

**MOBILE WEB BASED ANNOUNCEMENT SYSTEM FOR MAYBANK
COLLEGE**

ABDULMONEM IBRAHIM SHENNAT

**UNIVERSITI UTARA MALAYSIA
2008**

Mobile Web Based Announcement System for Maybank College

A thesis submitted to the Graduate School, College of Arts and Sciences in partial
fulfilment of the requirements for the degree Master of Science (ICT)

Universiti Utara Malaysia

By

ABDULMONEM IBRAHIM SHENNAT

(Matric No: 88913)

© ABDULMONEM IBRAHIM SHENNAT, 2008

All rights reserved



**KOLEJ SASTERA DAN SAINS
(College of Arts and Sciences)
Universiti Utara Malaysia**

**PERAKUAN KERJA KERTAS PROJEK
(Certificate of Project Paper)**

Saya, yang bertandatangan, memperakukan bahawa
(I, the undersigned, certify that)

ABDULMONEM IBRAHIM SHENNAT

calon untuk Ijazah
(candidate for the degree of) **MSc. (ICT)**

telah mengemukakan kertas projek yang bertajuk
(has presented his/her project paper of the following title)

MOBILE WEB BASED ANNOUNCEMENT SYSTEM FOR MAYBANK COLLEGE

seperti yang tercatat di muka surat tajuk dan kulit kertas projek
(as it appears on the title page and front cover of project paper)

bahawa kertas projek tersebut boleh diterima dari segi bentuk serta kandungan
dan meliputi bidang ilmu dengan memuaskan.
(that the project paper acceptable in form and content, and that a satisfactory
knowledge of the field is covered by the project paper).

Nama Penyelia Utama
(Name of Main Supervisor): **ASSOC. PROF. DR. WAN ROZAINI SHEIK OSMAN**

Tandatangan
(Signature)

: Rozaini

Tarikh
(Date)

: 28/5/08

PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a postgraduate degree from University Utara Malaysia, I agree that the University Library may make it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor or, in their absence by the Dean of the Graduate School. 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, should be addressed to

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

ABSTRACT

Mobile Announcements help users to receive announcements and information wherever and whenever they are. With the increasing popularity of mobile communications and mobile computing, the demand for mobile announcements applications grows. This study leads to develop mobile application to announce news, activities, and trips will enable staff at Kolej Maybank to deliver the announcements directly to students who will be able to view those announcements through their mobile phones. The application was implemented and tested through a usability survey, the application was found workable with limited functionality to upload, view announcements.

ACKNOWLEDGEMENT

Alhamdulillah, Praise to Allah that finally this project was finally completed. I would like to acknowledge the following persons whose support has been very significant in ensuring the successful completion of this project.

I would like to express my appreciations to my supervisor **Assoc Prof Dr. Wan Rozaini Bt Sheik Osman** for her supervision of the project. Her ideas and guidance have been enormous help throughout the process of this project.

I wish to thank all my dearest family members, especially My Father, My Mother for supporting me since I left home. Thanks for their continuous support, understanding and encouragement. I am indeed very grateful to have all of you around me thus giving me courage and energy to complete this project. Also thank to all my lecturers and friends who had helped me and gave me emotional support during my study, Thanks to all.

Thank you UUM

Abdulmonem Ibrahim Shennat May 25, 2008

TABLE OF CONTENT

PERMISSION TO USE.....	i
ABSTRACT.....	ii
ACKNOWLEDGEMENT.....	iii
TABLE OF CONTENT.....	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	viii
CHAPTER 1: INTRODUCTION.....	1
1.1 Background.....	1
1.2 Problem Statement.....	3
1.3 Research Objectives.....	4
1.4 Scope of the Study	4
1.5 Significance of the Study	5
1.6 Organization of the report.....	5
1.7 Summary	6
CHAPTER 2: LITERATURE REVIEW.....	7
2.1 Mobile Application	7
2.2 Mobile Web Based Application.....	9
2.3 Announcement using ICT	12
2.4 Announcement using Mobile Web Based Systems	13
2.4.1 Factors Affecting Mobile Announcements.....	15
2.4.2 Facilitating Conditions.....	18
2.4.3 Location Based Services(LBS).....	19
2.4.4 Service Costs.....	20
2.4.5 Regulatory Control.....	21
2.4.6 Cultural Barriers.....	23
2.5 Summary	28
CHAPTER 3: RESEARCH METHODOLOGY	29
3.1 Conceptual Framework.....	29
3.2 Design Research Methodology	30
3.2.1 Phase 1: Awareness of Problem.....	32
3.2.2 Phase2: Suggestion	33
3.2.3 Phase 3: Development.....	34
3.2.4 Phases 4 and 5: Evaluation and Conclusion	34
3.3 Summary	37
CHAPTER 4: FINDINGS AND RESULTS	38
4.1 Study Overview	38
4.2 System Analysis.....	38
4.3 System Logical Design	40
4.4 System Development.....	47
4.4.1 Coding.....	47
4.4.2 Maintainance.....	48

4.5 System Evaluation	51
4.6 Summary	56
CHAPTER 5: CONCLUSION.....	57
5.1 Finding	57
5.2 Problems and limitations.....	58
5.3 Contribution of the Study.....	58
5.4 Future work.....	59
5.5 Summary	59
REFERENCES.....	60
APPENDIX A: KOLEJ MAYBANK STAFF INTERVIEW.....	66
APPENDIX B: SURVEY QUESTIONNAIRE	67

LIST OF TABLES

NO	TITLE OF THE TABLE	PAGE
3.1	graphical user interface related requirements	37
4.1	Respondents Personal Information Summary	52
4.2	statistics for the user evaluation questions	54

LIST OF FIGURES

NO	TITLE OF THE FIGURE	PAGE
2.1	Three-tiered CAM framework	8
2.2	M-Commerce System Architecture	9
2.3	System Architecture for Traffic Information System	11
2.4	Company's intention to use mobile announcing	16
3.1	The Existing Framework	29
3.2	The General Methodology of Design Research	32
3.3	System Architecture	33
3.4	Prototyping methodology	34
4.1	System Conceptual Model	39
4.2	use case diagram	41
4.3	Sequence Diagram for the Administrator (login)	42
4.4	Sequence Diagram for the Administrator (add staff)	43
4.5	Sequence Diagram for the Staff (upload announcement)	44
4.6	Sequence Diagram for the Staff (edit announcement)	44
4.7	Sequence Diagram for the student (view announcement details)	45
4.8	Sequence Diagram for the student (upload announcement)	45
4.9	Sequence Diagram for (remove announcement)	46
4.10	conceptual class diagram for the system	47
4.11	MASMC (staff screen)	49
4.12	MASMC (student view)	49
4.13	MASMC (student login)	50
4.14	MASMC (student upload)	50
4.15	Evaluation Plan	51
4.16	Gender Pie Chart	53
4.17	Occupation Pie Chart	53
4.18	Mobile knowledge Pie Chart	54
4.19	Usefulness Pie Chart	55
4.20	Clearness Pie Chart	55

LIST OF ABBREVIATIONS

B-MAD	Based Mobile Announcement Delivery
GPS	Global Positioning System
ICT	Information Communication Technology
LBS	Location Based Service
MASMC	Mobile Announcement System for Maybank College
MMS	Multimedia Messaging Services
PDA	Personal Digital Assistant
PHP	Personal Home Page
PUEU	Perceived Usefulness and Ease of Use
RUP	Rational Unified Process
SMS	Short Message Service
TAM	Technology Acceptance Model
UA	Unified Approach
UML	Unified Modelling Language
UUM	Universiti Utara Malaysia
WAP	Wireless Application Protocol
WML	Wireless Markup Language

CHAPTER 1

INTRODUCTION

This chapter briefly explains the background of the study that mainly involves the importance of mobile web technology in the development of announcements procedures within educational environments. The problem statement, objectives, significance of the project and scopes will also be introduced.

1.1 Background

Rapid advancement in information communication technology (ICT) and in related telecommunication knowledge has led to the emergence of mobile computing (Chipangura *et al*, 2006). Mobile computing provides instant deployment of service over a large geographical area and offers every user an equivalent service of quality. Kurkovsky and Harihar (2006) stated that the unique features of handheld devices, including their mobility, personalization and location-awareness generate new types of applications, such as mobile announcement. Mobile announcements applications deliver valued information to the users that they can benefit from. The process of promoting of information, services and products via computer networks is known as e-advertisement or e-announcement, while with mobile devices this process is known as m-advertisement or m-announcement. According to Aalto *et al.* (2006), Announcements on mobile devices have large potential due to the very personal and

The contents of
the thesis is for
internal user
only

References:

Aalto, L., Göthlin, N., Korhonen, J., & Ojala, T. (2006). *Bluetooth and WAP push based location-aware mobile announcement system*. Paper presented at the 2nd international Conference on Mobile Systems, Applications, and Services, Boston, MA, USA.

Amor, D. (2002). *Internet future Strategies: How pervasive computing services will change the world*: USA: Prentice Hall.

Andersson , E., Bohlin, E., & Lindmark, S. (2004). Japan's Mobile Internet Success Story-Facts Myths,Lessons and Implications. *Scince Academic Journal* 6(6), 348-358.

Baldi, S., & Thaung, H. P. P. (2002). The entertaining way to m-commerce: Japan's approach to the mobile internet – a model for Europe? *Electronic Markets*, 12(1), 6-13.

Barnes, S. J. (2003). Wireless digital advertising: nature and implications. *International Journal of Advertising*, 21(3), 399-420.

Barnes , S. J., & Huff, S. L. (2003). Rising sun: i-mode and the wireless internet. *Communications of the ACM*, 46(11), 79-84.

Barwise, P., & Strong , C. (2002). Permission-based marketing. *Journal of interactive marketing*, 16(1), 14-24.

Carroll, A., Barnes , S. J., & Scornavaeca, E. (2005). Consumers Perceptions and Attitudes towards SMS Mobile Marketing in New Zealand. *Mobile Business*, 2005. *ICMB 2005. International Conference*, , 434- 440.

Chang , Y., Chen , J. L., & Tseng , W. M. (2005). A Mobile Commerce Framework Based on Web Services Architecture. *Information Technology: Coding and Computing*, 2005. *ITCC 2005. International Conference* 1, 403 - 408.

Chipangura, B., Terzoli, A., Muying , H., & Rao, K. (2006). *Design, Development and Deployment of a Mobile E-Commerce Application for Rural South Africa*. Paper presented at the Advanced Communication Technology, 2006. ICACT 2006. The 8th International Conference.

Colafigli, C., Inverardi, P., & Matricciani , R. (2001). An Experience in Designing an Information System Accessible through WEB and WAP Interfaces. *Proceedings of the 34th Annual Hawaii International Conference on System Sciences (HICSS-34) IEEE Computer Society* 9, 13-19.

Dano, M. (2002). Coke, Toyota, McDonald's test mobile advertising. *RCR Wireless News*, 21(46), 8.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319-340.

De Mooiji, M. (2004). *Consumer behaviour and culture*. Paper presented at the Consequences for Global and Marketing and Advertising, CA , USA.

DeZoysa, S. (2002). Mobile advertising needs to get personal. *Telecommunications International*, 36(2), 8.

Dickinger, A., Heinzmann, P., & Qwer, A. (2005). Mobile Environmental Applications. *Proceedings of the 38th Hawaii International Conference on System Sciences*, 1-8.

Elliott, G., & Phillips, N. (2004). *Mobile Commerce And Wireless Computing Systems*: Pearson Education Limited.

Enpocket, S. (2002). The Branding Performance of SMS advertising. *Research Science Journal* 13(1), 111-112.

Frolick , M. N., & Chen , L. D. (2004). Assessing m-commerce opportunities. *Journal of Information Systems Management*, 21(2), 53-61.

Goldfarb, A. (2003). Advertising, profits, switching costs, and the Internet. *Proceedings of the 5th international conference on Electronic commerce*, 266 - 275.

Haghrian, 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*, 1-10.

Haig , M. (2002). *Mobile marketing: the message revolution*. London.

IMCB. (2005). IMCB Guide and Classification Framework for UK Mobile Operator Commercial Content Retrieved Feb 22, 2008, from <http://www.winplc.com/docs/ClassificationFramework-Feb2005.pdf>

Kim, J., Baratto R. A, & Nieh , J. (2006). *pTHINC: A ThinClient Architecture for Mobile Wireless Web*. Paper presented at the 15th international conference on World Wide Web WWW '06.

Kolmel, B. (2002). *M-Business 2002*. Paper presented at the First International Conference on Mobile Business Germany.

Kurkovsky, S., & Harihar, K. (2006). Using ubiquitous computing in interactive mobile marketing. *Personal Ubiquitous Comput*, 10(4), 227-240.

Leppaniemi, M. (2004). *the success factors of mobile advertising value chain*.

Lin, W. D. (2003). A mobile-based marketing information management system. *Proceedings of the 16th IEEE Symposium on Computer-Based Medical Systems (CBMS'03)*, 1-6.

Lu, F., Yu, C. S., Liu, C., & Yao, F. E. (2003). Technology acceptance model for wireless internet. *Internet Research*, 13(3), 206-222.

Mallat, N., Rossi, M., & Tuunainen, V. K. (2004). Mobile banking services. *Communications of the ACM*, 47(5), 6-42.

Matocq, G., Tapella, E., & Cattaneo, C. (2001). INFORMATION SYSTEMS FOR SMALL HOLDER AGRICULTURAL PRODUCERS: THE MERCOSUR ONION'S INFORMATION NET. *System Sciences, 2001. Proceedings of the 34th Annual Hawaii International Conference on CD-ROM*.

Murphy , J., Dickinger , A., & Scharl , A. (2005). Diffusion and success factors of mobile marketing,. *Electronic Commerce Research and Applications* 4, 159–173.

Mylonopoulos, N. A., & Doukidis, G. I. (2003). Introduction to the special issue: mobile business: technological pluralism, social assimilation, and growth. *International Journal of Electronic Commerce*, 8(1), 5-22.

NTT.DoCoMo. (2002). Telefonica Moviles Espana to launch i-mode service in Spain. Retrieved March 12 , 2008, from [www.nttdocomo.com/presscenter/pressreleases/press/pressrelease.html?param\[no\]=252](http://www.nttdocomo.com/presscenter/pressreleases/press/pressrelease.html?param[no]=252)

Okazaki, A. (2005). Mobile advertising adoption by multinationals: senior executives' initial responses. *Internet Research*, 15(2), 112-117.

Owens, J., Leung, P., Lamb, G., Smith, K., Shaw, J., & Hauff, R. (1999, 12-15 July 1999). *Assistive technology issues for students with disabilitiesand university staff who work with them*. Paper presented at the HERDSA Annual International Conference, Melbourne.

Parikh, T. S. (2005). Using Mobile Phones for Secure, Distributed Document Processing in the Developing World. *Pervasive Computing, IEEE* 4(2), 74 - 81.

Peters , B. (2002). The future of wireless marketing. Retrieved Feb , 20 ,2008, from
<http://www.caratinteractive.com/resources/articles.html>

Ramsay, M., & Nielsen, J. (2000). *WAP Usability: 2000 All Over Again*: Nielsen
Norman Group.

Rashid, O., Coulton, P., & Edwards, R. (2008). Providing location based
information/advertising for existing mobile phone users. *Personal Ubiquitous
Comput*, 12(1), 3-10.

Ren, B. X., & Ying, D. L. (2006). Barriers and solutions to the development of online
advertising in China. *Proceedings of the 8th international conference on
Electronic commerce: The new e-commerce: innovations for conquering
current barriers, obstacles and limitations to conducting successful business
on the internet*, 538 - 542.

Ruzallina. (2008). exchanging information at Maybank. In A. I. Shennat (Ed.).

Sadeh, N. (2002). *M-Commerce: Technologies, Services, and Business Models*: John
Wiley & Sons, New York, NY.

Schierholz, R., Ostrowsk , A., Glissmann, A., Kolbe, L. M., & Brenner, W. (2005).
Performance Measurement of Mobile Marketing in Multi-Channel
Environments. *Proceedings of the International Conference on Mobile
Business*, 1-7.

Shaizan, H., & Li, F. (2003). Utilizing IGV Approach In Evaluating the Usability of
Web Sites. *Journal of Information and Communication Technology*, 2(2), 25-
40.

Sharples, M. (2000). Design of Personal Mobile Technologies for Lifelong Learning.
Computers and Education, 34, 177-193.

She, N. S. (2004). *Wireless communications and mobile commerce*: Hershey, Pa.: IRM Press, cop.

Sorathia, V., Laliwala, Z., & Chaudhary, S. (2005). Towards agricultural marketing reforms: Web services orchestration approach. *Services Computing, 2005 IEEE International Conference on*, 1, 260 - 267

Uzoka, F., & Seleka, G. (2006, June 11 - 15, 2006). *e-announcement development in Africa: case study of Botswana*. Paper presented at the 7th ACM Conference on Electronic Commerce, Michigan, USA.

Vaishnavi, V., & Kuechler, B. (2004). Design Research in information system. Retrieved JAN 15, 2008, from
<http://www.isworld.org/Researchdesign/drisISworld.htm>.

Wang, S., & Cheung, W. (2004). E-business adoption by travel agencies: prime candidates for mobile e-business. *International Journal of Electronic Commerce*, 8(3), 43-63.