

UNIVERSITI UTARA MALAYSIA

2009

WAP-BASED APPLICATION FOR HANDICRAFTS PRODUCTS IN RURAL AREA

**A thesis submitted to the Graduate School in partial
fulfillment of the requirement for the degree
Master of Science (Information Technology)
Universiti Utara Malaysia**

By

HANI FAWZI MOHSEN ALSHOMARRY

Copyright © Hani Fawzi Mohsen Alshomarry. October 2009. All Rights Reserved

PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a postgraduate degree Master of Science (Information Technology) from University Utara Malaysia, I agree that the university's library may it freely available for inspection. I further agree that permission for copying this thesis in any manner, in a whole or in a part, for scholarly purpose may be granted by my supervisor or in their absence, by the Dean of Faculty of Technology Management. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to University Utara Malaysia for any scholarly use which may be made of any material from my thesis.

Requests for permission to copy or to make other use of materials in this thesis, in whole or in part shall be addressed to:

**Dean Graduate School
University Utara Malaysia
06010 Sintok
Kedah Darul Aman**

ABSTRACT

The main objectives of this study are to design WAP-Based Application for Handicrafts products in Rural Area, to develop a prototype of WAP-Based Application for customers to view and search details about the handicraft products in rural area. The design is tested on the prototype and evaluated to test the usability and acceptability of the system. The Wireless Application Protocol (WAP) technologies have been used in this application has enable users to make booking through mobile telephones.

In The Name of GOD Allah S.W.T Most Gracious and Most Merciful

This Project I Dedicated to My beloved family, parents and sisters and for all of my
beloved friends

ACKNOWLEDGEMENTS

Praise to Allah S.W.T the Most Gracious, Most Merciful whose blessing, guidance and helped me to finish and make this project successfully, and Peace for our prophet Muhammad S.A.W, who has given to mankind.

Firstly, I like to thank the academic the members of staff in Applied Science, College of Arts and Science, University Utara Malaysia for their cooperation, dedicated, professional guidance together with the management of the Graduate School, they have made the creation of the project a pleasure. Special thanks to my supervisor Haslina BT Mohd. Have enthusiastically supported and backed the project. They played a large role in helping me to complete the project. Also thank you very much for the invaluable guidance, encouragements, suggestions, comments, and assistances throughout the period of this project. Your kind advice will encourage me to do further research in future.

Finally, most sincere appreciation goes to my beloved family and friends for their contribution, support and understanding. All of you are wonderful helpmate, I really appreciated that much. And for the last Thank you I dedicate for all of the individuals who share my laughter and sadness.

Hani Fawzi Alshomarry

22 October, 2009.

TABLE OF CONTENTS

	Page
PERMISSION TO USE	II
ABSTRACT	III
ACKNOWLEDGEMENTS	V
TABLE OF CONTENTS	VI
LIST OF FIGURES	VIII
LIST OF TABLES	IX
CHAPTER 1: INTRODUCTION	
1.0 Introduction	1
1.1 Problem Statements	3
1.2 Research Questions	4
1.3 Objectives of the Research	4
1.4 Scope of Study	4
1.5 Significance of the Study	5
1.6 Outline of Study	5
1.7 Conclusion	7
CHAPTER 2: LITERATURE REVIEW	
2.0 Introduction	8
2.1 Overview of handicrafts	9
2.2 Wireless and mobile technology	10
2.3 Related Works	12
2.4 Conclusion	19
CHAPTER 3: RESEARCH METHODOLOGY	
3.0 Methodology	20
3.1Phase 1: Awareness of problem	21
3.2Phase 2: Suggestion	21
3.3Phase 3: Development	22
3.4Phase 4: Evaluation	22
3.5Phase 5: Conclusion	23
3.6 Conclusion	23
CHAPTER 4: IMPLEMENTATION	

4.0 System Development	24
4.1 Use Case Diagram	24
4.2 Use case specification	
4.2.1 Use Case Specification for Handicraftsmen Application	26
4.2.2 Use Case Specification for Customer Application	31
4.3 Sequence Diagram	34
4.3.1 Sequence Diagram for Handicraftsmen Application	34
4.3.2 Sequence Diagram for web application	39
4.4 class diagram	42
4.5 Implementation	43
4.6 Coding	43
4.7 Testing	43
4.8 Conclusion	45
CHAPTER 5: FINDING	
5.0 Usability Testing	46
5.1 Usability testing methods	46
5.2 Usability testing result	47
5.3 Features of the system	49
5.4 Conclusion	51
CHAPTER 6: CONCLUSION AND RECOMMENDATION	
6.0 Introduction	52
6.1 Future Work	53
6.2 Limitation	53
6.3 Conclusion	53
REFERENCE	54
APPENDIX A	61
APPENDIX B	69
APPENDIX C	77
APPENDIX D	80

LIST OF FIGURE

Figures		Pages
Figure 3.1	General methodology	20
Figure 4.1	Use Case Diagram for Handicraftsmen and Customer Application Option.	25
Figure 4.2	Use Case for Login into system.	26
Figure 4.3	Use Case for manage Products	27
Figure 4.4	Use Case for Add Products extend from product manage operation	28
Figure 4.5	Use Case for Update product extend from product manage operation	29
Figure 4.6	Use Case for Delete Product extend from product manage operation	30
Figure 4.7	Use Case for Search Products	31
Figure 4.8	Use Case for View Product Information	32
Figure 4.9	Use Case for Buy Product	33
Figure 4.10	Sequence Diagram for Login in Website	34
Figure 4.11	Sequence Diagram for manage (Product Information)	35
Figure 4.12	Sequence Diagram for Update Product Information	36
Figure 4.13	Sequence Diagram for Update Product Information	37
Figure 4.14	Sequence Diagram for Delete Product Information	38
Figure 4.15	Sequence Diagram for Search Product Information	39
Figure 4.16	Sequence Diagram for View Product Information	40
Figure 4.17	Sequence Diagram for Buy Product	41

LIST OF TABLE

Tables	Pages
Table 4.1 System Option for Handicraftsmen and Customer	24
Table 4.2 Use Case Specification for Login	26
Table 4.3 Use Case Specification for product manage operation	27
Table 4.4 Use Case Specification for Add Product extend from product manage operation	28
Table 4.5 Use Case Specification for Update Product extend from product manage operation	29
Table 4.6 Use Case Specification for Delete Product extend from product manage operation	30
Table 4.7 Use Case Specification for Search Product	31
Table 4.8 Use Case Specification for View Product Description	32
Table 4.9 Use Case Specification for Buy Product Description	33
Table 4.10 Description of the test case	44
Table 5.1 Stats	47
Table 5.2 Gender	47
Table 5.3 The Respondents' Background	48
Table 5.4 The Results of Preference of Alternative	48

Table 5.5	It is easy to understand what is needed to interact with it	50
Table 5.6	Descriptive statistic	50
Table 5.7	Total of analysis	51

CHAPTER ONE

INTRODUCTION

1.0 Introduction

Rapidly Mobile marketing application is come out to the development of technologies which enable to come out with a lot of new services. Actuality, the keys in influencing in any effort at business area is mobile and wireless devices technologies. The mobile and wireless devices technologies are definitely the next wave due to the evolution of e-business. With the selection of mobile and wireless devices technologies, considerable attention in promoting the products marketing in business landscape.

The fast development of wireless networking technology and the significant increase in mobile device users have made advertising and marketing activities that deliver ads to mobile devices over a wireless network a hot topic (Hassim *et. al.*, 2003). According to Nor Shahriza *et al.* (2006), the number of mobile users is raised from 9.7 percent in year 1995 to 55.9 percent in year 2004 in Asian countries. While in the global, the sales of mobile phones for the 1st quarter of 2004 arrived at 153 million handsets (McManus and Scornavacca, 2005). Furthermore, the number of mobile users exceeded 468 million which is a much higher number than the 365 million people using the Internet (Hassim,

The contents of
the thesis is for
internal user
only

7.0 Reference

Abdualromae Hawor (2004). User's satisfaction of using mobile reservation technology case study: Mobile ticketing reservation system. A master project in partial fulfillment of the requirements for the degree of Master of Science (Information Technology), University Utara Malaysia.

Abdul Hamid @ Hamid bin Haji Hassan (2003). Requirement analysis on wireless network infrastructure in UUM College. A master project in partial fulfillment of the requirements for the degree of Master of Science (Information Technology), University Utara Malaysia.

Agrawal, D.P. & Zeng, Q.-A. (2003), Introduction to wireless and mobile systems, Brooks/Cole Publishing, Pacific Grove, Calif.

Ahmad Hisham Bin Zainal Abidin (2002). ATM in your pocket: A proposed framework for Mobile Internet banking. A master project in partial fulfillment of the requirements for the degree of Master of Science (Information Technology), University Utara Malaysia.

Alvani, M.V., & shahrokh, Z.D. (1994). Introductions to tourism (first print).Economic and programming assistance of poor and devotees foundation.

Antovski, L. & Gusev, M. (2003). M-Payments. *Information Technology Interfaces, 2003.ITI 2003. Proceedings of the 25th International Conference*, pp,95-100.

Barnes & Scornavacca (2004). Mobile marketing: the role of permission and acceptance. *International Journal of Mobile Communications*, Vol.2, No.2, pp. 128-139.

- Bojkovic, Z. and Milovanovic, D. (2005). Challenges in mobile multimedia: technologies and Qos requirements. *7th WSEAS Int. Conf. on Mathematical Methods and Computational Techniques In Electrical Engineering*, Sofia, pp. 7-12.
- Binh, N. H., Chuong, D. K., Hien, H. M. and Huong, D. L. (2002). Application of XML web service and mobile web form technology in building applications for mobile devices in e-business solutions.
- Carroll, A., Barnes, S., J., and Scornavacca, E (2005). Consumers perceptions and attitudes towards sms mobile marketing in New Zealand, *International Conference on Mobile Business, ICMB*, pp. 434-440.
- Cervera, A. (2002). Analysis of J2ME for developing Mobile Payment Systems, Retrieved August 1, 2009 from www.microjaya.com/articles/techtalk/mpayment?content_id=3734.
- Csete, J., Wong, Y. H., Vogel, D. (2004). Mobile devices in and out of the classroom, Educational Development Centre, Hong Kong Polytechnic University.
- Clarke, I. (2001). Emerging value propositions for MCommerce. *Journal of Business Strategies*, Vol. 18, No. 2, pp. 133-148.
- Dickinger, A. & Haghirian, P., Murphy, J., Scharl, A. (2004). An Investigation and Conceptual Model of SMS Marketing. *Proceedings of the 37th Hawaii International Conference on System Sciences*.
- Elliott, G. & Phillips, N. (2004). Mobile commerce and wireless computing system: Pearson Educateion Limited.

Haghirian, P., Madlberger, M., Tanuskova, A. (2005). Increasing advertising value of mobile marketing – an empirical study of antecedents. *Proceedings of the 38th Hawaii International Conference on System Sciences*.

Gan Chin Lay (2006). Development of mobile messaging application using wifi technology: A study in promoting classroom participation and interaction. A master project in partial fulfillment of the requirements for the degree of Master of Science (Information Technology), University Utara Malaysia.

Hannula, S. Schiefloe, A. (2000). Mobile ticketing- the test-bed for mobile transactions. Retrieved August 1, 2009 from: www.banners.noticiasdotcom/termometro/boletines/docs/telcos/varios/2000/Mobile_Ticketing.pdf

Hassim, M. Y., Gao, J. Z. & Shim, S. (2003). Wireless advertising's challenges and opportunities. *IEEE Computer Society*.

Hu, B., & Yo, H. (2007). Segmentation by craft selection criteria and shopping involvement. Segmentation by craft selection and shopping involvement, *Tourism Management Journal* Retrieved July 12, 2009, from: [http:// www Sciencedirect. Com](http://www.Sciencedirect.Com).

Iran handicrafts organization. (1983), *The role of rural handicrafts on the economic development*, Iran: handicrafts organization.

Irshadwap (2008). Introduction. Retrieved August 6, 2009 from: irshadwap.com/web/archives/category/wap).

Ishii, K. (2004). Internet use via mobile phone in Japan. *Telecommunications Policy*, 28, 43–58.

Jonker, W. J. (2003). M-commerce and M-payment: Combining technology. Retrieved August 9, 2009 from: www.cSDL.computer.org/comp/proceedings/hicss/2004/2056/08/20560262c.pdf.

Kalliola, M. (2005). *Mobile payment*. Retrieved August 10, 2009 from: www.tml.hut.fi/Opinnot/T-109.551/2005/reports/Mobile_payments.doc.

Kamal Imran mohd Sharif (2006). Mobile fleet management system for petrol transportation: A requirement model. A master project in partial fulfillment of the requirements for the degree of Master of Science (Information Technology), University Utara Malaysia.

Kim, P. J. & Noh, Y. J. (2003). Mobile Agent System Architecture for supporting Mobile Market Application Service in Mobile Computing Environment. *Proceedings of the 2003 International Conference on Geometric Modeling and Graphics*.

Kumar, V., Parimi, S. and Agrawal, D. P. (2003). WAP: Present and Future .IEEE CS and IEEE Communications Society. Retrieved June 1, 2009 from: http://www.sis.pitt.edu/~dtipper/wap_paper.pdf

Lim chee chian, (2004). Multimodal-based mobile application: a development of prototypes for accessing students academic result at UUM. A master project in partial fulfillment of the requirements for the degree of Master of Science (Information Technology), University Utara Malaysia.

Leet, P. (2001). Wireless advertising: The ad in your Pocket. Gartner Group, p. 4.

- Littrell, M.A. (1996). Shopping experiences and marketing of culture to tourists .In M. Robinson, N.Evans and P .Callaghan (eds) *Tourism and Culture: Image, Identity and Marketing* pp.107-20).Newcastle: University of North Umbria.
- Littrell, M.A., Anderson, L.F. & Brown, P.J. (1993). What makes a craft souvenir authentic? *Annals of Tourism Research*, 20(1), 197-215.
- Majyambere, G., (2005), Only handicrafts benefit from AGOA. Retrieved August 11, 2009 From: http://www.rwandagateway.org/article.php3?id_article=509
- Marmaridis, I. & Unhelkar, B. (2005). Challenges in mobile transformations: A requirements modeling perspective for small and medium enterprises. *Proceedings of the International Conference on Mobile Business (ICMB'05)*.
- McManus, P. & Scornavacca, E. (2005). Mobile marketing: killer application or new hype? *Proceedings of the International Conference on Mobile Business (ICMB'05)*, pp294-300.
- Met (2003). Mobile ticketing. Retrieved August 11, 2009 from: www.mobiletransaction.org.
- Mohd Yusuf Bin Md Saad (2005). Requirements analysis and proposed model for a wireless network infranstructure in Bukit Kachi student college UUM. A master project in partial fulfillment of the requirements for the degree of Master of Science (Information Technology), University Utara Malaysia.
- Nadia Diyana Binti Muhaiyuddin (2006). Modeling final driving test system for JPJ using mobile technology. A master project in partial fulfillment of the requirements for the degree of Master of Science (Information Technology), University Utara Malaysia.

- Nor Shahriza Abdul Karim, Siti Hawa Darus & Ramlah Hussin (2006) Mobile phone applications in academic library services: a students' feedback survey, Vol. 23 No. 1, 2006. pp. 35-51 Gombak, Kuala Lumpur, Malaysia.
- Nielsen, J. & Landauer, T. (2001). A mathematical model of the finding of Usability problems. In ACM INTERCHI'93. Netherlands: Amsterdam.
- Nielsen, J. (2000). *Scenarios in Discount Usability Engineering*. Envisioning work and Technology. Book under preparation. Netherlands: Amsterdam.
- O'Donnell J., Jackson M., Shelly M. & Ligertwood J. (2007) Australian Case Studies in Mobile Commerce *Journal of Theoretical and Applied Electronic Commerce Research* ISSN 0718-1876 Electronic Version. vol. 2, issue 2, pp 1 – 18.
- Pousttchi, K., Wiedemann, D. G. (2006). A contribution to theory building for mobile marketing: Categorizing mobile marketing campaigns through case study research. *Proceedings of the International Conference on Mobile Business (ICMB'06)*, pp.1.
- Schaumann, J. (2002). WAP vs i-MODE. Retrieved August 11, 2009 From www.netmeister.org/palm/WAP_iMODE/
- Scharl, A., Dickinger, A., Murphy, J. (2005). Diffusion and success factors of mobile marketing. *Electronic Commerce Research and Applications*. No. 4. pp. 159-173.
- Teng, Y. L., Tan, K. L., Lim, E. P., Zhang, J., Goh, D. H. L., Chatterjea, K., Chang, C. H., Sun, A., Han, Y., Dang, N. H., Li, Y. Y. & Vo., M. C. (2007). Mobile G-portal supporting collaborative sharing and learning on geography fieldwork: An Empirical Study, Vancouver, British Columbia, Canada.
- Vaishnavi & Kuechler (2004). Design research in information system. Retrieved June 15, 2009, From [Http://www.Isworld.Org/Researchdesign/Drisisworld.Htm](http://www.Isworld.Org/Researchdesign/Drisisworld.Htm).

Wireless Application Protocol Forum (1999). Wireless application protocol, wireless markup language specification Version 1.2. Retrieved August 12, 2009 from: <http://www.wapforum.org/what/technical/SPEC-WML-19991104.pdf>

Wan Mohd Rashidi Bin Wan Abd Ghani (2005). Modeling mobile payment process flow for buying e-book. A master project in partial fulfillment of the requirements for the degree of Master of Science (Information Technology), University Utara Malaysia

WAP Forum (2002). WAP 2.0 Technical White Paper. Retrieved August 1, 2009 from www.wapforum.org/what/WAPWhite_Paper1.pdf