# Universiti Teknologi MARA

## DEVELOPMENT OF NON-TEXT PASSWORD USING MIXED IMAGES FOR AUTOMATED TELLER MACHINE (ATM)

Nur Hafiza Binti Mohd Noh

Thesis submitted in fulfillment of the requirements for Bachelor of Science (Hons.) Information System Engineering Faculty of Computer Science and Mathematics

April 2009

### ACKNOWLEDGEMENT

"Praise be to Allah SWT Most Gracious, Most Beneficent"

First of all, I would like to pay my gratitude to Allah SWT for giving me strength and good health in order to be able to complete this thesis project. Without His blessing, I could not complete and finish this thesis on time.

Then, I would like to give my sincere appreciation to my thesis supervisor, Mr. Fauzi Mohd Saman for his guide, concern, support, advice, patient, caring and also encouragement throughout this thesis progress. My appreciation also goes to my coordinators, Mrs. Wan Nor Amalina Binti Wan Hariri and Assoc. Prof. Rashidah Binti Rawi for their guidance and support in the completion of this thesis project.

Special thanks for all my friends that give supports and beneficial ideas during completing this project, and also for their time given in helping me when I needed.

Finally, to my beloved parent, who gave me an advice when needed, support and encourage me in completing this thesis. Then, for the last, thanks to all people that involved directly or indirectly in helping me finish this thesis. For all, thanks again for your helps, I am very appreciated for everything that has done to me. May Allah SWT blesses all of you.

#### ABSTRACT

Non-text password or graphical password is an alternative to text-based password. By using mixed images as a password for Automated Teller Machine (ATM), users have their alternative way to not use alphanumerical during authentication process. This image-based approach gives a beneficial to the users that have disability to remember the text password. This research focused on the graphical password that use mixed images in designing and developing interface prototype of the system. The system use real images of objects likes, fruits, human faces and transports as users' password for ATM. All the images were combined to produce the mixed images concept in designing the interface prototype. User need to choose six images as a password and also remember the sequence of images selected. So, user will use story scheme approach in order to remember the sequence of images easier. In designing the interface prototype, storyboard tool was used to demonstrate the flows and operations of the system. Then, in developing the interface prototype, HTML, JavaScript and PHP were used as a programming language, and Macromedia Dreamweaver was chosen as a coding workspace.

### TABLE OF CONTENT

CHAP	<b>TER 1</b> :	INTRODUCTIO	N				1
1.1	Resea	arch Background1					
1.2	Proble	roblem Statement					
1.3	Object	bjectives4					
1.4	Scope	e4					
1.5	Signifi	cance of Reseau	rch				4
СНАР	TER 2:	LITERATURE	REVIEW				6
2.1	Definit	tion6					
2.2	Authentication Methods						7
	2.2.1	Token Based A	Authentication	۱			7
	2.2.2	Biometric Base	d Authentica	tion			8
	2.2.3	Knowledge Bas	sed Authentic	ation			9
	2.2.4	Image-based F	Password vs.	Text-based	d Passw	ord	9
	2.2.5	Image-based F	assword vs.	Biometric-b	based Pa	assword	10
2.3	Huma	n Memory					10
	2.3.1	Sensory Memo	ry				11
	2.3.2	Short-term Me	mory				11
	2.3.3	Long-term Mer	nory				12
2.4	Image	-Based Approach12					
2.5	Recog	cognition Based Techniques for Graphical Password					
2.6	2.6 Recall Based Techniques for Graphical Password						16
	2.6.1	Reproduce a D	Drawing				16
	2.6.2	Repeat a	a Sequ	ence	of	Actions_	18
2.7	Image-Based Schemes						
	2.7.1	Single-Image S	Schemes				20
	2.7.2	Multiple-Image	Schemes				
2.8	Mixed	ed Images24					
2.9	Automated Teller Machine (ATM)						

CHAP	TER 3: METHODOLOGY	26				
3.1	Problem Assessment and Research Study					
3.2	Requirement Gathering					
3.3	Requirement Analysis					
3.4	Design Analysis					
3.5	Prototype Development	29				
CHAP	TER 4: FINDINGS	31				
4.1	The Requirements of Non-text Password Using Mixed Images					
	for ATM	31				
4.2	The Design of the Non-text Password Using Mixed Images for	ATM_35				
	4.2.1 Story Scheme					
	4.2.2 Storyboard as a Design Tool	42				
4.3	The Development of Interface Prototype Using Macromedia					
	Dreamweaver and PHP: Hypertext Processor	44				
CHAP	TER 5: CONCLUSION	47				
5.1	Conclusion	47				
5.2	Limitation					
5.3	Recommendation	48				
REFE	RENCES	49				
APPE	NDIX A: GANTT CHART	54				
APPENDIX B: STORY BOARD						
APPE	APPENDIX C: INTERFACE PROTOTYP,					