the efforts of developing more Islamic applications. The main intention for the development of this application is to result into benefit to all Muslims. Even though bringing smartphone to the mosque could disturb activity in the mosque when it's forgotten to be turn off or put in silence mode. The automated silencing functions is hoped to provide the Jemaah in the mosque with the comfort in performing ibadah. The function for guiding the Jemaah to perform their ibadah is also a key feature that helps them to perform their ibadah smoothly and with appropriate guidelines. With the assistance of "MY E-MOSQUE" mobile application, the Muslims is expected to do their duty as Muslims to ALLAH s.w.t more efficiently and productively. Furthermore, it's hoped that it will teach Muslim as well as non-Muslims that Islam is a beautiful religion for all human kind.

2. Literature Review

It is understood that different religions have different mentality and beliefs in spiritual practices. However, there are some similarities in the development of systems supporting religious activities. Thus, in the process of doing research for the development of this application, it is important to compare and point out the similarity and key features and functionality that could be used to build an efficient application.
It is believed that visuals are the greatest aspect in designing an efficient system (Gaver, Blythe, Boucher, Jarvis, Bowers and Wright, 2009) (Echtibi, Zemerly and Berri, 2009) (Wyche, Caine, Davison, Patel, Arteaga and Grinter, 2009) (Wyche and Grinter, 2009) (Wyche, Caine, Davison, Arteaga and Grinter, 2008) (Abu Bakar, Ashrafia, Zeki, Abubakar, 2013) (Zeki1, Elnour, Ibrahim, Haruna, Abdulkareem, 2013) (Siti Safura Yasmin Sahibin, Akram M. Zeki, 2011). Another aspect in producing an impactful spiritual support system is "rather than designing for an aging population, we should design for the aging members of many different populations" (Gaver, Blythe, Boucher, Jarvis, Bowers and Wright, 2009). Thus, wider range of group focus must be taken into consideration when designing the application. Another research (Echtibi, Zemerly and Berri, 2009) pointed out that "targeting different types of users who require different services to be added to our system" because with high focus on a specific target, better outcome can be expected. Another study (Wyche, Caine, Davison, Patel, Arteaga and Grinter, 2009) also supported the statement with the explanation "more than functionality or a prompt to the prayer; it also contribute to user's religious experience". An effective spiritual support application is described as something that not only helps to ease the spiritual practices but also provides a sense of fullness in performing the activities. In the context of Islamic applications, there are various applications available in the market for free. However, some of the applications lack features, providing basic necessities for the users, and lack attractive visual aspects in its design. Thus for this specific application, it is aimed that not only as a mobile application to the user in performing prayers, but also able to attract non-Muslims who may be interested in learning more about Islam.

3. Analysis and Design

This application was developed based on the Prototyping Paradigm method [10]. This method or model begins with requirement process. Developers define what is necessary and are not necessary that define the overall objective for the application.

a. Activity Diagram

Figure 1 below shows use case diagram of the application. The first two interaction can be performed by the user with the application are Qiblat direction and azan notification. User is also able to read Al-Quran, Yassin, Al-Mathurat, and Tafseer. Finally the users can choose to recite which du'a they prefer.

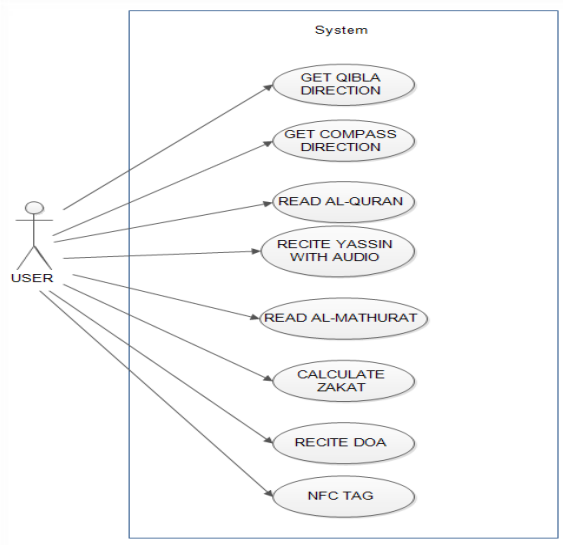

Fig 1: diagram of the application

b. Class Diagram – for My E-Mosque application

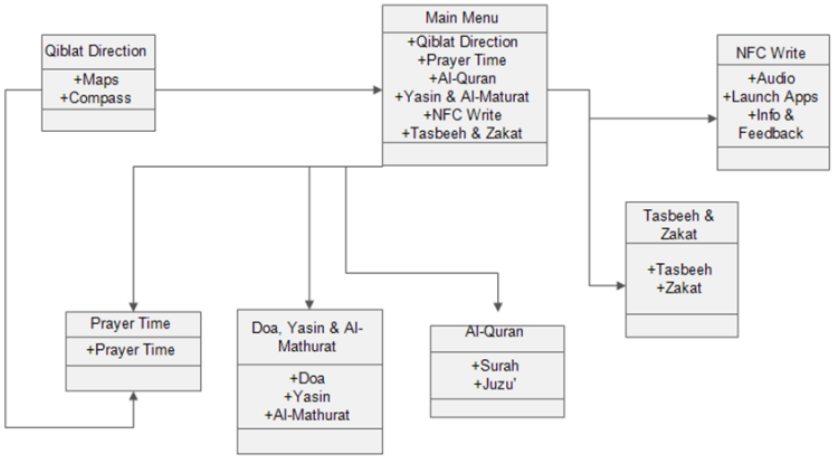

Fig. 2. My E-mosque Class Diagram

Figure 2 shows My E-Mosque class diagram that describes the interaction between each databases that the application have. As for each class the attributes are as shown in the figure above.

c. Sequence Diagram for using My E-Mosque application

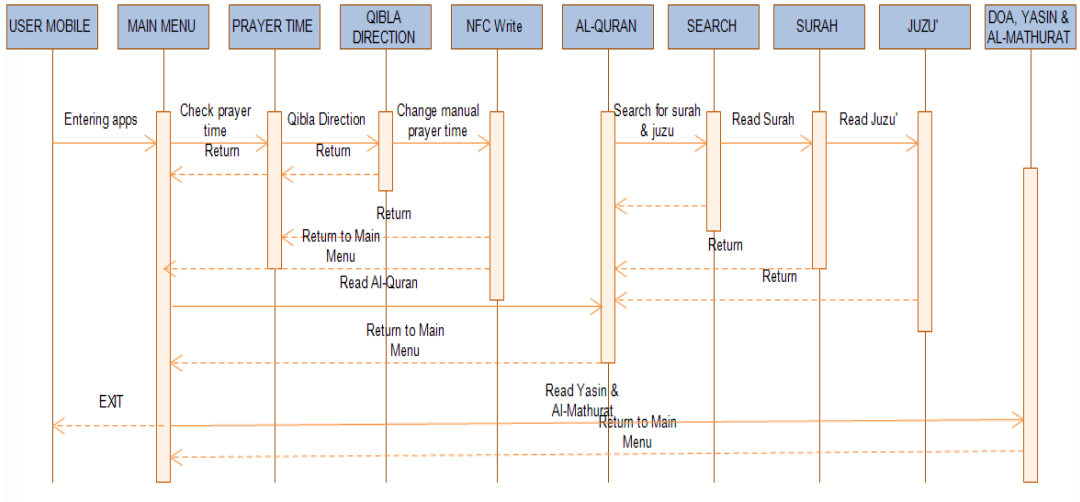

Fig. 3. My E-mosque Sequence

Figure 3 shows the sequence of the use of the application. When the users use the application, it will directly go to main menu without any authentication needed. From the main menu, the user can navigate the application whether to choose sub menu like prayer time, Al-Quran and Yassin & Al-Mathurat. From the sub menu, the user can return back to the main menu or the user can use the other sub menu function in the application.

d. Sequence Diagram for using My E-Mosque application

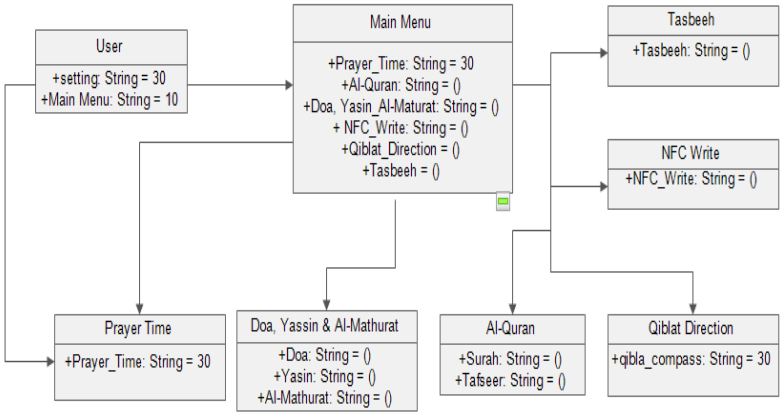

Fig. 4. My E-Mosque Database Design

Figure 4 above shows the overall entity relationship diagram for the database tables required for My E-mosque. There are 5 related database tables which are User, Main Menu, Prayer Time, Yasin & Al-Mathurat and Al-quran.

4. Project Implementation

The user modules details are presented and discussed together by a series of screenshots. The testing phase of the system is described through the test plan and the enhancement section. As shown in figure 5, the main page of the system is the application Main Menu. This page comprises of 6 menus: Qiblat direction, Al- Quran, Prayer Time, Tasbeeh, Doa and NFC (Near Field Communication). This menu option will provide a convenient way for Muslims to perform the duty towards Allah s.w.t. The convenient functions menus for the users to perform are:

- Get Qiblat Direction
- Read Al-Quran
- Get the current Prayer Time
- Dzikir
- NFC touch silent phone
- Read Doa

A. Application Interface

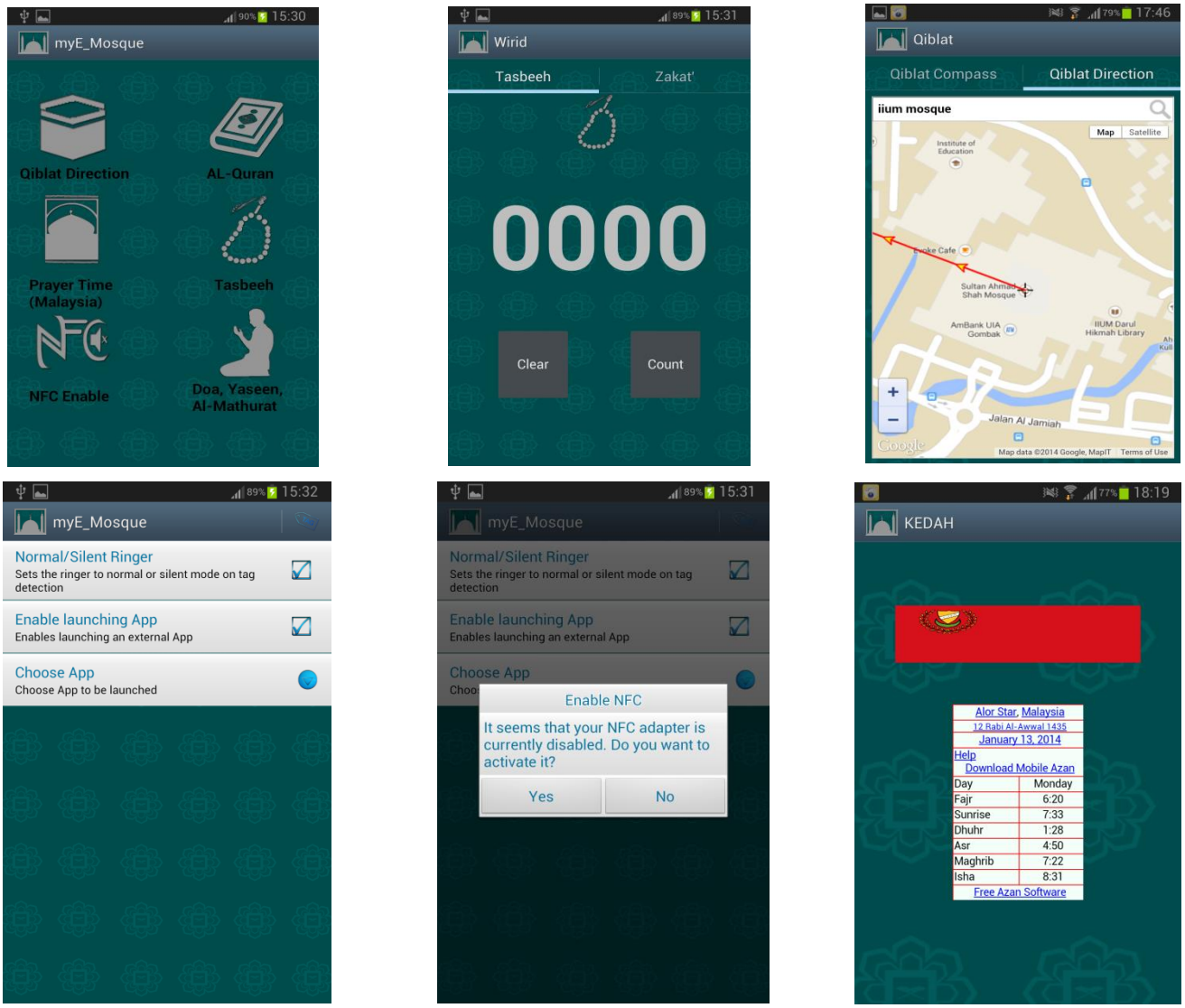

Fig. 5. User's Main Menu, Tasbeeh Counter, Qiblat Direction, NFC Silent and Prayer Time

Figure 5 shows Main Menu of the application, one of the functions such as Dzikir by saying the names of Allah s.w.t when the user say it then click touch to increment the numbers and function to get the accurate direction of the Qiblat directed to Ka'bah. Regarding NFC functionality the user first write the NFC TAG using My E-Mosque application then it can be used by all phones with NFC capability and lastly the Prayer Time will update the user daily. From application testing that has been conducted, several possible improvements have been identified. Some possible improvements are:

- Guide for Sunat Prayer
- Perform Zakat Payment using NFC
- Perform Sadaqah
- Track Ibadah time performed

The result from the test plan and the functions involved are stated and a conclusion from the test plan is describes based on the comments given by the users.

5. Conclusion

Upon finishing the developing the application, the researcher has encountered several limitations that can affect the development of the Islamic application. There are several constraints in the development of this project; time has been the major constraint thus the development activities must be properly managed and organized. Another obvious constraint in the development of this application was the fact that the project is being developed by a rather new android developer. Other issues that needed to be dealt with were that there are already many Islamic applications available in the market, for the proposed application to be a success, the application needed to be both cohesive and comprehensive.

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