

LEARNING JAWI ALPHABETS USING AUGMENTED REALITY

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LEARNING JAWI ALPHABETS USING AUGMENTED REALITY

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This report is submitted in partial fulfillment of the requirements for the
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2014

DECLARATION

I hereby declare that this project report entitled

LEARNING JAWI ALPHABETS USING AUGMENTED REALITY

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

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DEDICATION

To my beloved family, a million thanks for making me to come to this far in my life.
The support from you all makes me to stay still until now especially in my study.

To my supervisor, En Shahril Bin Parumo, and my evaluator, Dr. Mohd Hafiz Bin Zakaria, thank you for guiding me to make this project into completeness.

To all my friends who lend their hand to me for all the time whenever helps is needed.

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ABSTRACT

Learning Jawi Alphabets using Augmented Reality is a application that educate children to identify and write Jawi alphabets. This application is design for children aged 6 years old to 8 years old. Recently, there are a lot of application available in the internet. But there is less attractive element. Most of the application that available in the internet are mostly consist of 2D element. There is 3D element in learning Jawi alphabet yet in the internet. This is good opportunities to expand the basic knowledge of Jawi by using this application . This application will help and attract children to learn about to identify Jawi alphabets with more depth. By using graphics, videos, sounds, and 3D elements, children are more likely than using the current technique of learning. This project will be module and stored in a compact disc.

ABSTRAK

Pembelajaran huruf Jawi menggunakan Augmented Realiti adalah aplikasi yang mendidik kanak-kanak untuk mengenal pasti dan menulis huruf Jawi. Aplikasi ini adalah reka bentuk untuk kanak-kanak berumur 6 tahun hingga 8 tahun. Setakat ini, terdapat banyak aplikasi yang boleh didapati di internet. Tetapi kurang elemen yang menarik. Aplikasi yang terdapat di internet yang kebanyakannya terdiri daripada elemen 2D. Tiada lagi elemen 3D dalam pembelajaran huruf Jawi lagi di internet. Ini adalah peluang yang baik untuk mengembangkan pengetahuan asas Jawi dengan menggunakan aplikasi ini. Aplikasi ini akan membantu dan menarik kanak-kanak untuk mempelajari untuk mengenal pasti huruf Jawi dengan lebih mendalam. Dengan menggunakan grafik, video, bunyi, dan unsur-unsur 3D, kanak-kanak lebih cenderung menggunakan berbanding teknik pembelajaran semasa. Projek ini akan menjadi modul dan disimpan di dalam cakera padat.

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LIST OF ABBREVIATION

PSM	–	Projek Sarjana Muda
AR	–	Augmented Reality
AJaW	–	Assisted Jawi-Writing
UTeM	–	Universiti Teknikal Malaysia Melaka

CHAPTER I

INTRODUCTION

1.1 Introduction

Jawi skills among children are important as the skills will help them in their Islamic education. The skill is required when reading the Qur'an, learning the Arabic language and all other Islamic religious subjects. For students who are unable to master the Jawi reading and writing skills, they will be left behind in the Islamic subjects as Jawi is commonly used by teachers as a tool or medium to teach these subjects. This leads to the decrease in motivation and enthusiasm towards the Islamic Education subjects.

Jawi is the writing script for the Malay language since the 15th century derived from the Arabic alphabets. The design of the learning process focuses on the Jawi alphabets which includes the example and word. At the same times this product also involved the Augmented Reality elements where when the reader scan at the alphabet marker by using the flash card, then the example and words will pop out. So that, this kind of learning will encourage the children become more excited to learn Jawi

1.2 Problem Statement

Nowadays, Jawi is gradually forgotten either in writing or reading. This is because of the growing focus on the roman characters in daily communication. Less distribution of Jawi materials has also been a contributing factor to the lack of awareness on Jawi. This results in low interest in Jawi among the younger generation in Malaysia.

The younger generation, especially the Malays, are alienated from Jawi. Jawi skills among children are important as the skills will help them in their Islamic education. The skill is required when reading the Qur'an, learning the Arabic language and all other Islamic religious subjects. For students who are unable to master the Jawi reading and writing skills, they will be left behind in the Islamic subjects as Jawi is commonly used by teachers as a tool or medium to teach these subjects. Many students have negative attitudes towards Jawi because they found it to be very difficult, felt that it is not important and that subject is not assessed in the national level examinations. This leads to the decrease in motivation and enthusiasm towards the Islamic Education subjects.

1.3 Objective

- To study interactive augmented reality technique towards alphabets learning
- To develop a prototype of augmented reality application to Jawi alphabet learning.
- To evaluate the effectiveness of Jawi alphabet learning using augmented reality technique.

1.4 Scopes

In this study, this project investigate how children react with augmented reality technology in learning. The effectiveness and the usefulness of this learning activities play a vital role in this project. Therefore, children from six to eight years old are the main user of this project. This studies will only involve research on Jawi alphabet learning using augmented reality. This project will created using Adobe Flash CS 5 to incorporate the augmented reality technology.

1.5 Project Significance

This study contributes to children in process of learning Jawi alphabets. Using this tool,the objective of analyzing the effectiveness of augmented reality technology in learning Jawi alphabets might be achievable. Not to say it will work 100% on all children, but the existence of this tool will accessible to help them. With this augmented reality tool, learning will be more multisensory and relatable.

1.6 Conclusion

Jawi is the writing script for the Malay language since the 15th century derived from the Arabic alphabets. Jawi skills among children are important as the skills will help them in their Islamic education. The skill is required when reading the Qur'an, learning the Arabic language and all other Islamic religious subjects. The design of the learning process focuses on the Jawi alphabets which includes the example and word. At the same times this product also involved the Augmented Reality elements where when the reader scan at the alphabet marker by using the flash card, then the example and words will pop out. So that, this kind of learning

will encourage the children become more excited to learn Jawi. The main goal of this study is to help children is learning and understanding Jawi alphabets using augmented reality.

CHAPTER II

LITERATURE REVIEW & PROJECT METHODOLOGY

2.1 Introduction

Augmented reality technology is the environment where virtual object are integrated into 3-D real environment in a real time. Basically, AR technology completely let user be a part of the virtual world.

There is no large difference between the VR and AR because the concept and the way both of this technology immerse the user is almost same. When we talk about AR, then we will directly think about their characteristics until this technology always have a demand and be apply from several of the sector in several industry. According to it an AR system must have the following combines real and virtual, interactive in real time, and Register in 3-D characteristic.

The clear example that includes those entire characteristic is like Avatar movie which combine both of the environment like a first point said. After combine with the 3D elements and added with some of professional editing, so that it makes the Avatar movie interactive in real time. Thus, the audient can fell with the real feeling without think it is actually just movie. But, what will be going to highlight is

the technology and the skill from the professional staff makes this movie be accepted by the audients.

During the past few years, books have been augmented with the various visualizations such as 3D graphic and animations and sound. AR storytelling is finding by research from the Disney Company where the animated character interacting with the printed storybook by using the marker.

2.2 Area of Study

The area of study for this project is in the learning Jawi alphabets supported by augmented reality technology. Children can get the information and examples by scan at the flash card marker . Instead of read, with this project, reader can interact with the application where this project allowed children to scan at the image in the interactive way. Match with the target user for this project, it could capture their attention and let them learn with the vary way and technique.

2.2.1 What is AR Technology?

Augmented Reality (AR) is a technology which allows computer generated virtual imagery to exactly overlay physical objects in real time. Unlike virtual reality, where the user is completely immersed in a virtual environment, AR allows the user to interact with the virtual images using real objects in a seamless way.

There is 2 technique involves in AR, marker and markerless. Markerless AR are more advanced marker based AR involves image recognition with or without a custom marker. Custom marker need to be build in order to use for marker AR.



Figure 2.1 Example of Markerless AR



Figure 1.2 Example of Marker AR

2.2.2 AR Technology in Learning Environment

In this learning tool, it should be able to create better learning experience and provide better solution compared to previous learning environment.

In the same time, the usage of mobile device in this AR project offers at least two benefits, namely mobility beneficial and easiness-to-use beneficial. Since it is built based on the mobile device, this project can be played where ever and whenever the user want, as long as the user have that mobile device around them. This is what we called mobility beneficial. The other benefit is easiness-to-use beneficial.

This AR project was finalized as an application that install inside the device; it means that the user just only needs to play it as a general application like the other. There is no complex usage procedure, such as early installment and else. The easiness-to-use becomes an important issue, since this AR project will be operated by general people with various knowledge backgrounds. We need to ensure that everybody able to operate this application since the beginning until the end and it requires the easiness-to-use beneficial.

AR technology is the chosen digital technology to be combined with conventional edutainment media. This technology was developed using PC based and web camera to capture the marker.



Figure 2.3 Web Camera Based

2.2.3 Learning Jawi in Malaysia

In Malaysia, the education system requires all the Muslim students to take Pendidikan Islam subject to learn the basic about Islam. Pendidikan Islam subject use Jawi alphabets and students will have to read in Jawi language. The problem is, student cannot read Jawi because lack of exposure in Jawi.

The problem of mastering Jawi amongst students is one of the hot topics discussed lately. Recognizing and mastering each letter is compulsory for each student especially the single letters. Students who do not master the single letters in Jawi will find themselves left behind and unable to progress far. The syllabus gradually gets more and more challenging. The foundation, which is identifying the single letters by hard, must be strong. Otherwise, students may get confused as they learn more. They may also get confused because of similar shapes but different sounds or vice versa.