

## DECLARATION

I hereby declare that this project report entitled  
**LEARNING KERIS WITH AUGMENTED REALITY**

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

STUDENT : \_\_\_\_\_ Date: 28-AUG-2013  
(MUHAMMAD RAZMAN BIN ZULKEFLI)

SUPERVISOR : \_\_\_\_\_ Date: 28-AUG-2013  
(MR.MOHAMAD LUTFI BIN DOLHALIT)

LEARNING KERIS WITH AUGMENTED REALITY

MUHAMMAD RAZMAN BIN ZULKEFLI

This report is submitted in partial fulfilment of the requirements for the  
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## **BORANG PENGESAHAN STATUS TESIS\***

JUDUL : LEARNING KERIS WITH AUGMENTED REALITY

SESI PENGAJIAN : 2013 / 2014

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      /       TIDAK TERHAD

\_\_\_\_\_  
(TANDATANGAN PENULIS)

Alamat tetap: 929 KM4, Ampangan  
Jalan Jelebu, 70400 Seremban,

\_\_\_\_\_  
Negeri Sembilan

Tarikh: 28/08/2013

\_\_\_\_\_  
(TANDATANGAN PENYELIA)

Mr. Mohamad Lutfi Bin Dolhalit  
Nama Penyelia

Tarikh: 28/08/2013

CATATAN: \* Tesis dimaksudkan sebagai Laporan Projek Sarjana Muda (PSM).

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## DEDICATION

This final project is dedicated to my beloved parents, for their support, help me when I'm needed and always prayers and give me useful advices.

For my supervisor who guide and give me a lot of support,  
Mr. Mohamad Lutfi Bin Dolhalit (UTEM)

For my evaluators, Mr.Mohd Adili Norasikin  
(UTEM)

And lastly to my entire beloved friend that always help me from the beginning until the end of my project.

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## **ABSTRACT**

Keris is one of the symbols and artefacts of Malay identity greatness of the race have a role and functions are special and unique and not easily become extinct since it was created until now. Most people are getting forgotten about the value of Keris. From these problems, an application form using Augmented Reality can help them learning about the Keris. These applications have three models of Keris which is Keris Jawa, Keris Lurus and Keris Semenanjung. There have several information parts of Keris. This application is useful for martial art student and public to learn basic about Keris and creating more interesting platform of learning.

## **ABSTRAK**

Keris adalah salah satu simbol dan artifak kebesaran identiti Melayu bangsa yang mempunyai peranan dan fungsi yang istimewa dan unik dan tidak mudah pupus sejak ia dicipta sehingga kini. Kebanyakan orang semakin lupa tentang nilai Keris. Daripada masalah ini, borang permohonan menggunakan Augmented Reality boleh membantu mereka belajar tentang Keris itu. Aplikasi ini mempunyai tiga model yang Keris Keris Jawa, Keris Lurus dan Keris Semenanjung. Terdapat beberapa bahagian maklumat Keris. Permohonan ini adalah berguna untuk pelajar seni mempertahankan diri dan orang ramai untuk belajar asas tentang Keris dan mewujudkan platform yang lebih menarik pembelajaran.

## TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE
	<b>DECLARATION</b>	<b>II</b>
	<b>DEDICATION</b>	<b>IV</b>
	<b>ACKNOWLEDGEMENTS</b>	<b>V</b>
	<b>ABSTRACT</b>	<b>VI</b>
	<b>ABSTRAK</b>	<b>VII</b>
	<b>LIST OF TABLES</b>	<b>XII</b>
	<b>LIST OF FIGURES</b>	<b>XIII</b>
<b>CHAPTER I</b>	<b>INTRODUCTION</b>	
	1.1 Project Background	2
	1.2 Problem Statement	2
	1.3 Objective	4
	1.4 Research Questions	4
	1.5 Project Scope	4
	1.5.1 Target User	4
	1.5.2 Content	4
	1.6 Framework	5
	1.7 Project Significance	5
	Summary	5
<b>CHAPTER II</b>	<b>LITERATURE REVIEW</b>	
	2.0 Literature Review	6
	2.1 Area of Study	7
	2.2 Current System/Tool/Output	8
	2.3 Comparison Existing System	9
	Summary	10



**CHAPTER III      METHODOLOGY**

3.0	Methodology	11
3.1	Research Activity	11
3.1.1	Data Gathering/Collection	12
3.1.2	Analysis of the Data	12
3.2	Product Development Methodology	13
3.3	Project Requirement	15
3.3.1	Hardware Requirement	15
3.3.2	Software Requirement	15
3.3.3	Hardware and Software Requirement Analysis	15
3.3.3.1	Hardware Requirement Analysis	15
3.3.3.2	Software Requirement Analysis	17
	Summary	18

**CHAPTER IV      ANALYSIS**

4.0	Introduction	19
4.1	Product Analysis	20
4.1.1	User Requirement	20
4.1.2	System Requirement	20
	Summary	22

**CHAPTER V****DESIGN AND IMPLEMENTATION**

5.0	Introduction	23
5.1	Design Process	24
5.1.1	Design Architecture	24
5.1.2	Product Development Process	25
5.2	Design/Product Implementation	38
5.2.1	Design/Product Integration Process	41
	Summary	43

**CHAPTER VI****TESTING AND EVALUATION**

6.0	Introduction	44
6.1	Test Plan	44
6.1.1	Test Organization	45
6.1.2	Test Environment	46
6.1.3	Test Schedule	47
6.1.4	Test Strategy	48
6.1.4.1	Classes of Test	48
6.2	The Implementation Process	49
6.2.1	Test Description	49
6.2.2	Test Data	49
6.3	Testing Result and Analysis	59
6.3.1	Functionality Result	59
6.3.2	Acceptance Result	60
	Summary	63

**CHAPTER VII PROJECT CONCLUSION**

7.1	Observation on Weakness and Strength	64
7.2	Propositions for Improvement	65
7.3	Contribution	65
7.4	Future Work	66
7.5	Conclusion	66

<b>REFERENCES</b>	<b>67</b>
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<b>BIBLIOGRAPHY</b>	<b>68</b>
---------------------	-----------

<b>APPENDICES</b>	<b>69</b>
-------------------	-----------

**AppendixA Gant chart**

**AppendixB Questionnaire**

**Appendix C Book**

**AppendixD Attachments Picture**

**LIST OF TABLES**

<b>TABLE</b>	<b>TITLE</b>	<b>PAGE</b>
<b>Table 2.1</b>	<b>Comparison Table</b>	<b>9</b>
<b>Table 5.1</b>	<b>Text Production</b>	<b>38</b>
<b>Table 6.1</b>	<b>Hardware Requirement</b>	<b>46</b>
<b>Table 6.2</b>	<b>Software Requirement</b>	<b>46</b>
<b>Table 6.3</b>	<b>Alpha Testing Schedule</b>	<b>47</b>
<b>Table 6.4</b>	<b>Beta Testing Schedule</b>	<b>47</b>
<b>Table 6.5</b>	<b>Alpha Testing Result</b>	<b>50</b>
<b>Table 6.6</b>	<b>Beta Testing 1 Result Trainer</b>	<b>51</b>
<b>Table 6.7</b>	<b>Beta Testing 1 Result Student</b>	<b>53</b>
<b>Table 6.8</b>	<b>Beta Testing 2 Result Trainer</b>	<b>54</b>
<b>Table 6.9</b>	<b>Beta Testing 2 Result Student</b>	<b>56</b>
<b>Table 6.10</b>	<b>Test for Student</b>	<b>58</b>
<b>Table 6.11</b>	<b>Table Show Test Data</b>	<b>59</b>

## LIST OF FIGURES

FIGURE	TITLE	PAGE
Figure 1.1	Project Framework	5
Figure 2.1	Discovery Channel	10
Figure 3.1	Multimedia Production Process	13
Figure 3.2	Multimedia Production Process Details	14
Figure 4.1	Learning Keris Application Marker1	20
Figure 4.2	Keris 3D object appear on the screen	21
Figure 5.1	Design Architecture	24
Figure 5.2	Marker Design	25
Figure 5.3	Bahagian Keris Marker Detection	26
Figure 5.4	Hulu Keris Marker Detection	27
Figure 5.5	Hulu Keris Marker Detection	28
Figure 5.6	Hulu Keris Marker Detection	29
Figure 5.7	Keris Jawa Marker Detection	30
Figure 5.8	Keris Jawa Marker Detection	31
Figure 5.9	Keris Lurus Marker Detection	32
Figure 5.10	Keris Lurus Marker Detection	33
Figure 5.11	Keris Semenanjung Marker Detection	34
Figure 5.12	Keris Semenanjung Marker Detection	35
Figure 5.13	Cover Book Design	36
Figure 5.14	Content Book Design with Marker	37
Figure 5.15	Content Book Design	37
Figure 5.16	Times New Roman	38

<b>Figure 5.17</b>	<b>Arial</b>	<b>38</b>
<b>Figure 5.18</b>	<b>Example of Book Design</b>	<b>39</b>
<b>Figure 5.19</b>	<b>3D Modelling Process</b>	<b>40</b>
<b>Figure 5.20</b>	<b>Example of 3D Modelling in Autodesk Maya 2011</b>	<b>40</b>
<b>Figure 5.21</b>	<b>Integration Process</b>	<b>41</b>
<b>Figure 5.22</b>	<b>Example of Autodesk Maya 2011 interface</b>	<b>42</b>
<b>Figure 5.23</b>	<b>Example of OpenSpace 3D Editor</b>	<b>42</b>
<b>Figure 6.1</b>	<b>Functionality Graph</b>	<b>59</b>
<b>Figure 6.2</b>	<b>Beta Testing 1 Trainer</b>	<b>60</b>
<b>Figure 6.3</b>	<b>Beta Testing 2 Trainer</b>	<b>61</b>
<b>Figure 6.4</b>	<b>Beta Testing 1 Student</b>	<b>61</b>
<b>Figure 6.5</b>	<b>Beta Testing 2 Student</b>	<b>62</b>
<b>Figure 6.6</b>	<b>Test Data for Student</b>	<b>62</b>

## **CHAPTER 1**

### **INTRODUCTION**

Keris is a unique weapon because there are features in Keris that are difficult to understand. For new students martial art that learn Keris they should be exposed to basic knowledge about the Keris. For old society during Malacca era they really know how to use it as Keris is a weapon that must to be at their waist because it is said that Keris is a complement to their cloth. People nowadays are starting to forget about the value of the Keris. For this project, a study will be carried out to develop an application that uses Augmented Reality for a basic introduction about Keris and especially for martial arts students. An application using a marker that is printed in the paper will be used to create Keris 3D objects. The objective of this project is to develop an application that uses Augmented Reality marker to exposure martial arts students.

## 1.1 Project Background

Nowadays, most people are getting forgotten about the value of Keris. Keris is one of the symbols and artifacts of Malay identity greatness of the race have a role and functions are special and unique and not easily become extinct since it was created until now. For new student of martial art they need know the parts of Keris like Pamor, Lok, Keris eyes, seath or cross-piece and many more. Islamic values have been applied in the Keris which in the Qur'an, Surah Al-Hadid "Indeed We have sent Our Messengers with clear proofs, and Revealed with prototypes the Scripture and the Balance (justice) That Mankind may keep up justice. And We brought forth iron wherein is mighty power (in Matters of war), as well as many benefits for Mankind, That Allah may test who it is That will help Him (His Religion) and His Messengers in the unseen. Verily, Allah is All-Strong, All-Mighty. "(Surah al-Hadid, Verse 25). This shows that in Islam has explained the use of iron and Keris created aims to uphold justice and be used for good purposes only. For martial art student it hard to find the article or book about the Keris.

This project will be presenting a few models of Keris that will be made specific for the part of Keris. It will be presented by combination of 3D object with Augmented Reality. There are different markers to view the part of object and have the detail about it.

## 1.2 Problem Statements

Technological developments have made the present generation getting forget about the history and the values of the Keris. In the martial arts syllabus, Keris is a high-level education and for new students, they are not exposed to this weapon until they are qualify to study it. This causes them less basic knowledge of the keris.



### **1.2.1 Learning Keris martial arts student only for high level**

Keris lessons taught only to those who were qualify to use the weapon. To reach that stage usually takes a relatively long time at least eight years. This is because there are several stages that need to be overcome so that students reach this stage. This has resulted in students who have not reached this stage do not understand the basic of the keris. This will be difficult for them to use the weapons when they reach this stage because that sharp weapons have to be careful when handle it.

### **1.2.2 Learning weapons are not permitted in school**

For court martial art in school they are not allowed to carry any weapon equipment as this will endanger the safety of students. This is difficult martial art teacher to give a basic introduction to just a picture and book of the Keris shall be used. With the use of Reality Augmented attract the students apart from books and pictures because to have the real Keris is very expensive.

### **1.2.3 Arts of Keris increasingly forgotten by current generation**

For now generations, especially in Malaysia not many know that Keris is now getting attention in the world after Indonesia gained admission Keris Indonesia as the world's cultural heritage by the United Nations Educational, Scientific and Cultural Organization (UNESCO) since 25 November 2005. It is said, a number of countries such as Malaysia, Singapore, Brunei, and the Philippines have been fighting hard, but until now has not managed to strengthen Keris to get international recognition. Keris history should be known to all young people, especially teenagers Malay because these people were preoccupied with the advances in technology and they do not take care of any relevant history.

### 1.3 Objectives

- To evaluate the effectiveness learning using Augmented Reality application for basic introduction of keris.
- To develop Augmented Reality applications using marker for new student to know basic of keris martial arts.
- To compare the learning way of basic keris between book with augmented reality and normal book.

### 1.4 Research Question

- i. How to develop basic of Keris martial arts using Augmented Reality applications?
- ii. What is the different between learning from book and learning by book with augmented reality?
- iii. How is the effectiveness of learning using Augmented Reality application for basic introduction of Keris?

### 1.5 Project Scope

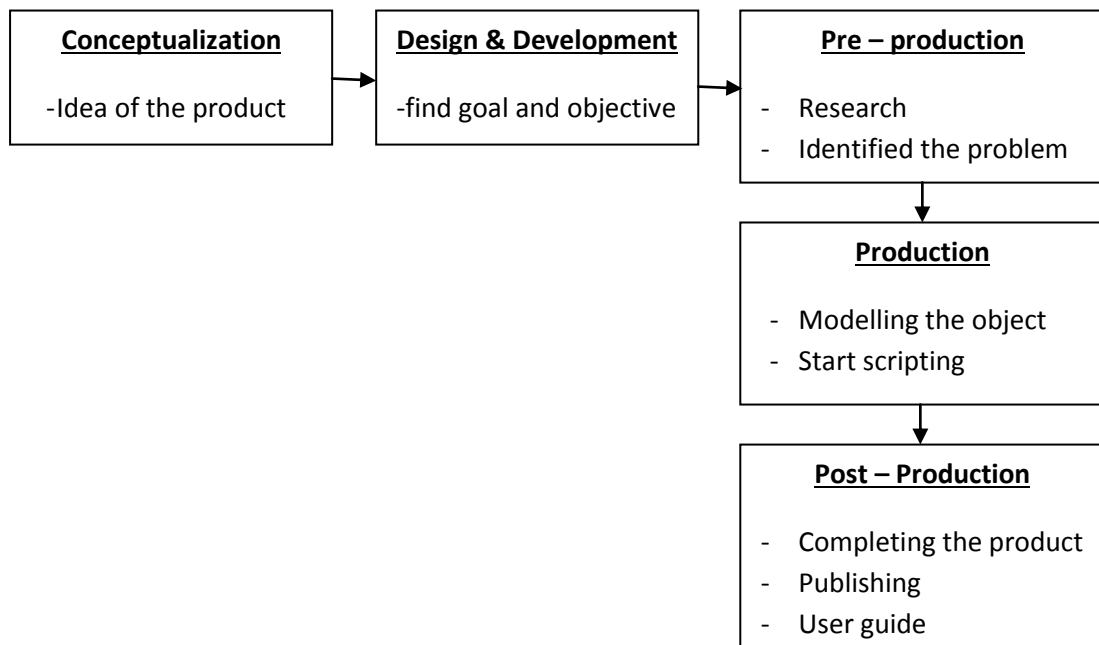
The scopes in developing this project are:

Target User: This Augmented Reality application is targetting for new students of martial art age between 13-30.

Contents: There are several types of keris model will be used in this application.

The features on part of the keris will be displayed like upstream keris, keris eyes, pamor, Luke, and seath or cross-piece. When the marker set is detected by the computer camera keris model will appear on the computer screen.

## 1.6 Project Framework



**Figure 1.1: Project Framework**

## 1.7 Project Significance

This project will give benefit to the new student's martial arts and indirectly can regained consciousness from present generations the values of Keris.

## Summary

The project is developed for new martial art student to learn basic for Keris. This project will be develop augmented reality applications of keris based on 3D object. The objective of this application is to develop Augmented Reality applications using marker for new student to know basic of keris martial arts. This project make comparison of learning way of martial arts between learning from book by application.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.0 Literature Review**

This chapter describes the relevant literature about writing will be used to support the project title. The literature review is what has been published on a topic by accredited scholars and researchers. It must be defined by defined by a guiding concept. In addition, it can enlarge the knowledge and information about the selected topic. Information such as methods, tools, and techniques that can be extracted from previous research, discussions with supervisors, internet resources, journals and books. Literature compared based techniques, approach and methodology to be used is also a writer of opinion on the topic of research.

## 2.1 Area of Study

Function in the Malay Keris is not merely a tool in the struggle to defend them or used but it is also part of the important a Malay monarch as a symbol of the government's legitimacy and sovereignty (Utusan Malaysia, 7 November 1985). Keris privileges in terms of function and role can be divided by two, which was between the physical forms of the functions on the object Keris itself, and function the uses. According to functionalism theory, producing a material culture (including Keris) is based on the needs of the functions of a cultural thing. Essentially, form a cultural thing was also created based function needs (Norazit Straits, 1989). Keris now Indonesia has gained recognition as a world cultural heritage by the United Nations Educational, Scientific and Cultural Organization (UNESCO). In the era of modernity, people need to pay more attention to the field of technology and science. Keris and art history has been forgotten generation is no longer interested in the Keris. If this happens it is very detrimental because Keris was also selected as the identity of the Malay community in Southeast Asia that give meaning and purpose of religious and philosophical aspects of history (Utusan Malaysia, March 2, 1996). Keris is very important because it can distinguish between the Malays and not Malay. Therefore, Keris continues to be the identity of the Malay race to date (Straits Times, 16 Februari 1998).

Augmented Reality is the art technology that limit between what is real and what is computer generated. Term Augmented Reality is used to compositing a direct and indirect view of the physical world with computer generated sensory input 3D object or sound. When the augmentation is carried out in real-time, the use of Augmented Reality can truly enhance the perception of reality through interactive and digitally information, and result in the creation of new unique amazing experiences Augmented Reality bridges the gap between the real and virtual worlds in real-time.

## 2.2 Current Systems/Tools/Output

Augmented Reality is a part of virtual reality technology. Augmented Reality is the combination of the real scene viewer of user and scene generated by computer. The virtual scene is generated by 3D object or 2D object with the code in the system. This technology is used in entertainment, military training, engineering design, marketing, education and other industry.

There are several platform that can be used in Augmented Reality to view the output is the marker and markerless. In marker image or object tracking in Augmented Reality by visual markers. In most of these applications, the performance of Augmented Reality system is depends highly on the tracking method for visual marker detection and depending on the particular application. The visual marker's design can be different from one to another. These visual markers limit the interactivity by the range of photo or objects encapsulated within a border to create the marker. In markerless Augmented Reality systems any part of the real environment may be used as the target that can be track in order to place the virtual objects. However this technique tracking system become more complex because it rely in natural features of imagesor object to be tacked like the edge, corners, or the texture.

## 2.3 Comparison of Existing Systems

Table 2.1: Comparison Table

	<b>The Keris Mystic Weapon of The Malay World</b>	<b>Discovery Channel The Keris</b>	<b>Keris basic introduction using Augmented Reality</b>
<b>Interaction</b>	-No	-Yes	-Yes
<b>Techniques Used</b>	-Combination of text and picture	-Storyline  -Help user to learn the history of Keris	-Learn the basic features of Keris with Augmented Reality  -Learn the history and value of Keris
<b>Information</b>	-Standard Informative	-Standard Informative	-Informative
<b>Programming Language</b>	- No	- No	- Action Script
<b>Type of Product</b>	-Book	-Broadcasting	-AR application
<b>Type of Visualization</b>	-Text and image	-Text and audio	-Marker  -3D object  -Text
<b>Advantages</b>	-Help user to learn about the Keris	-Help user to learn about the Keris	-Help user to learn about the Keris
<b>Disadvantages</b>	-Need to read the book  -Easy to get bored when read it  -The book is to old  -Jagged images	-Need internet to stream the video or user need to download the video	-User need to install the software  -Must used Laptop or Computer



**Figure 2.1: Discovery Channel Keris**

## **Summary**

This chapter explains all the research on the literature review of the area of study, the current system and existing system and the comparison. The fact of the review will support the research and the project. This project will develop a learning Keris using Augmented Reality application.