

M-LEARNING FOR QUR'AN MEMORIZATION AND TEACHING ITS SCIENCES

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ABSTRACT

Providing a Conversational, Animated Qur'an Memorizer on modern smart phones will allow young generation technology savvies to be able to immerse themselves inside Qur'an and its sciences. Using technological means to deal with Qur'an and its sciences is at the focus of attention of the Noor Center in Taibah University. In this project we use the technologies of virtual reality, conversational interfaces, animated touch screens, metro-style navigation to build a Qur'an memorizer along with some of the Qur'an related sciences. The goal is to bring these technology attractions to Qur'an and its sciences. In this paper we present a small scale implementation of only Part 30 "جزء عم" of the Conversational, Animated Qur'an Memorizer application. The implementation is ported on major smart phones currently available and tested.

KEYWORDS

Conversational Interface, Virtual Reality, Animation, Metro-Style Navigation

1. INTRODUCTION

Have you ever wondered what would happen if we interact with the Qur'an the same way as we are interacting with our modern mobile iPhone's Siri (e.g. conversational interface)? What if our mobiles help us memorize Qur'an any time anywhere? What if relevant Qur'an verses are attached automatically for us while text messaging? What if we have voice recognition Siri-like App for Qur'an indexing and search? What if we have instant audio Tafseer of Qur'an versus on our mobiles? What if we have mobile audio recitation of Qur'an with most of the ten recitations? What if we could use our mobile to correct our recitation of Qur'an? What if our mobile keeps track (a counter) of the number of verses we memorize in each Sourah? As Siri can look for businesses, maps and traffic instant information (personal assistant), what if we have a Siri-like that can "Google Earth" our Qur'an - i.e. can visualize its structure (3D?) and be able to zoom in and out, link, associate, and correlate. Simply make us feel immersed inside the Holy Qur'an panorama. The current project will tackle some of the above capabilities as seed for the full capabilities as intended. The suggested Qur'an Voice Memorizer is intended to help end-users memorize recitation of the Holy Qur'an in seven ways, known as Al-Chatibiah's seven methods for reciting the Holy Qur'an. The key objective of the App is to allow the end-user to setup the narrator, the number of times to repeat each verse, and allow the end-user to record himself, and replay. After memorizing the whole Sourah, the end-user can move to checking mode where the App can listen and correct for him. Audi photonic search is a search capability of the App. It uses a database of phonics for Saudi speakers (50% female, and different age groups), and several audio templates (sound fingerprints and sound banks). Qur'an verses and their tafssers are indexed for easy retrieval. In this paper we demonstrate feasibility over a smaller subset- we have chosen the 30th part of Qur'an only- "جزء عم".

2. DESIGN DECISIONS

The proposed application is designed to add to current programs in the Islamic world of applications and smart phones. As well as providing an application that uses the latest technologies available in order to attract the new generation of Muslims and users of new technologies. The proposed application is not intended only

for speakers of Arabic, but it offers facets for dealing with other non-Arabic speaking users, one voice in Arabic and the other written in any language the user wants to use. The intention is to provide both easy communication and lots of redundancies in interaction with the application [1]. As dealing through touch screens is easy to understand application-specific modeling, the application is made easy and attractive. The modeling followed in design uses virtual reality to build the application so the user feels as if he is immersed inside the Holy Qur'an and it is animated in front of him with the versus [2], the Surahs, the interpretations and rulings are all accessible. This has taken care of by allowing the proposed model to be extended by adding sources and other books in addition to written interpretations, judgments and jurisprudence [3]. The use of interactive communication interface which is currently the most important success factors of the application seems perfectly valid to use in our current design.



Figure 1. Natural Segmentation of Surahs

In the design of the data handling part, as shown in figure 1, a Surah is divided into natural segments for ease of memorization [4]. This idea also expected to lead inside the immersion model of Qur'an and its Sciences to increase the capacity for collection and understanding of the meaning. Also, indexes and glossaries available in the application will lead to the ease of dealing with this vast amount of information [5]. Finally the Metro-Style interface of touch screens allows navigation through various Surahs and jumping from one place to another for both Qur'an text and audio (see figure 2).

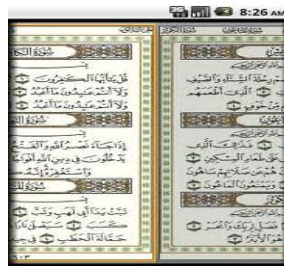


Figure 2. Metro-Style Interface Touch Screen

3. SYSTEM ARCHITECTURE

Figure 3 shows the main interface of the application. This three-dimensional interface animation has a continuous movement during the recitation of verses and relevant display of Qur'an text at the bottom of the screen. This is the main interface of the application. The idea here is inspired by the interface of the GPS satellites, where a different hemisphere of the Earth corresponds to the Qur'an 114 versus. One finds a continent with every one of the Surahs of the Qur'an. The length of Surahs correlates with the areas of these continents. The locations of these continents are in harmony with the Surahs' places in Qur'an. Surrounding this Qur'an Earth 114 orbits; each is called with the name of each verse of the Qur'an (or continent), which mandates taking place in that orbit. Each orbit contains satellites equal to the number of versus of each Surah. For example, a continent of "Al-Fateha-الفاتحة", which mandates the orbit of "Al-Fateha" that holds rotating 7 satellites representing the versus of "Al-Fatihah". The representation of the verb "derived" in the last sentence in the preceding paragraph, is shown as the red/blue/yellow lines that extend from the continent (Surah) located on the Earth to its own Qur'anic (mandates) satellites located on the orbit named after Surah. This is meant to synchronize audio and reading biblical view of the Surahs with both spin the Earth on the

Qur'an itself and the satellite spin (verses) in the courses of the Earth. This synchronization is correlated with the verb "derived" so that red/blue/yellow lines disappear and new lines appear in a new orbit compatible with reading, voice continuation. The Ring Yellow Line in the middle of the Qur'an Earth represents the equator of the Earth Qur'an. It is used as a handle of the Earth to control the angle and direction of the Earth as well as the proximity and distance of the Earth from the viewer's eye. This animated interface is displayed on a smart phone screen or board of the PDA touch screen. When the user touches the circle of the equator and move at will, without lifting a finger from the screen he/she can control the angle and direction of the Earth and display as well as the proximity and distance during rotation. The vertical red line on the equator allows the user to lengthen or shorten the high orbit above the surface of the Earth Qur'an. As can the user through the touch screen chooses another control panel different readings, recitations, narrator, etc. to help end users hear the recitation of the Qur'an in seven ways.



Figure 3. The Control Panel surrounding the Earth Qur'an

The Control Panel displays the well-known fourteen seven imams (Alkalon - Workshops - Albzi - Konbol province Doree - Company Soussi - Hisham - Iben Zkoan - Shoaba - Hafs - behind - Khallad - Abu alharth - Doree Al Kesaiee). Panel displays and controls are written in any language around the Earth Qur'an as shown in figure 4. The user can change places of the interface keys, forms and views. As well he/she can change at any time surah or verse, reader or narrator all this simply by touching the continent required or desired to touch the satellite in its path or open a drop-down list in the Control Panel to choose the desired action. We can do it all because of our rich modeling of the system to be a part of each object in itself such that it can be chosen and dealt with as programming objects (common methods currently in systems modeling and programming). For example, a verse is an object that can be selected at the touch of its own satellite, whether when its turn in reading or not. A verse can also be selected by entering the verse number and the name of Surah (or number). We made sure in this model is consistent with the graphical user interface so that multiple methods of choices and ways to accomplish a specific task are possible.

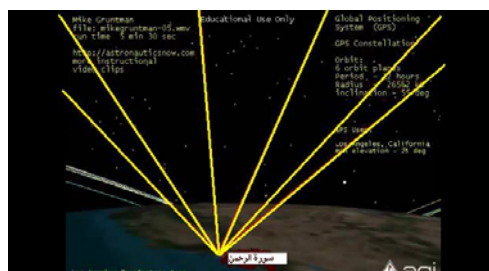


Figure 4. A Screenshot of Surah "الرحمن" showing Virtual Reality of Continent "الرحمن" with its Orbit and its Satellites

4. SMALL SCALE IMPLEMENTATION

We built a small scale of the application to work on smart phones, tablets and smart handheld devices such as iPhone, Android-Based Devices, BlackBerry, and Galaxy, to be available for free download from Windows Marketplace, Amazon, Store Apple Store, market, HP, and applications to store Mac. (see figures 5-13)



Figure 5. A Screenshot of the Surah “الفاتحة” showing Usage Statistics Capabilities

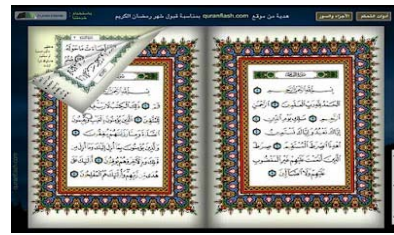


Figure 6. A Screenshot of Surah “الفاتحة-البقرة” showing Another Metro-Style navigation Capability



Figure 7. A Screenshot showing “تفسير المعاني بالانجليزية” for Surah “المؤمنون”



Figure 8. Touch Screen Selection opens a new menu- A Screenshot of Surah “جزء عم” showing the Selections Capabilities

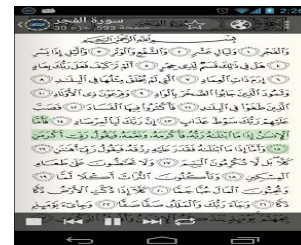


Figure 9. A Screenshot of Surah “الفجر” showing Another text-Audio Display Capability

5. EXPERIMENTATIONS

We have chosen a number of end-users for testing the small scale implementation and to record their feedback. The intention is to be both easy to supply and communicate with and provide a lot of redundancy in interacting with the application. We asked the end-users to request any command and process it in more than one way. As well as dealing through touch screens that are easy to understand its application-specific.



Figure 10. Metro-Style Navigation in “جزء عم” showing Touch Screen Metro Navigation

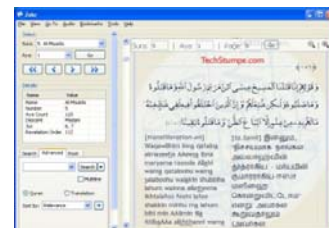


Figure 11. Testing the Indexing and bi-lingual Capabilities

The main technology used is virtual reality to build the application so that the user feels as if he/she is immersed inside the Holy Qur'an. Every object is materialized in 3D in front of him with signs, guidance, Surahs, interpretations and rulings. The application is open ended in the sense that we have started with part 30 and will add-on other parts incrementally. End users are asked to test the object-orientation of the interface and its usability. Then the use of animated interactive communicating interface which is currently

the most important success factor of the application of smart phones is assessed. End users are shown the animated interface and evaluated its effectiveness.

Figures show how the richness of indexes and glossaries available in the application has led to the ease of dealing with this vast amount of information. We have set up a testing strategy that involves a large number of target user groups that put the small scale implementation to use and provided us with their feedback. Figures show various End-users testing to the small scale implementation. Most of the feedback we have got from the End-Users were in the above average and good scales.



Figure 12. Testing the Arabic Tafseer Capabilities



Figure 13. Testing English Tafseer Capabilities

6. CONCLUSION

In this paper we have presented a small scale implementation of only Part 30 “جزء عم” of the Conversational, Animated Qur’an Memorizer application. The implementation is ported on major smart phones currently available and tested. We described the system model and design decisions. Major features of the application have been demonstrated and explained. The animated conversational interface is described with its options to change view and customize its drop down menus locations and contents. The flexible indexing of both Qur’an, its narrator, type of recitation, link to Tafseers and glossaries along with the metro-style touch screen navigation and bookmarking has been demonstrated. The search capability of both text and audio has been demonstrated. Tracking of what one has memorized from each Surah so far with ability to change text display through the Qur’an viewer (e.g. display movement characters (التشكيل)) are demonstrated. The bilingual display of Qur’an Tafseers and glossaries are also demonstrated. Changing setting and getting help are also demonstrated.

ACKNOWLEDGEMENT

This paper contains studies and results from the research project sponsored by NOOR IT Research Center. The author would like to record for NOOR Research Center his acknowledgement for supporting research project number 097 for the year 2012.

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