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Using Smartphone Application to Notify Muslim Travelers the Jama' Qasar Pray, Azan Times and Other Facilities

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Abstract - This paper offers a service-based mobile application that helps Muslim tourists travel to any country. Realizing the real needs of a Muslim tourist depends on context management, which is a key component of MUSLIM TRAVEL- mobile application. The application provides Muslim tourists with information on the context of the time of prayer called "Adhan", the site of Halal food in non-Muslim countries, to show Muslim travellers during their journey to the prayer area of the Jamaa and Qasr accordance Islam with the concept of Islamic Sharia other useful facilities that may need. MUSLIM TRAVEL-Software is designed as a client server architecture and uses a GPS-based location to provide visual assistance using the Google Map. MUSLIM TRAVEL-application is a flexible, easy-to-use, portable and dynamic information application. The application offers a range of services for Muslim tourists through their Smartphone's or similar Smartphone.

Keywords - Halal food, Mobile Application, Muslim tourists, Jamaa and Qasr Prayer, Prayer time.

I. INTRODUCTION

The number of Muslim travellers is growing in size and value, attracting the attention of the tourism industry around the world. However, Islam calls for adherence to certain practices that affect tourism behaviour and create distinct requirements [1]. This paper addresses the phenomenon of Islamic tourism, which includes the special needs of Muslim tourists, industry responses, review of recent trends, and under determinants, with reference to specific circumstances. Therefore, the mobile app, commonly referred to as the app, is a type of application software designed to run on a mobile device, such as a Smartphone or tablet. Mobile phone applications often provide users with services similar to those that are accessed on a personal computer [2], [3].

Muslim Travelers-mobile application and method for usage of electronically stored, dynamically up-dated physical location parameters of Smartphone or similar portable Device to inform/alert/announce to its subscriber about the location-dependent variable timings of five-times-daily Islamic prayers called Salaat in (Arabic). The alert can be through textual message or through formal vocal announcement called Adhan. The system allows the Adhan-time-deciding-algorithm to be stored on the Mobile Device or on some remotely-connected Web-server based AdhanApplication, and the actual calculation may either be done dynamically just before the announcement, or the timingsmaybe looked-up from pre-calculated location-specific look-up tables. The system further allows the location variables to be stored-on/retrieved-from the hand-held-mobile-device, itself or on some other remotely-connected computer called location-server. The accuracy of location parameters varies with the network-providers. However other location-describing formats like TA, EFLT, GPS, AGPS, TDOA, AOA, AFLT, EOTD may also be used to calculate and/or announce the Adhan-timings [4][5]. The system further allows transmittal of highly personalized notification to individual subscribers by storing personal preferences in a Subscribers Database which is accessible to the MUSLIM TRAVEL- mobile application which employs the algorithm for dynamic notification, and thus personal preferences for different juristic methods, and selected modes of announcements can be accommodated, furthermore one of the MUSLIM TRAVEL-mobile application unique functions is to show Muslims during their travel Jama' and Qasar pray zone according to Islamic Sharee'a concept. and other facilities are provided. The remainder of this paper is presented as follows. Section 2 discusses the previous work on the Islamic related applications. In section 3, the system features and architectures is discussed. Followed by section 4, presenting the evaluation of this application. Section 5 sums up the study with conclusion and future works. Next, the reviews on several Islamic based applications are discussed in the previous work section.

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II. PREVIOUS WORK

The number of mobile applications currently available can be overwhelming, so some review works have been done and 9 apps found in the mobile stores.

2.1 Muslim Pro Application:

Figure1. The Screenshot of main page on Muslim Pro Application

There is an apps as shown in Fig. 1,known as Muslim Pro which definitely be on top of the list. An application widely used by Muslims around the world. Muslim Pro is the all-in-one application that focuses the announcement of prayer times based on user's location.On top of that, Muslim Pro also provides Quran with audio recitations through multiple recitations and translations in different languages, Qibla compass, Islamic calendar, machine Zakat calculator, the Muslim fortress of supplication and supplications, and the ninety-nine names of God to learn and memorize. Apart of that Muslim Pro can also be used as a guidance to find nearby Halal restaurants and mosques. FavouriteQuranic verses can also be shared with the loved ones. Not only that, Islamic greeting cards can also be sent using this application. During Ramadan, Muslim Pro is also equipped with the fasting time called Emsakyah in Arabic [6].

2.2 Quran Companion produced by Quran Academy:

The goal of every Muslim must be to deepen his relationship with the Quran, either by increasing memorization or recitation of verses, or trying to understand its meaning. This is where the application of the Holy Quran comes from the Academy of the Quran. Fig. 2 depicts several screenshots of the application.

Figure2: Screenshots of Quran Companion

This application utilizes a technique called as guided lessons that help in memorizing the Surah. Through games and social drives, this application works for those who need flexibility and pleasure in learning the Quran. It can be used for memorization or review disregard the location at any time. [7].

2.3 Prayer Time Application

Figure3: Screenshots of Prayer Time

As shown in Fig 3, it is a Singapore-based application which is a very accurate application in providing data on prayer and Adhan time notification, Qiblat compass and the whole mosques around Singapore. This application was developed by MUIS Company [8].

2.4 The #HHWT Travel Planner Mobile App

In the latest version of #HHWT Travel Planner application, three new destinations have been added to the application which are Singapore, Tokyo and Japan. As compared in the former version, it only covered Seoul only. This application offers services needed by Muslim travellers such as looking for local Halal food or interesting attractions to visit during the trip or searching for a local mosque to pray in [9]. Fig 4 depicts the screenshots of #HHWT Travel Planner application.

Figure4: Screenshots of #HHWT Travel Planner application

2.5 My Duaa: Fortress of the Muslim:

As shown in Fig. 5 belows, My Duaaoffers a collection of the well-known Fortress of Muslim collection of duaas. With more than 15 categories of duaas, as for clothing, greetings, during travelling and so forth, this application is useful as a reminder for the Duaa times according to Islam Shariea [10].

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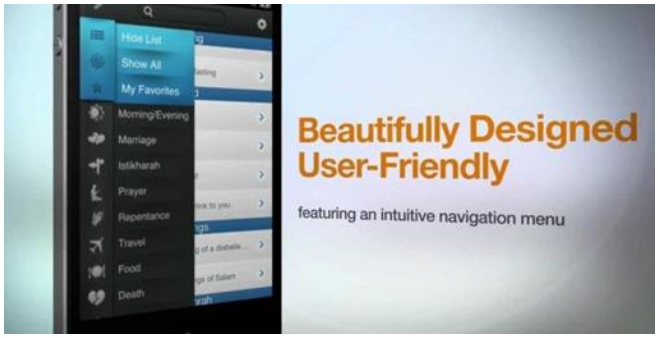

Figure5: Screenshots My Duaa: Fortress of the Muslim

2.6 Ayah A Day

This application has a user friendly interface, that make the usage of the application is very easy to use via its simple interface. Developed by Bayyinah Institute and Ustadh Nouman Ali Khan, the application prompts the user to read and listen to a verse with its meaning and interpretation from Ustadh Noman in a daily manner. [11]. Fig 6 presents the example of an ayah (sentence) on the simple interface.

Figure6. Example of an ayah on Ayah A day application

Moreover, the duration time for each audio clip does not exceed 5 minutes. This promotes to the users to frequently listen and practise the verse via Ayah A Day [11].

2.7 Hadith of the Day (HOTD) App

An HOTD application does not only allow the user to learn new hadiths every day, but also chooses verses from the Holy Quran, Duaas and an inspiration section where the user can read about interesting Islamic facts and personal thoughts. HOTD application also provides information on the companions of the Prophet Muhammad peace be upon him for the users to learn more on them [12]. Fig 7 depicts the front page of HOTD application.

Figure7. Front page of HOTD application

2.8 Muslim Central App

This application provides a quite number of Islamic lectures. The Muslim Central application has a full set of podcasts from famous speakers. It is updated regularly with the latest lectures. It also allows the user to choose a speaker and theme to listen to it directly from the application [13]. Fig 8. Shows the front page of Muslim Central application

Figure8. Front page of Muslim Central application

But one of the disadvantage of this application is, it is not available on the Apple store. Only the Android users can havethe advantage of downloadingthe Muslim Central mobile application. For Apple users, they can check out the iTunes audio podcasts for every speaker and Quran recitation [13].

2.9 Prophetic Timeline App.:

Figure9. Prophetic Timeline application

Fig 9. depictsa comprehensive resource for those who wish to learn more about the life of Prophet Muhammad in peace be upon him. Using an interactive chronology of important events in Prophet Muhammad's (peace be upon him) life together with lessons and wisdom of learning from each event, the user can view the stories via the audio book. This audio book was narrated by a BBC voice speaker. The biography map feature also provides a visual representation of the sites where the Prophet Muhammad peace be upon him and his companions travelled in throughout their lives [14].

Reviewing and analysing these several applications brings the vivid solution to the essential needs of having a complete and comprehensive Muslims application especially for the Muslim travellers to notify on the jama' and qasar prayers. Muslim Traveller Mobile Application is designed to be flexible, easy to use, portable, and supports dynamic information. Muslim Traveller Mobile App. It was developed using Java Platform, Micro Edition (J2ME) to be supported and compatible by Smartphone and smart devices. In addition, Muslim Travellers has visual help for Google Map using the J2MEmap API, making it easy for the user to interact with the app. In addition, because the system is designed as server-client architecture, both the client side and the server side collect context data elements. A server-side uses a database that stores all context data for the purposes of context analysis.

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Section 3 explains the system features and architectures of the study.

III. SYSTEM FEATURES

Muslim Traveller mobile application has many features and tools to offer. In this section, how it works according to the technology environment is explained.

3.1 System Architecture

The structure of the system is illustrated as in Fig. 10. On the client side, the system includes the mobile device with the application installed on it and a built-in or external GPS device. On the other hand, the server-side includes a local server, a local database, and remote servers. The client side connects to the server side over a GPRS or Wi-Fi connection. The system passes through three units in order to provide appropriate guidance for Muslim tourists inside the country. The three modules are; context sensor, logic context, and context delivery [15].

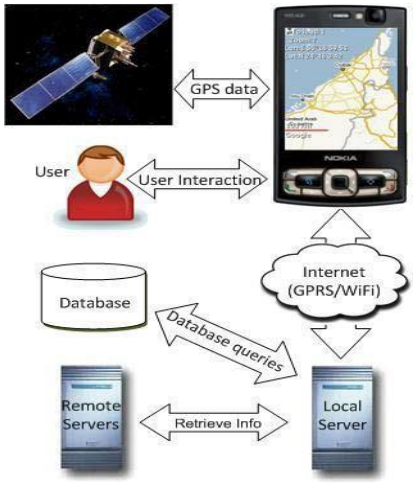

Figure10. System architecture

3.2 System Functions

MUSLIM TRAVEL-mobile application is an elegant and comprehensive app for Muslim travelers. It equips with an easy and convenient interface for prayer times notification, qiblat direction and location of nearby mosque. MUSLIM TRAVEL-mobile application assists the Muslim travelers in many ways. Fig 11 is the screenshots of MUSLIM TRAVEL-mobile application.

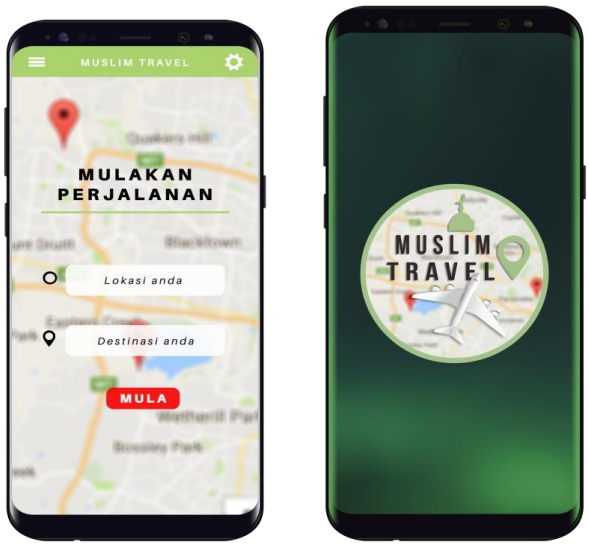

Figure11. Screenshots of MUSLIM TRAVEL-mobile application

MUSLIM TRAVEL-mobile application as in Map is to show jama'qasar zone, accurate prayer times based on the user's current location. Fig 12 shows the interface to show jama' qasar prayer zone

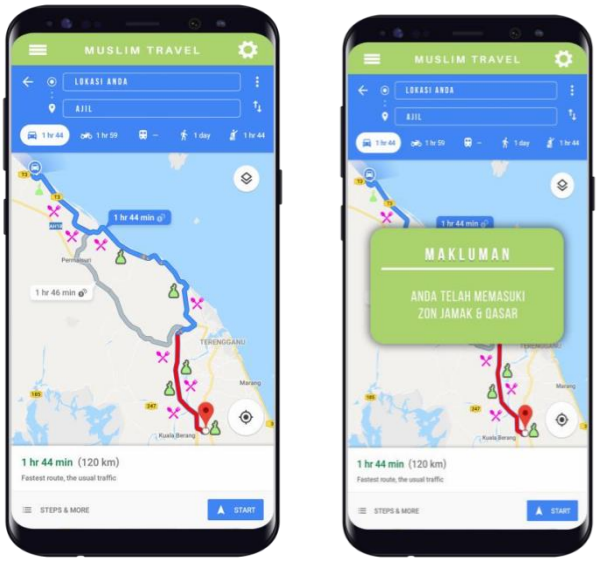

Figure12. Interface of jama' qasar prayer zone

Also in MUSLIM TRAVEL-mobile application, it provides Adhaan: Visual & audio notifications for the calls for prayer, Compilation of duaa' Halal Restaurants and mosques locations around the traveller, animated Qibla compass, "Tasbih" to count your dzikir and the 99 names of Allah as depicted in Fig, 13.

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Figure13. Other features of MUSLIM TRAVEL-mobile application

Next, the evaluation process on the MUSLIM TRAVEL-mobile application is discussed in the Section 4.

IV. EVALUATION & RESULT

App evaluation tests were conducted to validate and refine system requirements based on user experience after using the MUSLIM TRAVEL mobile application. Belows are details on the evaluation process of this study.

4.1 Application Performance Evaluation:

The evaluation was conducted to assess user acceptance using a familiar mobile context manual for mobile applications and to evaluate the quality of the MUSLIM TRAVEL mobile application manual and its user context. The app was evaluated by comparing it to another similar system. Field experience was assessed by a number of students and colleagues.

4.2 Applications Comparison:

Our system compares with other systems in this section in terms of comparison of the context elements used and the services provided in each system. Because the MUSLIM TRAVEL mobile application is context-sensitive and aims to be a guide for Muslim tourists, it is evaluated by comparing both context-sensitive systems and context-sensitive tour guide systems. One contextual awareness system is provided. This system is designed to provide Muslim users with Islamic information and services according to the user context, namely: user location, time and date. By comparing the MUSLIM TRAVEL mobile application with these systems, it can be seen that the MUSLIM TRAVEL mobile application has the same contextual component with additional elements. The additional elements are the event information especially the community prayer area together with Jama' and Qasar pray zone according to the concept of sharia and user interaction.

This makes the MUSLIM TRAVEL mobile application more context conscious, which can be more accurate in providing information. However, the MUSLIM TRAVEL mobile application can only be accessed if the mobile device is installed on it. While evaluating the MUSLIM TRAVEL application for mobile devices by comparing it to other system using contextual elements similar to the MUSLIM TRAVEL mobile contextual components, MUSLIM TRAVEL Mobile application offers the advantage of obtaining a wider range of services. This is because those systems only provide information about recommended halal restaurants.

V. CONCLUSION

This study presents the development and deployment of the MUSLIM TRAVEL Mobile Application that provides guidance for users who visit any country for tourism or business. Mobile applications MUSLIM TRAVEL- Mobile Application is context-sensitive; continuously senses the user's context, evaluates it, and then provides user information through the stylish GUI. The context form includes the user's location, current date, event information, and other interactions. The system architecture includes three main modules: Context Manager, which combines context data, the inference engine that analyzes the context, makes appropriate decisions as to what to display, and the author of the presentation that presents the information according to user needs. In addition, the system uses the available web services that provide useful information around the world and displays them on the map, allowing the user to navigate and browse. In the near future, this application will be incorporated accordance to all mazhabs.

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