Design and implementation of the korean muallaf center application as a guide to praying and iqro procedures for korean muallaf

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Abstract. The number of Moslem populations increased rapidly by 70%. It includes the converts in South Korea. The development of Moslems in South Korea is marked by the development of mosques in Seoul, Busan, and Jeju. The number of converts in Korea is very high meanwhile the main constraint factor for Korean converts is the absence of prayer guide in Hangeul feature. Constraint experienced by the converts, the most important is prayer. This research developed the Android Application, named The Korean MuallafCenter, which is an application that helps the converts to include ablution, prayers, and easy-to-understand religious worship. The purpose of this research is to help the converts to understand the guidelines of Islam with Hangeul, so that they can practice it. The methodology of this research is by literature study, application design, implementation, and evaluation of the application usage. The results of this study are the Korean MuallafCenter Applications that have been used by Muallaf Korea, especially Ustadz, Imam, and Muallaf Public Figure, Olabora Song. They gave suggestions that the application requires the addition of a better Hangeul vocabulary usage and an approach to the Korean Society in accordance with its culture.

1. Introduction

Praditasari said that the Moslem population increased rapidly by 70%. It includes among those who converted to Islam from a previous religion, or atheist. It is because mostly in Korea, they don’t have any religion (atheist). The observation of the development of Islam is in the Big Cities of South Korea such as Seoul, Busan, and Jeju. Itaewon Mosque in Seoul, Al-Fatah Mosque in Busan, and Jeju Islamic Center were established by a native Korean professor who also found an Islamic association in Jeju [1].

The number of Moslem enthusiasts in Korea is very high, while the main problem is the absence of Hangeul feature Islam Learning Media. In a country whose majority religion is not Islam, South Korea is a country with a very significant increase in the number of converts (Muallaf). The author made direct observations in South Korea. Muallaf Korean is very high, but limited in Language. Worship facilities are also very rarely encountered. Learning media are generally in English, while most Korean people still get difficulties to understand Islam because of no Korean Language [2].

Based on this background, a review of the usage of the information system which is currently used and what are the issues to support the improvement of learning that aim at providing a Guide for the
Conversion in Korea so that the expected output of this research is to help the converts to understand the guidelines of Islam with hangeul, so that they can practice it. This research develops Android Application Korean Muallaf Center which used Hangeul feature in each contents, while the other Application does not use it. The design is a suitable approach to the issue, which is one of the implementations.

2. UI and UX Method
This paper is an implementation of User Interface and User Experience method. UI Method has been used to design user interface of the application. UX Method has been used to collect the information of user experiences. Data source is from direct interview with the Korean Convert to Islam.

2.1. The problems
From the description above, the formulation of the problem obtained is how the user’s behavior on the usage of an information system from respondents’ experience in this research is the new followers of Islam (Muallaf) in South Korea.

2.2. Limitation Problems
To undertake this research, it is necessary to limit the problem of focusing on research scope and time constraints, problem limitation for example the data from existing converts in Korea, or South Korean citizens who want to study Islam.

2.3. Literature Review
Literature Review is explained in the details as follows.

2.3.1. User Experience Approach. The first stage is an Analysis that consists of contextual inquiry, business process analysis, contextual analysis, and design informing model analysis.

2.3.2. Design. The next stage is Design Thinking (User Personal) and Design Production (Wireframe).

2.3.3. Prototype. This stage consists of making prototype medium fidelity and evaluation of the prototype result.

2.3.4. Implementation. Implementation stage is to apply what has been done in the previous steps.

2.4. Research Objectives
The purposes of this research are as research activities of lecturers in the framework of research development in Informatics Engineering Department and as a form of sociotechnopreneur that answers the existing problems, in this case, the research is a the converts in Korea. The recommendations’ expected output is based on the prototype which is made by the reference to the method of User Experience approach. The phenomenon studied is an effort to help the enthusiasts of Islam in Korea. The purpose of this study is to provide educational understanding that can be easily understood and can guide them to learn Islam easier.

2.5. Research methodology
This research uses waterfall technology. The Flowchart and Sequence Diagram are given below [3].

Based on figure 1, Korean Muallaf Center Application has 4 option buttons, such as Fard Prayer, Wudhu, and Important Surah. Fard Prayer will intend to Fard Prayer Activity, which has 5 Fard Prayers, such as Dawn Prayer, Dzuhur Prayer, Asr Prayer, Maghrib Prayer, and Isha Prayer. Each Fard Prayer has Hangeul feature and Pictures to guide the users. Furthermore, Wudhu Activity will display the guide of taking ablution. Moreover, the next button is Important Surah, which displays the
important chapter of Holy Quran. Furthermore, the system is described in sequence diagram below. The last option is Iqro Activity which displays Iqro to help Korean Muallaf to learn reading Quran.

![Flowchart of System](image1)

**Figure 1.** Flowchart of System

![Sequence Diagram](image2)

**Figure 2.** Sequence Diagram

Based on figure 2, the system will be saved in Back Stack on Main Activity, Fard Prayer Activity, and Iqro Activity if the system intends to another Activity. For example, when a user intends to use Wudhu Activity from Main Activity, it will be back to Main Activity if the user presses the Back Button. The system will Destroy in another Activities if the user presses the Back Button.
2.6. Requirement Analysis

The requirement analysis in this study is based on the source of Moslem Teachers and Imam of Itaewon Mosque, Seoul, South Korea. Korean converts have obstacles in prayer guides due to the lack of information about prayer guides in Hangeul (Korean). South Korea, which is a country that has dependency on Smartphone, always brings Smartphone in the hands of Korean Society. Therefore, the application of prayer guides for Korean converts is needed [4].

Design (Design of the application display, features, system structure, architecture or hierarchy of the system to be created) of Fard Prayer has featured 4 languages, such as Arabic, English, Hangeul, and Bahasa. The features are as follows. In Fard Prayer Activity, Hangeul features have been designed. The writing is in the form of a Hangeul letter, Arabic, Bahasa, transliteration and translation in English. Furthermore, it features Prayer guide pictures. Moreover, the application features ablution with steps, pictures, reading material, and Hangeul Letter. Then, the application is developed with Iqro as a tool to learn to read the Quran. Feature Important Chapter of Quran is developed to be memorized. The last feature is Text to Speech so the users can follow the pronunciation [5].

![Figure 3. Application of Korean Muallaf Center, Fard Prayer, Wudhu, Iqro, and Important Chapter of Quran Activity](image)

2.7. Programming Stage

This research uses Open Source Software issued by Google to create an Android Application named Android Studio. In Android Studio, it takes display using the xml language and algorithms that use Java language.

2.8. Testing Phase

At this stage the system is tested, to know which one must be equipped for application needs. The trial-errors of this stage are established to make the system reliable and decrease the bug level or minimize the errors. Once it is tested, the features added in the app are Text to Speech to help the pronunciation of Application use and Background Picture to give aesthetics to the Application.

2.9. Maintenance

Maintenance phase after repairing the system feasibility testing phase, this is done periodically to support the system to run properly. This app has been tested for Ustadz (Moslem Teacher) and Itaewon Mosque Imam, Seoul, South Korea.

3. Results

Korean Moslems have increased significantly in recent years. The data is given below.
Figure 4. Korean Moslem Population in 2016

Figure 5. Korean Moslem Population in 2018

Figure 5 illustrates the percentage of Korean Moslems in several cities of South Korea in 2016. Seoul has the highest percentage of Korean Moslems in South Korea by 20%. Moreover, Figure 6 illustrates the percentage of Korean Moslems in several cities of South Korea in 2018. Seoul still has the highest percentage of Korean Moslem in South Korea by 23%. Between these years, Korean Moslems have increased in Seoul, as the Capital of Country. Seoul has Moslem Center Organization, exactly located in Itaewon Mosque. Korean Moslems have been supported by another country, such as Turkey, and Arabic Peninsula Country. Based on Figure 5 and Figure 6, Daejeon has increased significantly by 4%. It is because of the Daejeon Islamic Center which has been established in 2017.

The results of this research are the Applications of the Korean Muallaf Center on Android smartphones that features Hangeul language and pictures of prayer guides, ablution, and important chapter of Quran. The Korean Muallaf Center app has the following look in figure 7.

Figure 6. Korean MuallafCenter Android Application

This app has been used by Ustadz, and Itaewon Mosque Imam, Seoul, South Korea, as well as Moslem Programmer, OlaboraSong. Some suggestions given about this application are as follows.
1. This application requires the addition of a better usage of Hangeul vocabulary.
2. This application requires the addition of an approach to the Korean Society in accordance with its culture [6][7][8][9].
4. Conclusion
This research obtains the following conclusions.
1. The Korean MuallafCenter’s Application has been successful by having the Ablution Guide, Prayer Guide, Iqro, and Important Chapter of Quran.
2. In the Korean MuallafCenter Application, there is Hangeul Language which can facilitate Muallaf Korea in studying Islam.
3. This application has been used by Ustadz (Moslem Teacher) and Itaewon Mosque Imam, Seoul, South Korea, as well as Moslem Programmer, OlaboraSong.

Some Suggestions have been given by Moslems for Applications of the Korean Muallaf Center as follows.
1. This application requires the addition of a better usage of Hangeul vocabulary.
2. This application requires the addition of an approach to the Korean Society in accordance with its culture.

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