MOBILE JAWI COURSEWARE USING SERIOUS GAME APPROACH

NUR SYUHAIDA BT MOHAMMAD ROSLAN

BACHELOR OF COMPUTER SCIENCE

UNIVERSITI MALAYSIA PAHANG

UNIVERSITI MALAYSIA PAHANG
SUPERVISOR’S DECLARATION

I hereby declare that I have checked this project and in my opinion, this project is adequate in terms of scope and quality for the award of the degree of Computer Science (Graphics and Multimedia Technology) with Honours.

_______________________________
(Supervisor’s Signature)

Full Name : 
Position : 
Date : 

STUDENT’S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

____________________________________
(Student’s Signature)
Full Name : NUR SYUHAIDA BT MOHAMMAD ROSLAN
ID Number : CD15062
Date : 20 MAY 2019
MOBILE JAWI COURSEWARE USING SERIOUS GAME APPROACH

NUR SYUHAIDA BT MOHAMMAD ROSLAN

Thesis submitted in fulfillment of the requirements
for the award of the degree of
Bachelor of Computer Science (Graphics & Multimedia Technology) with Honors

Faculty of Computer Systems & Software Engineering
UNIVERSITI MALAYSIA PAHANG

SEPTEMBER 2018
ACKNOWLEDGEMENTS

First and foremost praise to Almighty Allah for all his blessings for giving me patience and good health throughout the duration of this project development. I would like to dedicate my highest gratitude for those who have involved directly or indirectly during this project development. Special thanks to Prof. Madya Dr. Ruzaini Abdullah Arshah in supporting me and being a helpful supervisor for all of his comments, supervision, ideas, suggestions and all the given guidelines for me to complete this project development. It has been an interesting and exciting learning period for me throughout this whole semesters. To my dearest friends from BCG and also other courses, who always been supporting me and giving me advices, thank you for all the motivation words, ideas and critics that helps me to improve a lot during my project development.

Finally, to my beloved family, a million thank you for always giving me moral supports especially to my parents who always asked regarding this project development and make sure that I am able to finish this project successfully. Thanks for all the encouragement, moral supports and prayers for all this time.
ABSTRAK

ABSTRACT

Mobile Jawi Courseware using Serious Game Approach is an application designed for preschool students to master Jawi Language in effective and interesting way. The history of education in Malaysia shows that the Islamic Education has been taught either by using books or texts written in Jawi and still being practiced today. The drawback is students who are unable to master Jawi reading and writing skills will be left out in the Islamic subjects as Jawi is the medium of instruction of these subjects. This application will provide the learning module and also the mini games module. Students can learn Jawi character and also Jawi spelling through the learning module. The learning module can help them understand better and can memorize each character and also can help them master in Jawi spelling. While the mini games module is the platform for student to test their understanding and knowledge. There will be a few games provided for them to play and score will be given for each game. This application is a mobile based application for android platform. In order to develop this application, ADDIE methodology will be applied throughout the development from start to the end. The phase will be requirement analysis, system design, development, system implementation and lastly evaluation. Lastly, the expected outcomes from the application is children will be able to learn Jawi Language in an effective and attractive way. Besides, the element of serious game and fun learning can build children interest to learn and this application can be a good help for teachers to teach their students in future. This application also can be used by adult that have interest to start learning Jawi in the future.
TABLE OF CONTENT

DECLARATION

TITLE PAGE

ACKNOWLEDGEMENTS ii

ABSTRAK iii

ABSTRACT iv

TABLE OF CONTENT v

LIST OF TABLES ix

LIST OF FIGURES x

LIST OF ABBREVIATIONS xii

CHAPTER 1 INTRODUCTION

1.1 Background 1

1.2 Problem Statement 2

1.3 Objective 2

1.4 Scope 3

1.5 Report Organization 3

CHAPTER 2 LITERATURE REVIEW 5

2.1 Introduction 5

2.1.1 What Make an Effective and Interesting Mobile Learning Tools 5

2.1.2 What Make Serious Game Should be Included in Learning Tools 6

2.2 Review Existing System (Strength and Weaknesses) 6
CHAPTER 3 METHODOLOGY

3.1 Introduction

3.2 ADDIE-Model Methodology

3.2.1 Requirement Analysis (P1)

3.2.2 System Design (P2)

3.2.3 Development Phase (P3)

3.2.4 Implementation (P4)

3.2.5 User Acceptance Test (P5)

3.3 Hardware and Software

3.3.1 Hardware Requirement

3.3.2 Software Requirement

3.3.3 Software Architecture
3.4 Use Case Diagram 23
3.5 Flow Chart Diagram 25
3.6 Context Diagram 26
3.7 Storyboard 27
3.8 Interfaces 29
  3.8.1 Homepage 29
  3.8.2 Choose Module Page 30
  3.8.3 ‘MARI BELAJAR’ Module Page 31
  3.8.4 ‘HURUF JAWI’ Page 32
  3.8.5 ‘EJAAN JAWI (Alif)’ Page 33
  3.8.6 ‘EJAAN JAWI (Ba)’ Page 34
  3.8.7 Mini Games Module Page 35
  3.8.8 ‘EJAAN JAWI’ Game Page 36
  3.8.9 ‘QUIZ GAME’ Game Page 37
  3.8.10 Game Option/ Setting Popup Window 38
  3.8.11 Popup Score 39
3.9 Conclusion 40

CHAPTER 4 IMPLEMENTATION, TESTING AND RESULT DISCUSSION 41

4.1 Introduction 41
4.2 Implementation 41
  4.2.1 Stage of Implementation 41
4.3 Testing and Result Discussion 62
4.4 Conclusion 65
### CHAPTER 5 CONCLUSION

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Introduction</td>
<td>66</td>
</tr>
<tr>
<td>5.2 Conclusion</td>
<td>66</td>
</tr>
<tr>
<td>5.3 Application Constraint</td>
<td>67</td>
</tr>
<tr>
<td>5.4 Future Enhancement</td>
<td>67</td>
</tr>
</tbody>
</table>

### REFERENCES

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>68</td>
</tr>
</tbody>
</table>

### APPENDIX A

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table 2.1  The Summary of the Strength and Weaknesses of the System  8
Table 2.2  The Summary of the Strength and Weaknesses of the System  9
Table 2.3  The Summary of the Strength and Weaknesses of the System  11
Table 2.4  The Summary of the Comparison between Three Existing System  13
Table 2.5  The Summary of the Comparison between Three Tools  15
Table 3.1  The Summary of ADDIE-Model Methodology  19
Table 3.2  Hardware Used for the Application  21
Table 3.3  Software Used for the Application  21
Table 3.4  Use Case Description for Load Game and Login  24
Table 3.5  Use Case Description for Start the Game  24
Table 4.1  The Test Case of Mobile Jawi Courseware using Serious Game Approach  63
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Main Interfaces of Mari Belajar Jawi</td>
<td>7</td>
</tr>
<tr>
<td>2.2</td>
<td>Main Interface for Rainbow Jawi</td>
<td>9</td>
</tr>
<tr>
<td>2.3</td>
<td>Main Interfaces for Belajar Huruf Jawi Alif Ba Ta</td>
<td>10</td>
</tr>
<tr>
<td>3.1</td>
<td>The Visualisation of the Cyclic ADDIE-Model Process</td>
<td>18</td>
</tr>
<tr>
<td>3.2</td>
<td>Software Architecture of the Application</td>
<td>22</td>
</tr>
<tr>
<td>3.3</td>
<td>Overall Use Case Diagram for Mobile Courseware using Serious Game Approach</td>
<td>23</td>
</tr>
<tr>
<td>3.4</td>
<td>Flow Chart of the Application</td>
<td>25</td>
</tr>
<tr>
<td>3.5</td>
<td>Context Diagram of the Application</td>
<td>26</td>
</tr>
<tr>
<td>3.6</td>
<td>Storyboard of the Application</td>
<td>28</td>
</tr>
<tr>
<td>3.7</td>
<td>Homepage</td>
<td>29</td>
</tr>
<tr>
<td>3.8</td>
<td>Choose Module Page</td>
<td>30</td>
</tr>
<tr>
<td>3.9</td>
<td>‘MARI BELAJAR’ Module Page</td>
<td>31</td>
</tr>
<tr>
<td>3.10</td>
<td>‘HURUF JAWI’ Page</td>
<td>32</td>
</tr>
<tr>
<td>3.11</td>
<td>‘EJAAN JAWI (Alif)’ Page</td>
<td>33</td>
</tr>
<tr>
<td>3.12</td>
<td>‘EJAAN JAWI (Ba)’ Page</td>
<td>34</td>
</tr>
<tr>
<td>3.13</td>
<td>Mini Games Module Page</td>
<td>35</td>
</tr>
<tr>
<td>3.14</td>
<td>‘EJAAN JAWI’ Game Page</td>
<td>36</td>
</tr>
<tr>
<td>3.15</td>
<td>‘QUIZ GAME’ Game Page</td>
<td>37</td>
</tr>
<tr>
<td>3.16</td>
<td>Game Option/ Setting Popup Window</td>
<td>38</td>
</tr>
<tr>
<td>3.17</td>
<td>Correct Answer Popup</td>
<td>39</td>
</tr>
<tr>
<td>3.18</td>
<td>Wrong Answer Popup</td>
<td>39</td>
</tr>
<tr>
<td>4.1</td>
<td>The Unity Software main page</td>
<td>42</td>
</tr>
<tr>
<td>4.2</td>
<td>The Unity Create Scene</td>
<td>43</td>
</tr>
<tr>
<td>4.3</td>
<td>Homepage</td>
<td>44</td>
</tr>
<tr>
<td>4.4</td>
<td>Load Scene and Exit Script</td>
<td>45</td>
</tr>
<tr>
<td>4.5</td>
<td>Inspector for load scene button</td>
<td>45</td>
</tr>
<tr>
<td>4.6</td>
<td>Popup Option Script</td>
<td>46</td>
</tr>
<tr>
<td>4.7</td>
<td>Inspector for popup option</td>
<td>46</td>
</tr>
<tr>
<td>4.8</td>
<td>Choose Module Page</td>
<td>47</td>
</tr>
<tr>
<td>4.9</td>
<td>‘MARI BELAJAR’ Module Page</td>
<td>48</td>
</tr>
</tbody>
</table>
**LIST OF ABBREVIATIONS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDIE</td>
<td>Analyse, Design, Development, Implementation, Evaluation</td>
</tr>
<tr>
<td>FSKKP</td>
<td>Faculty of Computer System and Software Engineering</td>
</tr>
<tr>
<td>RAD</td>
<td>Rapid Application Development</td>
</tr>
<tr>
<td>RUP</td>
<td>Rational Unified Process</td>
</tr>
<tr>
<td>SDLC</td>
<td>System Development Life Cycle</td>
</tr>
<tr>
<td>UMP</td>
<td>University Malaysia Pahang</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

1.1 Background

Serious Game for Jawi Learning in Mobile Application is a system designed for preschool students to master Jawi Language in effective and interesting way. When it comes to education, technology has become an influential factor. For effective teaching and learning, advances in computer and mobile technology have allowed educators to develop new technology that can attract students’ interest. Computers and mobile are an ideal medium used to facilitate education, especially to children. Learning for children does not necessarily have to be based on text book. Digital game-based learning could be one of the best approach in learning process especially it involves serious game. Serious game is defined as a computer or a digital games that have the game approach which provide not only entertainment but also educate and train those who use it (Saavedra, Rodríguez, Arteaga, Salgado, & Ordoñez, 2014). Besides, serious games are also games whose primary objective is not fun or entertainment, rather learning or practicing a skill. Its use has grown, particularly in such sectors as education, defence, aeronautics, science or health. Its purpose can be one of many, from training firefighter crews in emergency situations to training a sales team, teaching mathematics or practicing a language. There are many advantages of learning through serious game. Some of them are, most of serious game offers easy and user friendly interface, it also may help students to master better literature skills and also helps student to improve their listening skill and their vocabulary (Kokkalia, Drigas, Economou, Roussos, & Choli, 2017).
1.2 Problem Statement

Firstly, the history of education in Malaysia shows that the Islamic Education has been taught either by using books or texts written in Jawi and still being practiced today. The drawback is students who are unable to master Jawi reading and writing skills will be left out in the Islamic subjects as Jawi is the medium of instruction of these subjects. Nik Yaacop emphasized that learning to write Jawi must be taught at early age (Games, 2013).

Secondly, although Jawi language is being taught in primary schools, they are using methods that are less attractive and effective for children’s interest. A study shows that methods of teaching Jawi are now done by face to face between teachers and student and teachers are still depending on learning activities using boards and cards. Hence, children become uninterested and quickly become bored.

Lastly, a study shows that the teachers still do not have sufficient software or computer teaching aids to teach Jawi writing and reading skills (Mat Amin et. al, 2011). Besides, studies on the use of technology among teachers indicate that only 8% of all teachers use the software in teaching Jawi (M. Yusoff, 2010). But based on the existing software, there are maybe some lack in some modules of the software based on the fun teaching and games that failed to attract students’ attention.

1.3 Objective

The aim of this system is to provide a tool that can ease the student use. The objectives are:

i. To design a mobile Jawi courseware using game-based learning.

ii. To develop an E-learning courseware for Jawi Language with serious game.

iii. To test the effectiveness of the system toward the students.
1.4 Scope

To achieve the objectives there are several scope which needed to be considered before proceed to the main project.

i. This system is develop for mobile application in android platform.

ii. The system is focusing on preschool student as the target user.

iii. This system is build using Unity software.

1.5 Report Organization

This report consists of 5 chapters. Chapter 1 will discuss about the introduction of the project. The further discussion will be about the problem statement, objectives of study and scope.

Chapter 2 will discuss about Literature Review of the project. This chapter will explain about the previous and recent system of Serious Game for Jawi Learning. There will be a comparison between the method and techniques based on previous and recent system as well. From previous chapter, the problems, objectives, and scope has been identified.

Chapter 3 will discuss about Methodology of the project. This chapter proposed the methodology of the project and there will be detail explanations about the method use and technique use as well. The method and technique used is based on finding during Literature Review.

Chapter 4 will discuss about Result and Discussion of project. This chapter is about discussion on the finding of the project that consist of the problem, objective, the technique used and expected result.
REFERENCES


