Using Mobile Phone to Access Academic Result in Universiti Utara Malaysia

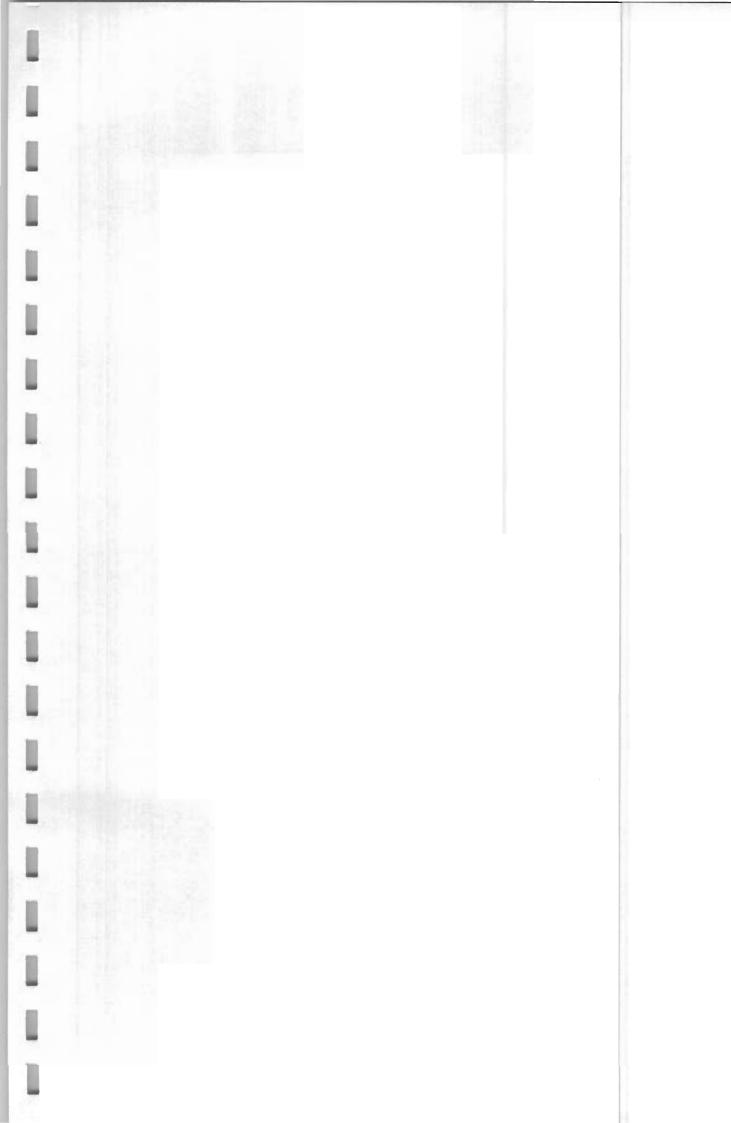
A thesis submitted to the College of Art and Science In partial fulfillment of the requirements for the degree Master of Information Technology Universiti Utara Malaysia

By

ASHRAF ALI F. ABDULJALIL 800041

2008

2688 Jr. 388 Jr.





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)

ASHRAF ALI F. ABDUL JALIL (800041)

calon untuk Ijazah (candidate for the degree of) MSc. (Information Technology)

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

USING MOBILE PHONE TO ACCESS ACADEMIC RESULT IN UNIVERSITI UTARA MALAYSIA

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): DR. KANG ENG THYE

Tandatangan (Signature)

Tarikh (Date)

: 20/11/2008.

COLLEGE OF ART AND SCIENCE UNIVERSITI UTARA MALAYSIA

PERMISSION TO USE

In presenting this thesis in fulfillment of the requirements for the postgraduate degree from the Universiti Utara Malaysia, I agree that the Universiti Library may take it freely available for inspection. I further agree that the 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 his absence, by the Dean of the College of Art and Science. It is understood that any copy 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 the Universiti Utara Malaysia for any scholarly use which may be made of any material from my thesis.

Request for permission to copy or make other use of material in this thesis in whole or in part should be addressed to:

Dean (Research and Post Graduate)
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman
Malaysia

ABSTRACT

This study was to find out the limitation of existing system in accessing student's

results, find out new user requirements and measure the system usability. The

respondents are all UUM students as they have experience in using the existing UUM

application for checking academic result and they are also potential users of using this

system. This study found that the system is acceptable and usable.

Keywords: Mobile Phone Application

iii

ACKNOWLEDGMENT

Praise and gratitude be given to Allah the Almighty for putting forward me such a great strength, patience, courage, and ability to complete this project.

My excessive gratefulness to my supportive and helpful supervisor, Dr.KANG ENG THYE for assessing and guiding me in the completion of the research. With all truthfulness, without his, the project would not have been a complete one. He has really been for me a center of motivation and guidance. I am truly grateful to his continual support and cooperation, as being prepared to assist me all along the completion of the project.

I would like to present my thanks to all of my family, my father, to my dear mother, to all my siblings.

My demonstrative appreciations to all my friends and everyone who has helped either directly or indirectly to the completion of this project.

TABLE OF CONTENTS

Cover		j	
Pern	ii		
Abst	iii iv v		
Ack			
Tabl			
List	List of Table		
List	viii		
CHA	APTER 1 INTRODUCTION		
1.1	Background of the Study	1	
1.2	Problem Statement	3	
1.3	Project Objectives	4	
1.4	Research Question	5	
1.5	Scope of the Project	5	
CIL	APTER 2 LITERATURE REVIEW		
2.1	APTER 2 LITERATURE REVIEW The Mobile Phone WAP Architecture	7	
2.1		7	
2.3	Mobile Technology	8 9	
2.3			
	2.3.1 Wireless Application Protocol (WAP)	11 13	
	2.3.2 Wireless Markup Language (WML)2.3.3 eXtensible Hypertext Markup Language Mobile	13	
	2.3.3 eXtensible Hypertext Markup Language Mobile Profile (XHTML MP)	14	
2.4	Mobile Learning	15	
2.5	Wireless Coverage in University	17	
2.6	Mobile application in other domain	18	
2.0	widdle application in other domain	16	
CHA	APTER 3 METHODOLOGY		
3.1	Project Design	19	
3.2	Development Phase	20	
J.2	3.2.1 Planning	21	
	3.2.2 Analysis	21	
	3.3.3 Design	22	
	3.3.4 Implementation	22	
	3.3.5 Usability testing	23	

CHA	APTER 4 SYSTEM DESIGN AND DEVELOPMENT		
4.1	Requirement Gathering	25	
4.2			
4.3	Call flow design	38	
	4.3.1 Login	38	
	4.3.2 View Result	39	
	4.3.3 Key-in output processing	41	
	4.3.4 User Interface Design (Input Form)	42	
	4.3.5 User Interface Design (Output Form)	44	
	4.3.6 Navigation between forms	45	
CHA	APTER 5 SYSTEM TESTING		
	5.1 Introduction		
5.2	Use Case Testing	46	
СНА	APTER 6 RESULTS AND FINDINGS		
6.1	Introduction	51	
6.2	Survey for Requirement Gathering	51	
6.3	System Usability Survey	54	
СНА	APTER 7 CONCLUSION		
7.1	Conclusion	61	
DEE	FDFNCFS		

LIST OF TABLES

Table 4.1:	Task modeling between agent and student enquire for result	29
Table 4.2:	Login use case description	32
Table 4.3:	Input/output processing use case description	33
Table 4.4:	View result use case description	34
Table 4.5:	Data dictionary retrieved from class diagram	36
Table 4.6:	Showing each entity primary and candidate key(s)	37
Table 4.7:	Functions of each page	45
Table 5.1:	Login test case description	47
Table 5.2:	Input/Output processing test case description	48
Table 5.3:	View Result test case description	49
Table 6.1:	Respondents' opinion on mobile applications	53
Table 6.2:	Number of successfully completed dialogues per scenario	56
Table 6.3:	Task completion time per scenario	56
Table 6.4:	Statements cross match to each user satisfaction measurements	57
Table 6.5:	Collected results on user satisfaction measurement in	
	multimodal application	58
Table 6.6:	Distribution of results	60

LIST OF FIGURES

Figure 2.1:	A logical view of an end-to-end system	7
Figure 4.1:	Use Case diagram for existing UUM examination system context	26
Figure 4.2:	Implementation of Use Case and the functions that is performed	31
Figure 4.3:	Implementation of class diagram, the attributes and operations in each class.	35
Figure 4.4:	Sequence diagram for login use case.	38
Figure 4.5:	Collaboration diagram for login use case	39
Figure 4.6:	Sequence diagram for view result use case	40
Figure 4.7:	Collaboration diagram for viewing result use case	40
Figure 4.8:	Sequence diagram for input and output processing use case	41
Figure 4.9:	Collaboration diagram for input and output processing use case	42
Figure 4.10:	Student login page	43
Figure 4.11:	Display student's academic result.	44
Figure 6.1:	Student's preference in accessing result	52

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Wireless technology has developed into one of today's hottest topics due to its ability to bring the power of communication and the Internet into the hands of users while overcoming temporal and spatial constraints (Elliott and Phillips, 2004). As the popularity of wireless services grows, manufacturers are enabling wireless devices with an increasing array of features and capabilities. However, a new "buzzword" increasingly being mentioned in the market place is the Wireless Application Protocol (WAP).

The WAP is a completely new concept which provides data oriented services to the mass market and is capable of being beneficial to far more end users than the personal computer (Foo, et al., 2001). For example, many personal digital assistants (PDAs) now operate as cell phones and vice versa. The WAP is also envisioned to be a Web in the pocket. As the benefits of the WAP are recognized and become more widely used, the impact it has on everyday lifestyle is obvious. The WAP brings with it the convenience of distributing information efficiently regardless of geographical boundaries and time.

The system helps the College of Art and Science students to check their academic results and related course information, view their own personal information, check for

The contents of the thesis is for internal user only

CHAPTER 7

CONCLUSION

7.1 Conclusion

The main purpose of this project is to develop a mobile based application for accessing student's academic results in UUM in which has been achieved. At the same time, the prototype has been used to evaluate, the system usability in which has been accomplished through this three and the half month of project duration. The development of the project is based on the SDLC in Object-Oriented approaches and takes UML as the modeling system while the development of the system uses WAPTOR and mobile explorer language. Due to the time constraint, this project does not fully complete its functionality as shown in the prototype. Therefore, it is recommended that future research to be carried out in order to enhance and expand the service of the application by taking this prototype as a starting point of the development.

REFERENCES

- Altonen, A., & Lehikoinen, J. (2005). Refining visualization reference model for context information.
- Amor, D. (2002). Internet future Strategies: How pervasive computing services will change the world: USA: Prentice-Hall.
- Boggs, R. (2002). ECAR study: Trends in wireless communications in higher education, seminar on academic computing. Retrieved August 9, 2008, from https://www.educause.edu/ir/library/pdf/EDU0218.pdf
- Booch, G., Jacobson, I., & Rumbaugh, J. (2001). The Unified Modeling Language User Guide (8'h ed). New Jersey: Addison Wesley.
- Bottentuit Junior, J. B., & Countiho., C. P. (2007). Virtual Laboratories and M-Learning; learning with mobile devices. Paper presented at the Proceedings of International Milti-Conference on Society, Cybernetics and Informatics.
- Bulbrook, D. (2001). WAP: A Beginner's Guide: New York: Osborne/McGraw-Hill.
- Collard, R. (1999). Test Design. Stqemagazine: Software Testing & Quality Engineering. Retrieved Oct 29, 2008, from www.softlest.org/sigs/material/rosscollardl,pdf
- Coyle, Frank P. (2001). Wireless Web: A manager's guide. Addison-Wesley Publishing.
- Dennis, Wixon, & Tegarden, D. (2002). System Analysis & Design: An Object Oriented Approach Using UML. New York: John Wiley & Sons, Inc.
- Developershome.com. (2008). XHTML-MP Style Guide. Retrieved August 10, 2008, from http://developer.openwave.com/dyl/support/documnetation/guides and reference s/xhtml
- Elliott, G., & Phillips, N. (2004). Mobile commerce and wireless computing systems: Person Education, Addison-Wesley Publishing.
- Feng, Y., & Zhu, J. (2001). Wireless Java Programming with J2ME. Indianapolis: IN; Sams.
- Foo, S. M., Hoover, C., & Lee, W. M. (2001). Dynamic WAP application development: Greenwich: Manning Publication Co.

- Fryer, W. A. (2002). Wireless computing: New opportunities and challenges in education. Retrieved August 9, 2008, from http://www.wtvi.com/teks/02 03 articles/wirelessfuture.html
- Gillott, I. (2000). Exploding the myths of WAP, from http://www.cio.com/analyst/112700_idc.html
- Guy, R., & Okunbor, D. (2007). A Review of Mobile-Based Initiatives Across College Campuses. Global Digital Business Review, 2(1), 19-13.
- Heijden, M., & Taylor, M. (2000). Understanding WAP Wireless Applications, Devices and Services: London: Artech House.
- Ichikawa, F., Chipchase, J., & Grignani, R. (2005). Where's the Phone? A Study of Mobile Phone Location in Public Spaces. Paper presented at the IEE Mobility Conference 2005, Guangzhou, China.
- Inetis. (2001). Retrieved 28 October 2008 from http://www.inetis.com/freeware.asp
- Kalakota, R., & Robinson, M. (2002). M-business: The race to mobility: USA:McGraw-hill.
- Karim, N. S. A., Darus, S. H., & Hussin, R. (2006). Mobile Phone Applications in Academic Library Services: A Students' Feedback Survey. *Emerald Journal Campus-Wide Information Systems*, 23(1).
- Kemrova, M. (2008). T-Mobile customer can also shop on the Internet and WAP.

 Retrieved August 12, 2008, from

 http://www.t-Mobile.cz/cms/pr_tz_detail_eng.asp
- Khamis, N., & Wah, A. G. (2005). The Student Information System Using WAP Technology. *Malaysian Online Journal of Instructional Technology*, Vol. 2, No. 1, April 2005(Faculty of Computer Science & Information Technology Universiti Malaya).
- Kukulska-Hulme, A. (2006). Current Uses of Wireless and Mobile Learning. Landscape
 Study in Wireless and Mobile Learning in the post-16 sector—JISC eLearning Programme.
- Laouris, Y., & Eteokleous, N. (2005). We need an educationally relevant definition of mobile learning. Paper presented at the mLearn 2005, the 4th World Conference on Mobile Learning, Cape Town, South Africa.
- Larman, C. (2005). Applying UML and Patterns: An Introduction to Object Oriented Analysis and Design and Iterative Development (Third Edition ed.): Prentice-Hall.

- Ling, R. (2004). The Mobile Connection. The Cell Phone's Impact on Society. Elsevier Inc.
- Masoodian, M. (2002). An Empirical Study of Textual and Graphical Travel Itinerary Visualization using Mobile Phones. Paper presented at the Fourth Australasian User Interface Conference (AUIC2003).
- McGhee, R., & Kozma, R. (2001). New teacher and student roles in the technologysupported classroom. Paper presented at the annual meeting of the American Educational Research Association, Seattle.
- McKenzie, J. (2001). The unwired classroom: Wireless computers come of age. Educational Technology. Retrieved August 9, 2008, from http://www.fno.org/jan01/wireless.html
- Naraine, R. (2002). Opera 7 adds power-browsing in Beta 2.

 Retrieved 02 October 2008 from http://www.internetnews.com/xSP/print.php/1558891
- Nielsen, J. (1993). Usability engineering.
- PalmSource. (2003). Palm OS Emulator. Retrieved 11 October 2008 from http://www.palmos.com/dev/tech/tools/emulator
- Palowireless Resource Center. (2003). Retrieved 12 October 2008 from http://www.palowireless.com/wap/visualtools.asp
- Sevtsuk, A., & Ratti, C. (2008). Urban activity dynamics. (MASSACHUSETTS INSTITUTE OF TECHNOLOGY).
- Sturm, J., Bakx, I., Cranen, B., & Terken, T. (2003). Usability Evaluation of a Dutch multimodal system for Train Timetable Information. Paper presented at the LREC2002, Gran Canaria de Las Palmas, Spain.
- Symbian. (2003). OS technology. Retrieved 08 October 2008 from http://www.symbian.com/index.html
- Taylor, S. & Heltick, L. (2002). Network world convergence newsletter. Retrieved 16 October 2008 from http://www.nwfusion.com/newsletters/converg/2002/01668168.html
- Traxler, J. (2006). Strategic Aspects of Wireless and Mobile Learning. Landscape Study in Wireless and Mobile Learning in the post-16 sector—JISC e-Learning Programme.

- UniWide. (2003). Frequently asked questions. UniWide: UNSW Campus Wide Wireless Network. Retrieved 28 September 2008 from http://www.uniwide.unsw.edu.au/fag.htm.
- UTORcwn. (2003). Frequently asked questions. The University of Toronto. Retrieved 28 September 2008 from http://www.wireless.utoronto.ca/faq.php
- Vos, I., & De Klein, P. (2002). The essential guide to mobile business. Upper Saddler River New Jersey: USA: Prentice Hall.
- WAPForum. (2008). What is WAP. Retrieved August 10, 2008, from http://www.wapforum.org/faqs/index.htm
- Ward, M. R., & Woroch, G. A. (2004). Usage Substitution between Mobile Telephone and Fixed line in the U.S.
- Webattack.com. (2003). WAP Development. Retrieved 12 October 2008 from http://www.webattack.com/Shareware/webpublish/swwapdev.shtml.
- Whattananarong, K. (2004, 22-24). An Experiment in the Use of Mobile Phones for Testing at King Mongkut's Institute of Technology North Bangkok, Thailand. Paper presented at the International Conference on Making Education Reform Happen: Learning from the Asian Experience & Comparative Perspectives, Sofitel Central Plaza Hotel, Bangkok, Thailand.
- Wikipedia. (2008). Personal Digital Assistant. Retrieved August 26, 2008, from http://en.wikipedia.org
- WML Editors. (2003). A list of some of the WML editors. Retrieved 12 October 2008 from http://www.wap-shareware.com/directory/wmleditors.shtml
- XML. (2008). XML. Retrieved August 10, 2005, from http://en.wikipedia.org/wiki/XML
- Zindell. (2003). Developing WML documents for wireless devices. Retrieved 21 October 2008 from http://www.zindell.com/course.jsp?code=soft502