

**IBOOK FOR DIGITAL AUDIO AND VIDEO**



**UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

## BORANG PENGESAHAN STATUS TESIS\*

JUDUL: IBOOK FOR DIGITAL AUDIO AND VIDEO

SESI PENGAJIAN: 2015/2016

SAYA TA ZHI YANG

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 Kolej Universiti Teknikal Kebangsaan Malaysia.
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 (/)

<input type="checkbox"/>	SULIT	(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)
<input type="checkbox"/>	TERHAD	(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)
<input type="checkbox"/>	TIDAK TERHAD	

اوتيو سي تي تیکنیکل ملایسیا ملاک  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA  
(TANDATANGAN PENULIS) (TANDATANGAN PENYELIA)

Alamat tetap: 21, LORONG SERI SETALI  
117, TAMAN SERI SETALI INTAN

Nama Penyelia: Prof. Dr.  
Faaizah Bt Shahbodin

Tarikh : 23-8-2016

Tarikh : 23-8-2016

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

# **IBOOK FOR DIGITAL AUDIO AND VIDEO**

Ta Zhi Yang



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

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

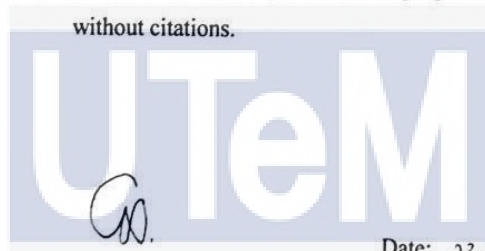
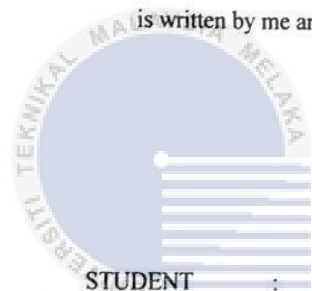
FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA  
2016

## DECLARATION

I hereby declare that this project report entitled

### IBOOK FOR DIGITAL AUDIO AND VIDEO

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



STUDENT :

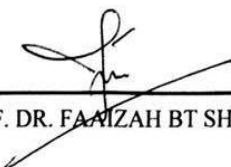
(TA ZHI YANG)

Date: 23-8-2016

اونيورسيتي بيكنيكل مليسيا ملاك  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

I hereby declare that I have read this project report and found  
this project report is sufficient in term of the scope and quality for the award of  
Bachelor of Computer Science (Interactive Media) With Honours.

SUPERVISOR :

  
(PROF. DR. FAIZAH BT SHAHBODIN)

Date: 23-8-2016

## DEDICATION

This final project is dedicated to my beloved family members thanks for always support me. Furthermore, I would like to special thanks to my supervisor, Prof. Dr. Faaizah Binti Shahbodin giving guide and advices to me to develop this project.



## ACKNOWLEDGEMENT

I really feel happy and grateful because I manage to complete my final year project within the time given. Firstly, I would like to thanks Prof. Dr. Faaizah Bt Shahbodin for giving me suggestion and guidance to complete my project. Furthermore, I need to thanks to my friends around me that also involve in helping me in this project. Last but not least, I would like to thanks my family members for giving me a support to complete this project also.



## ABSTRACT

In this era of globalization, technology has become a part of our life. With the help of high technology and gadgets, it improves our lifestyle. Technology had bring us new handheld device which allow user to study or to interact with the content in a digital way. User may not easily understand the content if they follow the traditional way which is like slides show or in printed material. Developing this interactive book for Digital Audio and Video able to let the user to interact with the content and provide a different learning experience for the user. User can easily understand when they really interact with the content which give a better understanding to them. Graphics and animation allow the user to understand the content better. Some animation also come with voice over which allow user to listen instead of just read the text. Objective of this project is to study the element of the interactive book. Secondly, develop this interactive book for Digital Audio and Video by using Adobe InDesign software. Lastly, is to test the usability of this interactive book. This project methodology for this project is using ADDIE model which consist of Analysis, Design, Development, Implementation and Evaluation. There are total of 30 respondent involve in this testing phase. 30 of them are students from Bachelor of Computer Science (Interactive Media) involved in this testing. As overall, 17 out of 30 respondent agree that this interactive book is easy to use.

## ABSTRAK

Dalam era globalisasi ini, teknologi telah menjadi sebahagian daripada kehidupan kita. Dengan bantuan teknologi canggih dan alat, ia meningkatkan gaya hidup kita. Teknologi yang canggih membawa peranti yang membolehkan pengguna untuk belajar atau untuk berinteraksi dengan kandungan dalam cara yang digital. Pengguna mungkin tidak senang nak memahami kandungan jika mereka mengikuti cara tradisional yang seperti slaid menunjukkan atau bahan bercetak. Membangunkan interaktif book ini untuk subjek Audio Digital dan Video dapat memberi peluang pengguna untuk berinteraksi dengan kandungan dan menyediakan pengalaman pembelajaran yang berbeza untuk pengguna. Pengguna boleh cepat memahami apabila mereka benar-benar berinteraksi dengan kandungan yang memberi pemahaman yang lebih baik kepada mereka. Grafik dan animasi membolehkan pengguna untuk memahami kandungan yang lebih baik dan lagi senang difahami. Sesetengah animasi juga datang dengan suara melalui mana ia membenarkan pengguna untuk mendengar bukan hanya membaca teks sahaja. Objektif projek ini adalah untuk mengkaji unsur buku interaktif. Selain itu, membangunkan book ini interaktif untuk Audio dan Video Digital dengan menggunakan perisian Adobe InDesign. Akhir sekali, adalah untuk menguji kebolegunaan buku interaktif ini. Metodologi projek untuk projek ini menggunakan model ADDIE yang terdiri daripada Analysis, Design, Development, Pelaksanaan dan Penilaian. Terdapat sejumlah 30 responden terlibat dalam fasa ujian ini. 30 daripada mereka adalah terdiri daripada pelajar Sarjana Muda Sains Komputer (Media Interaktif) yang terlibat dalam ujian ini. Secara keseluruhannya, 17 daripada 30 responden bersetuju bahawa buku interaktif ini adalah mudah untuk digunakan.



## TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE
	<b>DECLARATION</b>	<b>ii</b>
	<b>DEDICATION</b>	<b>iii</b>
	<b>ACKNOWLEDGEMENTS</b>	<b>iv</b>
	<b>ABSTRACT</b>	<b>v</b>
	<b>ABSTRAK</b>	<b>vi</b>
	<b>TABLE OF CONTENTS</b>	<b>vii</b>
	<b>LIST OF TABLES</b>	<b>xi</b>
	<b>LIST OF FIGURES</b>	<b>xiii</b>
	<b>LIST OF APPENDICES</b>	<b>xv</b>
<b>CHAPTER I</b>	<b>INTRODUCTION</b>	
	1.1 Project Background	1
	1.2 Problem Statements	2
	1.3 Objective	2
	1.4 Scope	2
	1.5 Project Significance	3
	1.6 Define Project	3
	1.7 Expect Output	4
	1.8 Conclusion	4

<b>CHAPTER II</b>	<b>LITERATURE REVIEW PROJECT</b>	
	<b>METHODOLOGY</b>	
2.1	Introduction	5
2.2	Facts and Findings	6
2.2.1	Domain	6
2.2.2	Case Study	7
2.2.3	Comparison iBook with existing system	8
2.3	Project Methodology	10
2.4	Project Requirement	12
2.4.1	Software Requirement	12
2.4.2	Hardware Requirement	13
2.5	Conclusion	14
<b>CHAPTER III</b>	<b>ANALYSIS</b>	
3.1	Introduction	15
3.2	Current Scenario Analysis	15
3.3	Requirement Analysis	16
3.3.1	Project Requirement	16
3.3.2	Software Requirement	17
3.3.3	Hardware Requirement	18
3.4	Project Schedule and Milestone	19
3.5	Conclusion	21
<b>CHAPTER IV</b>	<b>DESIGN</b>	
4.1	Introduction	22
4.2	System Architecture	23
4.3	Preliminary Design	25
4.3.1	Storyboard Design	25
4.4	User Interface Design	29
4.4.1	Navigation Design	29
4.4.2	Input Design	29
4.4.3	Output Design	30

4.4.4	Template Design	31
4.4.5	Uploading Files	31
4.5	Conclusion	32
<b>CHAPTER V IMPLEMENTATION</b>		
5.1	Introduction	33
5.2	Media Creation	34
5.2.1	Production of Texts	34
5.2.2	Production of Graphics	36
5.2.3	Production of Sound	37
5.2.4	Production of Video	37
5.2.5	Production of Animation	38
5.3	Media Integration	41
5.4	Product Configuration Management	42
5.4.1	Configuration Environment Setup	42
5.4.2	Version Control Procedure	43
5.5	Implementation Status	43
5.6	Conclusion	46
<b>CHAPTER VI TESTING AND ANALYSIS</b>		
6.1	Introduction	47
6.2	Test Plan	48
6.2.1	Test User	48
6.2.2	Test Environment	48
6.2.3	Test Schedule	49
6.3	Test Strategy	50
6.4	Test Implementation	50
6.4.1	Test Description	50
6.4.2	Test Data	51
6.5	Test Results and Analysis	51
6.6	Analysis Testing	56
6.7	Conclusion	61

<b>CHAPTER VII CONCLUSION</b>	
7.1 Observation on Weaknesses and Strengths	62
7.2 Propositions for Improvement	63
7.3 Project Contribution	63
7.4 Conclusion	64
<b>REFERENCES</b>	65
<b>APPENDIX A – GANTT CHART</b>	66
<b>APPENDIX B - QUESTIONNAIRE</b>	71
<b>APPENDIX C- LOG BOOK</b>	76



## LIST OF TABLES

TABLE	TITLE	PAGE
2.1	Comparison of the existing system and iBook for Digital Audio and Video	8
2.2	List of Software and Function	12
2.3	List of Hardware and Description	13
3.1	Software Requirement	17
3.2	Hardware Requirement	18
3.3	Schedule and Milestone	19
4.1	Types of Navigation	29
4.2	Input Design and Function	30
4.3	Output Design and Function	30
5.1	Text used in this project	35
5.2	Configuration Environment	42
5.3	Different Version of Application	43
5.4	Animation Development	44
5.5	Video Development	44
5.6	Graphics and Interface Design	44
5.7	Audio Editing	45
5.8	iBook Development	45
6.1	Test User	48
6.2	Hardware requirement	59

6.3	Software requirement	49
6.4	Test Schedule	49
6.5	Test Case and Expected Score result	51
6.6	User Level Satisfaction	51
6.7	Functionality Test Result	52
6.8	Average Score for Easy To Use Test Case	54
6.9	Average Score for Arrangement of Content Test Case	54
6.10	Average Score for Arrangement of Content test case	54
6.11	Average score for Typography (legibility and readability) Test Case	55
6.12	Average score for Navigation Test Case	55



اونيورسيتي تيكنيكل مليسيا ملاك

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

## LIST OF FIGURES

FIGURE	TITLE	PAGE
2.1	ADDIE Model	10
4.1	The Overall Flow of the System Architecture	23
4.2	Flow Chart	24
4.3	Table of Content	25
4.4	Introduction of Sound	26
4.5	Animation with Voiceover	26
4.6	Interaction (click the circle the content will pop out)	27
4.7	Gallery (Click to pop out picture)	27
4.8	Video with play stop button	28
4.9	Template Design	31
5.1	Background Design For Chapter 5	36
5.2	Background Design for Chapter 4	36
5.3	Audio Editing (Audacity)	37
5.4	Video Editing in Adobe Premiere Pro	38
5.5	Animation for Element of Sounds	38
5.6	Animation for Tuning Fork	39
5.7	Animation for Digital Recording Process	39
5.8	Animation for Sonar System	40
5.9	Media Integration	41
6.1	Easy to Use Analysis Testing Graph Bar	56
6.2	Arrangement of Content Analysis Testing Graph Bar	57
6.3	Color Matching Analysis Testing Pie Chart	58

6.4	Typography Analysis Testing Pie Chart	59
6.5	Navigation Analysis Testing Pie Chart	60





**LIST OF APPENDICES**

<b>APPENDIX</b>	<b>TITLE</b>	<b>PAGE</b>
A	Gantt Chart	69
B	Questionnaire	71
C	Log Book	76



## CHAPTER I

### INTRODUCTION

#### 1.1 Project Background

iBook learning allow students to use their computer and handheld device to read the content in the form of electronic printed books. iBook is an e-book application in an interactive way which will have interactivity with users. The technological development becoming more advance, this iBook learning brings a new dimension to technology that able to enhance education by giving students a new way of learning in the class or outside the class.

Digital Audio and Video (DAV) is a subject that all the students in Bachelor of Computer Science (BITM) have to take in their course. Digital Audio and video basically teach students about the concept of sounds and videos. In some chapters, it also show a proper way to produce sounds and videos. Furthermore, we can also get involve in many equipment for video shooting and sounds recording. We can also learn how to enhance a video and sound outputs. To produce a good quality video, we need to procedures which will learn in this subject too. In other way, Digital Audio and Video is a basic subject for producing video and audio.

This project is to develop an iBook for subject Digital Audio and Video. The title of this project is iBook for Digital Audio and Video. The target user is the students taking this subject. The main purpose of this iBook is provide a new way of learning

this subject which in a more exciting and interesting way for students using this iBook. This iBook provide multiple of multimedia elements like graphic, sounds, and audio which will speed up learning process. Other than that, this iBook not only able to use during lecture's session but also outside the lecture class, students might able to use this for their revision during exams or tutorials.

## 1.2 Problem statement

1. Students may not fully understand what lecturers had taught in the class by just showing the slides in front of the class.
2. Lectures slides for this subject in power point sometimes is boring and not interesting to grab student's attention.
3. Conventional way learning is not interactive and students east to lost focus during lecturer's session.

## 1.3 Objective

This iBook for Digital Audio and Video is develop to fulfill the objectives, which are:

1. To study the element of interactive eBook.
2. To develop iBook about Digital Audio and Video using InDesign tools.
3. To test the usability of Digital Audio and Video in interactive eBook.

## 1.4 Scope

- This interactive eBook is an interactive learning digital printed books. It required computed or handheld device in order to let this iBook to work.
- The target user of this project are students that are taking this subject.
- There are multimedia elements in this project which can interact with the users.

## 1.5 Project Significance

Developing this iBook for Digital Audio and Video is to help them in their studies. This iBook contains a lot of multimedia elements that able to interact with user while they using this iBook. This can act as a support mechanism for learning Digital Audio and Video, not just only interesting but also bring interactivity. Instead of reading slides in power point, students can use this as a new way learning.

Furthermore, this iBook can be used to motivate students and help them enjoy learning while playing. Students can get a clearer message from the iBook, a more direct and much simpler description to let the users to understand it. There are also examples and some pop quizzes after done a chapter. Of course, it makes learning Digital Audio and Video much more attractive, interesting and students do not get bored.

Last but not least, this iBook make Digital Audio and Video learning become more fun, meaningful, and useful. The best thing is to allow to students to learn from this iBook that is more interesting compare to lecture's slides. While students using this iBook, they will get important messages from the iBook. This is easy and comfortable way of learning Digital Audio and Video.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

## 1.6 Define Project

- Interactive iBook are new digital publication standard that allow integration of graphics, video.
- Adobe InDesign - Adobe InDesign is a desktop publishing software application produced by Adobe Systems. It can create works such as poster, flyers, magazines, newspaper, and books. It can also publish content suitable for tablet devices in conjunction with Adobe Digital Publishing suite. It also supports to export to EPUB and SWF formats to create e-books and digital publications.

## 1.7 Expected Output

- An iBook for Digital Audio and Video will be developed.
- Clear information of each chapter will be show.
- Multimedia elements like graphic, audio, text and video will be found in the iBook.
- User are able to answer some pop quizzes after every chapter.

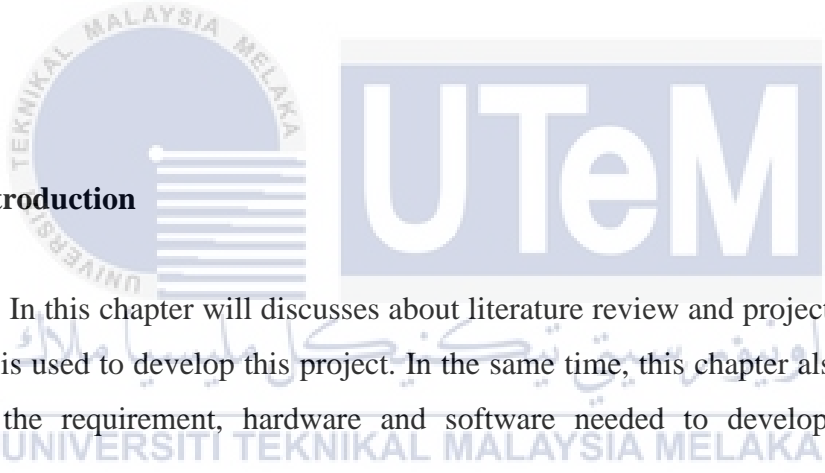
## 1.8 Conclusion

As the conclusion, this chapter discusses about the background, problem statement, objective, scope, project significant and expected output of the project. The main reason why this game is developed because lecturers are still using the power point during the lecture's session and there is still no Digital Audio and Video as an iBook for now. This iBook for Digital Audio and Video can considered as an alternative way of learning for students who taking this subject.

## CHAPTER II

### LITERATURE REVIEW AND PROJECT METHODOLOGY

#### 2.1 Introduction



In this chapter will discusses about literature review and project methodology which is used to develop this project. In the same time, this chapter also will discuss about the requirement, hardware and software needed to develop this project.

Literature review is a stage where all the process like search, collect and analyze that has been published by researches. The information can collect through related sources like books, journal, internet web pages, and technical report. The domain of this project will be identified and discussed in this chapter. There are few existing system that will be choose and make a comparison between them. The types of method used to present to audience and user will be included in this chapter also.

Project methodology is a process that use all available techniques and tools to achieve the objectives. One of the project methodology will be selected to help developing this project and the reason will be of choosing this methodology also will be discuss.

Last but not least, the end of this chapter will discuss about the project milestones and schedule. All the task will be listed and progresses should be record down. All the deliverables also need to be list in each development phase.

## 2.2 Facts and Findings

There are 3 section discusses in the facts and findings section. Theses section are domain, case study and comparison iBook with existing system.

### 2.2.1 Domain

The domain of this project is to develop an interactive eBook for subject Digital Audio and Video to the audience because this interactive eBook allow them to understand the content and have interactivity with the user which contain multimedia elements (graphic, video, image, sound). This is more effective and easier to understand compare to printed materials and eBook without interaction. It give a good and positive experience for user because they have ability to search for words in a short time. (Richardson and Mahmood, 2011)

Digital Audio and Video (DAV) is a subject that all the students in Bachelor of Computer Science (BITM) have to take in their course. Digital Audio and video basically teach students about the concept of sounds and videos. The main purpose of this iBook is provide a new way of learning this subject which in a more exciting and interesting way for students using this iBook. This iBook provide multiple of multimedia elements like graphic, sounds, and audio which will speed up learning process.

Technology provides a great opportunity to giving an upgrades for learning process for students. (Eric J. Daniel, 2013). Ebooks are electronic version of a traditional print book that can read by electronic devices and computer. Ebook is also a book that published in an electronic format that allow user to instant access to get

the information while interactive eBook is more advance than ebook. This is because the interactive eBook consist of multimedia elements like animation, videos, audios and interactivity with user. Compare to eBook which only plain text and images which don't provide any interactivity with user. So, interactive ebook give a new experiencing of learning and helps reader to understand the content. Reader may easier digest the information with the help of multimedia elements compare to the eBook without the interactivity which only in plain text and images.

Technology slowly merge to our life and bring a lot of benefit to reading achievement in students. (Eric J. Daniel, 2013). Digital reading provides an opportunity to allow them to choose their reading path. Technology not just only positively affected the readings comprehension but in the same time it produces a big motivation among students. Research has suggested that technology hold the potential to increase achievement and motivation. The circulation of tablets and eReaders has increased which directly influencing the spread of eBooks increasing too, both as entertaining and education tool. (Nadia Mana, Ornella Mich, Antonella De Angeli, Allison Druin, 2013)

Many of the college students prefer eReaders due to the probability of the device (Richardson & Mahmood, 2011; Weisberg, 2011; Chao, Hegarty, & Stefandis, 2012). Student does not need to plan to study the slides but they can study spontaneously. Student can use their handheld devices like iPad or portable tablets to study when they want.

### **2.2.2 Case study (printed materials, lecture slide power point form, websites)**

Many students will go to library or bookstore to find their book for their subjects. Books are also known as printed materials. Some students like to visit to library and borrow books that are related to their subject. They can gain more knowledge outside the lecture and tutorial class by reading extra contents from the book they borrow. In addition, some students willing to go to bookstore and purchase the books they want. With the book they bought, they can bring along with them and