MY PUPPY

NG TIONG LEE

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BORANG PENGESAHAN STATUS TESIS*

JUDUL	.: <u>MY</u>	PUPPY				
SESI P	ENGAJIAN: _	2009/2010				
Saya		NG TIONG				
	(HURUF BESAR)					
			di Perpustakaan Fakulti Teknologi yarat kegunaan seperti yang berikut:			
	Melaka.	• •	milik Universiti Teknikal Malaysia			
	-	akulti Teknologi Mal an untuk pengajian sa	klumat dan Komunikasi dibenarkan haja.			
	•	an laporan ini sebagai	klumat dan Komunikasi dibenarkan bahan pertukaran antara institusi			
	** Sila tandaka					
	<u> </u>	SULIT	(Mengandungi maklumat yang Berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)			
		TERHAD	(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)			
		TIDAK TERHAD				
(TAND	Lingler ATANGAN PI	ENULIS)	(TANDATANGANPENYELIA)			
<u>Taman</u>	tetap: <u>No 41, Ja</u> Chi Liung, 4120 or Darul Ehsan		<u>Dr. Faaizah bt. Shahbodin</u> Nama Penyelia			
Tarikh:	30/6/201	<u>o</u>	Tarikh: 30/6/ 2015			
CATAT	(PSM) ** Jika t).	Laporan Akhir Projek Sarjana Muda ERHAD, sila lampirkan surat daripada			

MY PUPPY

NG TIONG LEE

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

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2010

DECLARATION

I hereby declare that this project report entitled MY PUPPY

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

STUDENT

Nony "

te: 30/6/2010

SUPERVISOR

(NG TIONG LEE)
(DR. FAAIZAH BT SHAHBODIN)

Date: 3>/6/2010

DEDICATION

To my beloved parents, fine colleagues, friends, course mates, supervisor, and lecturers.

ACKNOWLEDGEMENTS

Firstly, I would like to thank my parents for their undying love and support that has motivated me to complete the project. I would also like to express my gratitude to my course mates and friends who have helped me either directly or indirectly in the completion of the project. Next, I would like to give credits to my supervisor, Dr. Faaizah bt Shahbodin who has guided me and corrected my wrongdoings throughout those few months of finalizing the project. Last but not least, I would like to thank those people whom I have not mentioned who have aided me in my project.

ABSTRACT

This 3D animation project revolves around the story of a boy who has just adopted a puppy. There is a moral value in this animation which is to instill the care and love of animals to the young generation. As such, the target audience for this animation is children of the age between 7 to 12 years old. The duration is about three minutes. It is hoped that this animation can contribute in creating awareness among the society to treat animals with love and care. Research and analysis of existing products that have dog as its main character have been conducted. The twelve principles of animation have been reviewed and some are utilized in the project. Different types of camera angles and shots have been studied to aid in the flow of animation. Also, storyboard in form of scene sequence diagram has been sketched in order to determine the order of sequences. The primary objective is to instill the moral value of love and care towards animals. Meanwhile, the main problem is the neglecting society towards animals and the contribution that this project hopes to achieve is the creation of awareness among society of the importance to show love and care to the animals.

ABSTRAK

Projek 3D animasi ini menceritakan kisah seorang kanak-kanak lelaki dengan seekor anak anjing. Nilai moral yang tersemat dalam animasi ini memupuk generasi muda agar menunjukkan kasih dan cinta terhadap binatang. Lantaran itu, sasaran penonton untuk animasi selama 3 minit ini adalah kanak-kanak yang berumur antara 7 hingga 12 tahun. Kajian dan analisa produk-produk yang mempunyai anjing sebagai karakter utama telah dibuat serta beberapa teknik daripada 12 prinsip animasi telah digunakan. Pelbagai jenis sudut kamera dan tangkapan telah dikaji serta jalan cerita dilukis untuk membantu dalam proses animasi. Objektif utama projek ini adalah untuk memupuk generasi muda agar menunjukkan kasih sayang terhadap binatang. Manakala, masalah utama yang didapati adalah masyarakat kini mengabaikan binatang dan diharapkan bahawa projek ini dapat membawa kesedaran kepada masyarakat supaya melayan binatang dengan kasih dan sayang.

TABLE OF CONTENTS

CHAPTER	SUB	BJECT	PAGE
	DEC	CLARATION	i
	DEE	DICATION	ii
	ACF	KNOWLEDGEMENT	iii
	ABS	TRACT	iv
	ABS	TRAK	v
	TAB	BLE OF CONTENTS	vi - xii
	LIST	Γ OF TABLES	xiii - xiv
	LIST	Γ OF FIGURES	xv – xvi
	LIST	Γ OF APPENDICES	xvii
CHAPTER I	INT	RODUCTION	
	1.1	Project Background	1
	1.2	Problem Statements	2
	1.3	Project Objective	3
	1.4	Project Scope	3
	1.5	Project Significance	4
	1.6	Conclusion	4

CHAPTER	SUB	PAGE			
CHAPTER II	LIRI PRO				
	2.1	Introduction			5
	2.2	Domai	in		5
		2.2.1	Definitio	ns of 3D	6
			Animatic	on	
		2.2.2	History o	f Animation in	8
			Malaysia		
		2.2.3	Principle	s of Animation	11
			2.2.3.1	Squash and	11
				Stretch	
			2.2.3.2	Timing	13
			2.2.3.3	Anticipation	13
			2.2.3.4	Staging	14
			2.2.3.5	Follow	15
				Through and	
				Overlapping	
				Action	
			2.2.3.6	Straight Ahead	16
				and Pose to	
				Pose	
				Animation	
			2.2.3.7	Slow-Out and	17
				Slow-In	
			2.2.3.8	Arcs	18
			2.2.3.9	Exaggeration	19
			2.2.3.10	Secondary	19
				Action	
			2.2.3.11	Appeal	20
			2.2.3.12	Solid Drawing	21

CHAPTER	SUBJECT				PAGE
	2.3	Existin	ng Product		22
		2.3.1	Compari	son of Existing	25
			Product		
	2.4	Projec	t Methodolo	ogy	28
		2.4.1	Concept	ualisation	28
		2.4.2	Develop	ment	28
		2.4.3	Preprodu	ection	29
			2.4.3.1	Analysis	29
			2.4.3.2	Design	29
			2.4.3.3	Content	30
				Management	
		2.4.4	Production	n	30
			2.4.4.1	Character	30
				Development	
			2.4.4.2	Animation	30
			2.4.4.3	Audio	31
				Development	
			2.4.4.4	Integration of	31
				Content and	
				Software	
		2.4.5	Postprodu	action	31
			2.4.5.1	Alpha Testing	31
			2.4.5.2	Beta Testing	32
		2.4.6	Documen	tation	32
	2.5	Project	t Requireme	ent	32
		2.5.1	Software	Requirement	32
		2.5.2	Hardware	Requirement	33
	2.6	Conclu	ısion		34

CHAPTER	SUB	PAGE			
CHAPTER III	ANA				
	3.1	Curren	t Scenario A	analysis	35
		3.1.1	Plot of 3I	O Animation	37
			"The Pup	py"	
	3.2	Requir	ement Analy	ysis	38
		3.2.1	Project R	equirement	38
			3.2.1.1	3D Animation	38
			3.2.1.2	Analysing	40
				Technique	
			3.2.1.2.1	Lip	40
			3.2.1.2.2	Camera	43
				Angles and	
				Shots	
		3.2.2	Software	Requirement	48
		3.2.3	Hardware	Requirement	50
		3.2.4	Other Rec	quirements	51
	3.3	Project	Schedule ar	nd Milestones	51
	3 4	Conclusion			53

CHAPTER	SUBJECT			PAGE	
CHAPTER IV	DESIGN				
	4.1	Introd		54	
	4.2	Scene	Sequence D	Diagram	55
		Plan			57
		Plot			59
	4.3	Prelim	Preliminary Design		60
		4.3.1	Storyboa	ard Design	60
			4.3.1.1	Character	64
				Profile	
				Animation	
				(Human	
				Character)	
			4.3.1.2	Character	69
				Profile	
				Animation	
				(Animal	
				Character)	
	4.4	Conclu	ısion		74
CHAPTER V	IMP	LEMEN'	TATION		
V ·	5.1	Project	ıd	75	
	5.2	_	Creation		75
		5.2.1		on of Text	75
		5.2.2		on of Graphic	77
		5.2.3		on of Audio	78
		5.2.4		on of Video	79
		5.2.5		on of Animation	80
	5.3		Integration		81
			-		

CHAPTER	SUB	PAGE			
	5.4	82			
		Manag	ement		
		5.4.1	82		
			Environ		
		5.4.2	Version	Control	83
			Procedu	re	
	5.5	Implen	nentation S	tatus	84
	5.6	Conclu	ision		85
CHAPTER VI	TES	TING AN			
	6.1	Introdu	86		
	6.2	Test Pl	an	86	
		6.2.1	Test Use	r	87
			6.2.1.1	Project	87
				Developer	
			6.2.1.2	Experienced	87
				In Autodesk	
				Maya	
			6.2.1.3	Knowledge-	88
				able Person In	
				Autodesk	
				Maya	
			6.2.1.4	Primary	88
				School	
				Children	
		6.2.2	Test Env	ironment	88
		6.2.3	Test Sch	edule	89

CHAPTER	SUE	PAGE				
		6.2.4	Test Stra	ıtegy	90	
			6.2.4.1	Alpha Testing	90	
			6.2.4.2	Beta Testing	90	
			6.2.4.3	Acceptance	91	
				Testing		
	6.3	Test In	nplementati	on	91	
		6.3.1	Test Des	cription	91	
		6.3.2	Test Res	ult and Analysis	95	
			6.3.2.1	Result and	95	
				Analysis for		
				Alpha Testing		
			6.3.2.2	Result and	97	
				Analysis for		
				Beta Testing		
		6.3.3	Analysis '	Γesting	99	
	6.4	Conclu	sion		102	
CHAPTER VII	PRO	JECT CO	ONCLUSI	ON		
	7.1	Observation on Weakness and			103	
		Strengt	Strengths			
		7.1.1	Weaknes	s	104	
		7.1.2	Strengths	3	105	
	7.2	Proportion for Improvement			106	
	7.3	Contrib	oution		106	
	7.4	Conclu	sion		107	
REFERENCES						
BIBLIOGRAPH	Y			·		

C Universiti Teknikal Malaysia Melaka

LIST OF TABLES

TABLE	TITLE	PAGE
2.1	History of Animation in Malaysia	8
2.2	Comparison of Existing Products and	26
	Current Product	
2.3	Comparison of Characters	27
2.4	Hardware Requirement	33
3.1	Lip Synchronisation	40
3.2	Camera Angles	43
3.3	Camera Shot	45
3.4	Software Requirements	48
3.5	Hardware Requirement	50
4.1	Scene Sequence Diagram	55
4.2	Camera Angles	56
4.3	Storyboard	60
5.1	Type of Font and Its Purpose	76
5.2	Software Configuration Environment	83
	Setup	
5.3	Version Control Process	84
5.4	Implementation Status	85
6.1	Test Schedule	89
6.2	Test Description for Project Developer	92
6.3	Test Description for Individuals Who Are	93
	Experienced and Knowledgeable in	
	Autodesk Maya	
6.4	Test Description for Target Users	94
6.5	Testing Results for Individuals Who Are	95
	Experienced In Autodesk Maya	

TABLE	TITLE	PAGE
6.6	Testing Results for Individuals Who Are	96
	Knowledgeable in Autodesk Maya	
6.7	Testing Results for Target Users	98

LIST OF FIGURE

DIAGRAM	TITLE	PAGE	
2.1		10	
2.1	Squash and Stretch (Ball Squashing)	12	
2.2	Squash and Stretch (Ball Stretching)	12	
2.3	Squash and Stretch (Character Stretching)	12	
2.4	Squash and Stretch (Character Squashing)	12	
2.5	Timing	13	
2.6	Anticipation	14	
2.7	Staging	15	
2.8	Follow Through	15	
2.9	Overlapping	16	
2.10	Straight and Pose to Pose	17	
2.11	Slow-in and slow-out	17	
2.12	Arcs	18	
2.13	Exaggeration	19	
2.14	Secondary Action	20	
2.15	Appeal	21	
2.16	Solid Drawing	21	
2.17	Bolt	22	
2.18	Dug	24	
3.1	Plot of My Puppy 3D Animation	37	
4.1	Scene 1	60	
4.2	Scene 2	60	
4.3	Scene 3	60	
4.4	Scene 4	61	
4.5	Scene 5	61	
4.6	Scene 6	61	
4.7	Scene 7	61	

DIAGRAM	TITLE	PAGE
4.7	Scene 7	61
4.8	Scene 8	62
4.9	Scene 9	62
4.10	Scene 10	62
4.11	Scene 11	62
4.12	Scene 12	63
4.13	Human Character	64
4.14	Human Character (Front View)	65
4.15	Human Character (Side View)	66
4.16	Human Character (Top View)	67
4.17	Human Character (Perspective View)	68
4.18	Animal Character	69
4.19	Animal Character (Front View)	70
4.20	Animal Character (Side View)	71
4.21	Animal Character (Top View)	72
4.22	Animal Character (Perspective View)	73
5.1	Production of Graphic	77
5.2	Production of Audio	78
5.3	Production of Video (Adobe Premiere)	79
5.4	Production of Video (Adobe After Effects)	80
5.5	Production of Animation (before)	81
5.6	Production of Animation (after)	81
6.1	Alpha Testing Analysis for Individual Who	99
	Is Experienced In Autodesk Maya	
6.2	Alpha Testing Analysis for Individuals	100
	Who Are Knowledgeable In Autodesk	
	Maya	
6.3	Beta Testing Analysis for Target Users	101

LIST OF APPENDICES

APPENDIX TITLE

A	MILESTONES PSM
В	GANTT CHART
C	ALPHA TESTING (INDIVIDUAL WHO IS EXPERIENCED IN
	AUTODESK MAYA)
D	ALPHA TESTING - STUDENTS OF BACHELOR OF INFORMATION
	AND COMMUNICATION (MEDIA INTERACTIVE)
Е	BETA TESTING (TARGET USERS)
F	RESULT OF QUESTIONNAIRE ON ALPHA TESTING
	(INDIVIDUAL WHO IS EXPERIENCED IN AUTODESK MAYA)
G	RESULT OF QUESTIONNAIRE ON ALPHA TESTING
	(INDIVIDUALS WHO ARE KNOWLEDGEABLE IN AUTODESK
	MAYA)
Н	RESULT OF QUESTIONNAIRE ON BETA TESTING (TARGET
	USERS)
I	CURRICULUM VITAE

CHAPTER I

INTRODUCTION

1.1 Project Background

The project that will be developed is a 3D animation short story. The animation, entitled "The Puppy" is about the life of a puppy that is living with its master. The target users are children between the ages of 7 to 12. The Puppy 3D animation is developed with existing 3D animations having a dog character as reference such as Bolt and UP. Moral values will be included in the animation for the purpose to educate younger generation of the importance of caring and loving.

3D animation digitally models manipulated by an animator. In order to manipulate a mesh, it is given a digital skeletal structure that can be used to control the mesh. This process is called rigging. Various other techniques can be applied, such as mathematical functions (example gravity, particle simulations), simulated fur or hair, effects such as fire and water and the use of Motion capture as to name a few, these techniques fall under the category of 3D dynamics. Many 3D animations are very believable and are commonly used as Visual effects for recent movies.

Currently, there are many 3D animations being produced by animation studios all around the world which include Pixar, Warner Bros. Animation, Dreamworks Animation, AnimaxAsia, Inspidea, Les' Copague, Fat Lizard, Silver Ant, and many more. Obviously, the type of industry which will be implemented is 3D animation industry.

The problems that might arise from current animations include difficulties in animating animal movements which are different from human movement, per se, time-consuming in character rigging once the modeling is completed, smooth flow of animation without quirkiness, and last but not least the intricacies in developing a three-dimensional environment.

1.2 Problem Statements

At present, there are many pet owners who may tend to cats, dogs, rabbits, birds and many more. However, sad to say that many of them are neglecting their pets especially cats and dogs. Those irresponsible pet owners abandoned the animals in various places such as wet markets or in the vicinity of hawker stalls and restaurants in the hope that the animals would survive on the food leftovers.

These cats and dogs contributes to the increase of stray animal population and many of them end up becoming old and sickly in addition to some of them who are inflicted with skin diseases. This poses a health issue to the community.

Therefore, the 3D animation is being developed to raise an awareness among the society of the importance to care for their own pets and be more responsible to themselves, their pets and lastly to the public. Hopefully, after having watched this animation, younger generation will learn the moral value which is integrated in this animation.

1.3 Project Objective

Several objectives have been ascertained:

- 1. To produce an animation involving a human and an animal.
- 2. To discover the method of character modeling and rigging.
- 3. To animate the movements of an animal and a human.
- 4. To apply the 12 animation principles.
- 5. To instill the moral value which is to love and care for animals.

1.4 Project Scope

The product from this project is targeted for school children from the age of 7 to 12 years old. The modules to be developed consist of modeling, rigging and animation. The primary focus will be on the animal movements, how they are created with the bones constraints, the flow of change in movement, and how they are represented in a 3D world.

1.5 Project Significance

This project will bring benefits to those who are involved in the animation production, be it an animator, visual effects team, character modeling team and many more. Those people mentioned can venture into the whole process of the 3D animation and might be able to acquire some ideas from it. Besides that, the product can also be a guide or a sample to those who are still new to the animation field.

When the project has been successfully developed, it will give more insights on the behavior of animals in terms of their movements. In addition, those who have access to the product will have an even better understanding of the differences between animal and human movement, as well as to the way of character modeling and rigging. Lastly, the sole main purpose comes to the creation of an industry-level 3D animation at par with other products from huge animation production companies.

1.6 Conclusion

The expectation from this project is to develop an animation of industrial level which can compete with those in the current market. Moreover, hopefully this animation will gain much praises and compliments from those who have reviewed it.

In the next chapters, there will be literature review and methodology, analysis of the project, project design, implementation, testing and evaluation, and project conclusion.