

UNIVERSITI TEKNOLOGI MARA

**AN EXPLORATORY STUDY ON THE DESIGN OF
THE ELDERLY-FRIENDLY SMART SHOPPING
TROLLEY**

ADELIN BINTI ABDUL LATIB

Report submitted in partial fulfillment of the requirements for the degree of

Master of Science (Information Technology)

Faculty of Computer and Mathematical Sciences

JULY 2014

ABSTRACT

Shopping is regarded as one of the enjoyable activities for elderly to spend their leisure times. Since there are many hypermarkets available in Malaysia, the elderly occupy most of their ample time by going shopping as it can lead to more positive emotions such as joy, happiness and self-satisfaction. It can also enhance the elderly energy levels and avoid from daily frustrations, bad moods and changing the focus from the nagging demands of everyday life. However, there are many limitations for the elderly to do the shopping activities as they grow older. With the age declines, it affect the ability of the elderly in order to perform daily activities and maintain their independents like before. The environment and facilities provided by the retailers are not elderly-friendly especially the shopping trolleys available at most hypermarkets. This qualitative based study used the exploratory and realist research method approach to carry out the entire research. The approach considers both reality and knowledge in order to gain information and data collection. This study involved five (5) participants amongst the group of elderly woman aged 60 and over, who goes out regularly for groceries shopping at hypermarkets in Klang Valley. The purpose of this study is to discover the problems and limitations of the elderly when they go shopping at the hypermarkets. From the results, researcher gives a proposal of the Elderly-Friendly Smart Shopping Trolley which includes the elements and basic principles of the design for the elderly. By introducing the Elderly-Friendly Smart Shopping Trolley, the researcher believes it can assist and reduce the problems and limitations while the elderly go for groceries shopping alone in the future.

ACKNOWLEDGEMENT

"In the name of ALLAH, the Most Gracious, the Most Merciful"

My highest sincere gratitude go to Allah S.W.T because with his will, I manage to complete successfully in my IT Project. Thank you a lot to my dearest supervisor, Dr. Fariza Hanis Binti Abdul Razak for all the advices and guidance throughout my project. I really appreciate all the extraordinary knowledge and experience that you shared with me. Thank you for being understanding and patiently supporting me from the initial stage until the completion of this study.

My greatest appreciation is dedicated to all my family members. To my mom, "This is especially for you." To my dearest husband, "Thank you for all your supports and concerns. Even though you never show it directly but I know you always pray for my success." For my beloved children, and my only daughter, , all of you are my inspirations and my pillars of strength. Love all of you eternally. Thank you for the continuous love, believes and never stop praying for my success.

To the CS770 group especially my course mates, thank you for always be there through the hardships that we encountered together for the past few semesters. Thank you also to all the participants who involved in this study for willing to spend their precious time during the interview sessions and shared their experiences with me.

Lastly, I would like to express my utmost gratitude all of my friends or individuals that involved directly or indirectly in completing my IT Project. My Allah bless all of you. Amin. Ahamdulillah.

Thank You.

TABLE OF CONTENTS

	Page
STUDENT'S DECLARATION	i
ABSTRACT	ii
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF FIGURES	vii
LIST OF TABLES	ix
CHAPTER 1: INTRODUCTION	
1.1 Research Background	1
1.1.1 Elderly Population in Malaysia	1
1.1.2 Shopping and Elderly	2
1.2 Problem Background	4
1.3 Problem Statement	5
1.4 Research Questions	5
1.5 Research Objectives	6
1.6 Research Scope	6
1.7 Research Significance	6
1.8 Research Outlines	7
1.9 Conclusions	8
CHAPTER 2: LITERATURE REVIEW	
2.1 Definition of Elderly	9
2.2 The Elderly Shopping Behaviours	10
2.2.1 The Elderly Shopping Preferences	11
2.2.2 The Elderly Shopping Limitations	12
2.2.2.1 Physical Limitations	13
2.2.2.2 Cognitive Limitations	14
2.3 Elderly and Information Technology (IT) Support in Shopping	15
2.4 Designing for the Elderly	16
2.4.1 Design Elements and Principles	17
2.4.1.1 Physical Design (Ergonomics)	17

2.4.1.2 Display Design	19
2.5 Conclusions	21
CHAPTER 3: METHODOLOGY	
3.1 Research Approach	22
3.2 Research Process	23
3.2.1 Phase 1 - Planning	24
3.2.2 Phase 2 - Data Collection	25
3.2.2.1 Primary Data	25
3.2.2.2 Secondary Data	26
3.2.3 Phase 3 - Analysis of the Data & Result	28
3.2.4 Phase 4 - Documentation	28
3.3 Overall Framework of Research Methodology	
3.4 Conclusions	29
CHAPTER 4: RESULTS	
4.1 Participants Background	30
4.2 The Elderly Problems during Groceries Shopping	32
4.2.1 Difficulty in Reading the Product Details and Price Labelling	33
4.2.2 Inappropriate Product Location	33
4.2.3 Far Position between Products	35
4.2.4 Bad Floor Conditions	36
4.2.5 Long Queues at the Payment Counter	37
4.2.6 Problem in Budgeting and Predicting the Total Amount of Products Bought	38
4.2.7 No Facilities and Assistants Available for the Elderly	38
4.3 The Limitations and Issues on the Existing Design of the Shopping Trolley available at the Hypermarkets	39
4.3.1 The Basket Trolley	39
4.3.2 The Push Shopping Trolley	40
4.3.2.1 The Wheels of the Trolley	40
4.3.2.2 The Ergonomics Issues of the Shopping Trolley	42
4.3.2.3 Difficulty at the Payment Counter	43