

FIRST AID AND HOME TREATMENT INTERACTIVE E-BOOK



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BORANG PENGESAHAN STATUS TESIS*

JUDUL: FIRST AID AND HOME TREATMENT INTERACTIVE E-BOOK

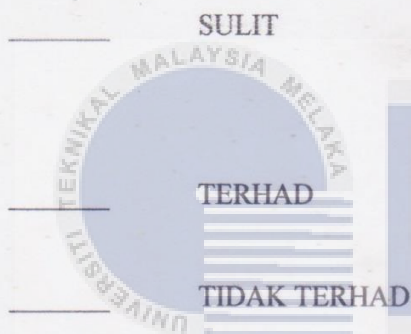
SESI PENGAJIAN: 2016/2017

Saya KHOO CHEE WEI

(HURUF BESAR)

mengaku membenarkan tesis (PSM/Sarjana/Doktor Falsafah) ini disimpan di Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dengan syarat-syarat kegunaan seperti berikut:

1. Tesis dan projek adalah hakmilik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. ** Sila tandakan (/)



(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)

(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)

اونيورسيتي تيكنيكل مليسيا ملاك

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Zi

(TANDATANGAN PENULIS)

Sarni Suhaila Binti Rahim

(TANDATANGAN PENYELIA)

Alamat tetap:
4, JALAN SILAT HARIMAU 22,
BANDAR SELESA JAYA,
81300 SKUDAI, JOHOR.

Nama Penyelia
DR. SARNI SUHAILA BINTI
RAHIM

Tarikh: 28/7/2017

Tarikh: 28/7/2017

CATATAN: * Tesis dimaksudkan sebagai Laporan Akhir Projek Sarjana Muda (PSM)
** Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

FIRST AID AND HOME TREATMENT INTERACTIVE E-BOOK

KHOO CHEE WEI



This report is submitted in partial fulfillment of the requirements for the Bachelor of
Computer Science (Interactive Media)

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2017

DEDICATION

Throughout my life there is someone who has always been there during those difficult and trying times. I would like to dedicate this project and everything I do to God Almighty my creator. He has been the source of my strength throughout this project. I also like to dedicate to my parents who love me and have supported me every step of the way. Last but not least, I want to dedicate to my supervisor Dr. Sarni Suhaila Binti Rahim who guide and assist me to do this project through this semester.



ACKNOWLEDGEMENTS

Firstly, I want to thank God who has provided all that is needed to help me complete my project. I also want to thank my parents for bringing me into the world and always supporting me. I also would like to express my heartfelt gratitude to my supervisor Dr. Sarni Suhaila Binti Rahim for her kindly supervision and teachings which guided me throughout this semester with all her patience. Special thanks to the lecturers Mr. Shahril Parumo, Dr. Zulisman Maksom, Dr. Siti Nurul Mahfuzah, Mr. Muhammad Helmy, Mr. Wan Sazli Nasaruddin and the medical team Dr. Shahaneen binti Johar, Dr. Suriya binti Abu Kassim and other medical assistances who were willing to spend their time and give full cooperation to become my respondents for testing. Lastly, I would like to thank all my 3BITM classmates for their help and advice for my project.



ABSTRACT

“First Aid and Home Treatment Interactive E-book” is an interactive e-book that can be viewed by the public who are frequently carry out their activities at home area. It consists of four modules of common accidents that will occur at home area, which are ankle sprain, hot water burn, animal bites and infant choking. Due to some people who lack of first aid knowledge and the conventional approach in giving first aid information such as books, flyers and videos, this interactive e-book helps the reader to learn some basic knowledge on first aid to treat the most frequent basic medical problems. The methodology of this project consists of five phases which are analysis, design, implementation, testing and deployment. Hence, the expectation of this project is the reader able to learn and apply the treatment to the real situation after reading this interactive e-book.

ABSTRAK

“First Aid and Home Treatment Interactive E-book” adalah e-book interaktif yang dibaca oleh orang ramai yang sering menjalankan aktiviti-aktiviti mereka di rumah. Ia terdiri daripada empat modul kemalangan biasa yang berlaku di kawasan rumah kediaman seperti pergelangan kaki terseluh, tersiram air panas, gigitan haiwan dan bayi tercekik. Oleh kerana kekurangan pengetahuan pertolongan cemas dan pendekatan konvensional dalam memberi maklumat pertolongan cemas seperti buku, risalah dan video, e-book interaktif ini dapat membantu pembaca untuk meningkatkan ilmu pengetahuan asas mengenai pertolongan cemas untuk merawat kemalangan asas yang paling kerap. Metodologi projek ini mempunyai lima fasa iaitu analisis, reka bentuk, pelaksanaan, testing dan penyebaran. Oleh itu, jangkaan projek ini adalah pembaca dapat belajar dan melakukan rawatan untuk keadaan sebenar selepas membaca e-book interaktif ini.

اونيورسيتي تيكنيكل مليسيا ملاك

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

TABLE OF CONTENT

CHAPTER	SUBJECT	PAGE
	DECLARATION	i
	DEDICATION	ii
	ACKNOWLEDGEMENTS	iii
	ABSTRACT	iv
	ABSTRAK	v
	TABLE OF CONTENT	vi
	LIST OF TABLES	x
	LIST OF FIGURES	xi
	LIST OF ABBREVIATIONS	xiii
CHAPTER I	INTRODUCTION	
	1.1 Introduction	1
	1.2 Problem Statement	2
	1.3 Objective	3
	1.4 Scope	3
	1.5 Project Significance	3
	1.6 Conclusion	4
CHAPTER II	LITERATURE REVIEW AND PROJECT METHODOLOGY	
	2.1 Introduction	5
	2.2 Domain	5
	2.3 Existing System	7

2.3.1	Comparison of Existing System	10
2.4	Project Methodology	12
2.4.1	Phases	13
2.4.2	Flowchart	14
2.4.3	Detailed Course Content	16
2.4.4	Test Questions	17
2.5	Project Requirements	17
2.5.1	Software Requirement	17
2.5.2	Hardware Requirement	18
2.6	Conclusion	18
CHAPTER III ANALYSIS		
3.1	Current Scenario Analysis	19
3.1.1	Case Study	19
3.2	Requirement Analysis	19
3.2.1	Information Requirement/Data Collection	20
3.2.2	Software Requirement	21
3.2.3	Hardware Requirement	22
3.4	Project Schedule and Milestones	23
3.5	Conclusion	24
CHAPTER IV DESIGN		
4.1	Introduction	25
4.2	System Architecture	25
4.3	Preliminary Design	27
4.3.1	Storyboard Design	27
4.3.2	Character Profile	29
4.5	Conclusion	35
CHAPTER V IMPLEMENTATION		
5.1	Introduction	36
5.2	Media Creation	36
5.2.1	Production of Text	37

5.2.2	Production of Graphic	37
5.2.3	Production of Audio	38
5.2.4	Production of Video	38
5.2.5	Production of Animation	39
5.3	Media Integration	39
5.4	Product Configuration Management	40
5.4.1	Configuration Environment Setup	40
5.5	Implementation Status	41
5.6	Conclusion	42
CHAPTER VI TESTING		
6.1	Introduction	43
6.2	Test Plan	43
6.2.1	Test User	44
6.2.2	Test Environment	46
6.2.3	Test Schedule	46
6.3	Test Strategy	48
6.4	Test Implementation	49
6.4.1	Test Description	49
6.4.2	Test Data	54
6.5	Test Results and Analysis	54
6.5.1	Test Results for Medical Team at UTeM Health Centre	55
6.5.2	Test Results for Multimedia Expert at Faculty of Information and Communication Technology, UTeM	61
6.5.3	Test Results for Public	67
6.6	Conclusion	72
CHAPTER VII CONCLUSION		
7.1	Observation on Weaknesses and Strengths	73
7.1.1	Project Limitation	73

7.1.1.1	Project Limitation Commented by Medical Team	74
7.1.1.2	Project Limitation Commented by Multimedia Expert	74
7.1.1.3	Project Limitation Commented by Public	75
7.1.2	Project Strengths	75
7.1.2.1	Project Strengths Commented by Medical Team	76
7.1.2.2	Project Strengths Commented by Multimedia Expert	76
7.1.2.3	Project Strengths Commented by Public	76
7.2	Propositions for Improvement	77
7.3	Project Contribution	78
7.4	Conclusion	78
REFERENCES		79
APPENDICES		

LIST OF TABLES

TABLE	TITLE	PAGE
2.1	Table of Comparison between Existing Systems	10
3.1	Content Verification by Medical Team	20
3.2	Gantt Chart of Project Activities	23
3.3	Milestones and Dates	23
4.1	Models of Ankle Sprain	29
4.2	Models of Hot Water Burn	31
4.3	Models of Animal Bites	33
4.4	Models of Infant Choking	34
5.1	Production of Text	37
5.2	Configuration Setup	41
5.3	Implementation Schedule	42
6.1	Testing Schedule Medical Team	46
6.2	Test Schedule for Multimedia Experts	47
6.3	Test Schedule for Public	48
6.4	Scale of Testing for Medical Team	48
6.5	Scale of Testing for Multimedia Experts	49
6.6	Scale of Testing for Public	49
6.7	Questions for the Content and Other Features of the Interactive E-Book	50
6.8	Questions for the Functionality Testing, Usability Testing and User Interface Testing of the Interactive E-Book	51

LIST OF FIGURES

DIAGRAM	TITLE	PAGE
2.1	First Aid Manual	8
2.2	First Aid – Animation	8
2.3	First Aid and Management of Minor Injuries	9
2.4	Project Methodology	12
2.5	Flowchart of the “First Aid and Home Treatment Interactive E-Book”	15
3.1	Interview with Medical Team	21
4.1	Flow Chart of Interactive E-book	26
4.2	Storyboard of the Interactive E-book	27
4.3	Storyboard of the Interactive E-book	28
5.1	Video Production in Adobe Premiere Pro CS6	38
5.2	Animation Production in Adobe Flash CS6	39
5.3	Process of Media Integration	40
6.1	Testing with Medical Team at UTeM Health Centre	45
6.2	Additional Question for the Interactive E-Book	51
6.3	Questionnaire Questions for the Public	53
6.4	Pie Chart for the Position of the Medical Team	55
6.5	Bar Chart for the Years of Working of the Medical Team	56
6.6	Result of the Contents from Questionnaire	57
6.7	Result of the Other Features from Questionnaire	59

DIAGRAM	TITLE	PAGE
6.8	Result of the Functionality Testing from Questionnaire	61
6.9	Result of the Usability Testing from Questionnaire	63
6.10	Result of the User Interface Testing from Questionnaire	65
6.11	Age of the Public Respondents	67
6.12	Gender of the Public Respondents	68
6.13	Test Result for Public Question 1 to 5	69
6.14	Test Result for Public Question 6 to 10	70



اونيورسيتي تيكنيكل مليسيا ملاك

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF ABBREVIATONS

PDF	-	Portable Document Format
FLV	-	Flash Video
DSLR	-	Digital single-lens reflex camera
SDLC	-	Software Development Life Cycle



CHAPTER I

INTRODUCTION

1.1 Introduction

First aid is to help a sudden sick or injured people by giving them an instant or temporary treatment to promote the recovery and prevent the condition from becoming worse. According to American Safety and Health Institute (2011), injuries and illnesses kill more than 2.2 million people in the world each year at work. This is the same as at home when people do not know how to take the right action for the injury. Thus, the knowledge of the basic medical assistance on first aid is important for everyone to learn and to prevent further injuries or illnesses.

This project is to create a “First Aid and Home Treatment Interactive E-book”, in an interactive PDF which suitable for the public. “First Aid and Home Treatment Interactive E-book” is an e-book that consists of the basic first aid to get the immediate treatment for injury. The interactive e-book will be full of interactive elements and is easy to learn. It is better to view the file in Adobe Acrobat or Adobe Reader with at least Acrobat 9 or Reader 9 or later.

There are two problem statements to be discussed in this project, which are lack of first aid knowledge and the conventional approach in giving first aid information such as books, flyers and videos. In this project, a “First Aid and Home

Treatment Interactive E-book” will be created for the public who are frequently carry out their activities at home area with three main objectives, which are to educate public on first aid treatment using e-book approach, to develop an interaction book that give understanding to the readers about the first aid and home treatment and to integrate the basic medical assistance on first aid in treating the most frequent basic medical problems.

The process of building an e-book is by implementing five phases which are analysis, design, development, implementation and evaluation. The main software used to create this interactive e-book project is Adobe InDesign. Some basic first aid and apply to the real situation through the first aid and home treatment interactive e-book. The final expected product is an interactive e-book that will be used by the public who want to learn some basic first aid and apply to the real situation through the first aid and home treatment interactive e-book.

1.2 Problem Statement

Lack of first aid knowledge is one of the main problems for this project. According to the research by Harvey, L.A and colleagues (2011), a minority of people living in New South Wales know the optimal time for cooling a burn injury and other appropriate first aid steps for burns. It shows that most of the people still do not know how to treat the burn injury. In the other country, Khatatbeh. M (2016) had done her research and concluded that the first aid knowledge among students at Yarmouk University was considered to be insufficient as only 11 percent of the participants knew the correct respiratory rate. The second problem of this project is the conventional approach in giving first aid information such as books, flyers and videos. Using interactive e-book is more fun and interesting to learn something. According to Ahmed Ebied, M and Ahmed Abdul Rahman, S (2015), using multimedia within the e-book, provides easy access, organisation, easy to return to titles and texts in the e-book, besides the capability to load the book on tablets and mobile phones, which makes it much easier to use at anytime and anywhere.

1.3 Objective

Objectives are set of goals that are achievable and measurable at the end of the project. The objectives of this project are:

- i. To identify the common injuries and the first aid knowledge for the treatment of the injuries.
- ii. To integrate the basic first aid knowledge and to develop an interactive book that give understanding to the readers about the first aid and home treatment.
- iii. To evaluate the acceptance of the interactive book for first aid and home treatment with the medical practitioners and other target users.

1.4 Scope

There are four modules in this project which are ankle sprain, hot water burn, animal bites and infant choking which have been proved by the medical doctor at UTeM Health Centre that these four modules are the common accidents occur at home area. Refer to Appendix A for the verification of this justification. The e-book will be exported in interactive PDF. It is better to view the product in Adobe Acrobat or Adobe Reader with at least Acrobat 9 or Reader 9 or later. The target reader will be the public who are frequently carry out their activity at home.

1.5 Project Significance

The public who read the e-book can increase the basic knowledge on first aid and home treatment in treating the most frequent basic medical problems. If the project is developed successfully, it can help the one who read the e-book to get the immediate treatment for the ankle sprain, hot water burn, animal bites and infant choking to prevent the condition from worsening.

1.6 Conclusion

The final expected product is an interactive e-book that will be used by the public who want to learn some basic medical assistance and apply to the real situation through the first aid and home treatment interactive e-book at their home. In Chapter 1, the introduction, problem statement, objective, scope and project significance had been discussed. The literature review and project methodology will be discussed in the next chapter.



CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

A literature review refers to the collection published information on a particular topic or subject area. “Literature” can be described as the research or the source of information. The techniques that will be used in the literature review are summary, synthesis, analysis and evaluation.

2.2 Domain

An e-book can be defined as electronic book which is a digital form of book that require a reader or device. According to Norshuhada Shiratuddin and her partners (2006), the paper books had been converted into a digital format through digitising processes to form an e-book and allow them to be displayed on computers. In the report of Leaf. G (2003), the definition of the e-book is an online version of printed books that accessed via the internet.

E-book consists of hardware and software as its basic components. The hardware is the reader. In Tosun. N (2014) research, he had stated that e-books can be displayed on many reading devices and tools such as Kindle, Iriver eBook Reader,

eInk as well as desktops, mobile phone, iPads or tablets. In the research of Brajković. M (2014), the electronic book consists of various types of media such as text, images, video, audio, and animations and those contents are called software components in the e-book.

An e-book can be interactivity by having the interaction between user and the e-book are called interactive e-book. A recent report by Woodward, H. (2014) the multimedia and interactivity of an interactive e-book is a further area for delivery of content and innovative design. This is a way for the users to improve their experience of engaging with texts by access to interactive images or any functionality that make interactive between the user and the e-book.

E-book has its pros and cons. One of the advantages of using e-book is it is easily readable. It is an ideal format for those who have trouble seeing by zoom in on the specific sections or alter the size of the font (Tosun, 2014). E-book can has interactivity which enable users to interact with the storyline in touch, sight and sound to enhance their reading and learning experience. E-book is also environmentally friendly compare to the paper books. It helps to reduce the paper consumption.

On the other hand, e-book has bring some disadvantages also. E-book can cause eyestrain. Human eyes will feel tired when looking on the display screen for a long time because the resolution of the display screen is less than the printed books. Another disadvantage is e-book needs power supply. Without power supply or the batteries die, the user will unable to read the e-book. Some of the formats of the e-book are incompatible with the reader. Some of the format can only be read by specific reader like ePub format which can be viewed by Apple.

Furthermore, this project will focus on the first aid and home treatment. The dangerous situations or medical emergencies can happen all the time even at home. If people know how to deal with the situation before an assistance like ambulance arrives,

it can make any home a safer place as people can act quickly when any accident occurs at home. It means that the first aid skills can be applied at home.

First aid knowledge aims to save people's life. The advantage of having the first aid knowledge is to minimise the effects of illnesses or accidents and give the instant treatment to the injury.

2.3 Existing System

There are three existing systems found to compare in this project, which are a book named "First Aid Manual", a first aid video named "First Aid - Animation" and an e-book with titled "First Aid and Management of Minor Injuries".

"First Aid Manual" is a revised 9th edition printed book that endorsed by St Andrew's First Aid, St John Ambulance, and the British Red Cross. It is published in 2010. It includes step-by-step first aid advice and used as the official training manual for UK's leading first aid organisations' courses. Figure 1 shows the example of how the "First Aid Manual" looks like.

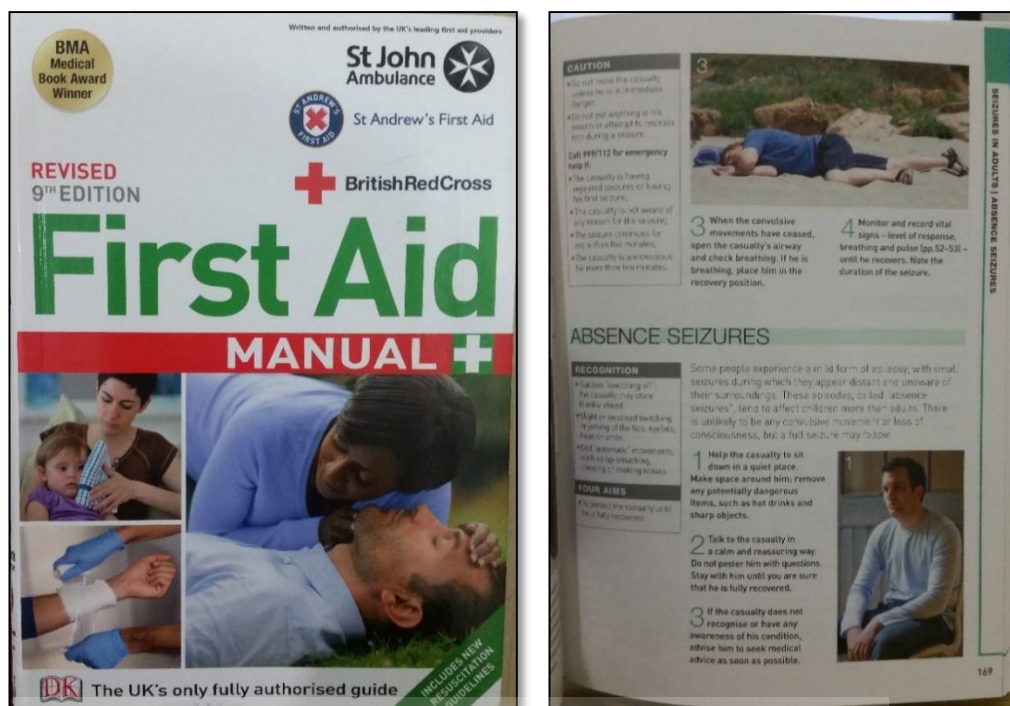


Figure 2.1: First Aid Manual (St John Ambulance, S. A. S., & Ambulance Association. British Red Cross, 2010)

“First Aid - Animation” is a 2D animation video that posted on the YouTube. It is a short animation video that explaining the basics of first aid and the immediate treatment that can be taken. The video length is 5 minutes and 4 seconds.



Figure 2.2: First Aid – Animation (xKlaw, 2013)