

**Development a prototype of mobile payment system
for UUM Treasury**

**ABBAS ABUBAKER MOHAMMED
UNIVERSITI UTARA MALAYSIA 2007**



PUSAT PENGAJIAN SISWAZAH
(Centre For Graduate Studies)
Universiti Utara Malaysia

PERAKUAN KERJA KERTAS PROJEK
(Certificate of Project Paper)

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

ABBAS ABUBAKER MOHAMMED

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)

DEVELOPMENT A PROTOTYPE OF MOBILE PAYMENT SYSTEM
FOR UUM TREASURY

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): **MR. NURNASRAN PUTEH**

Tandatangan
(Signature)

: 

Tarikh
(Date)

: 10 Dis 2007.

Development a Prototype of Mobile Payment System for UUM Treasury

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

By
Abbas Abubaker Mohammed
(Matric No: 88452)

© Abbas Abubaker Mohammed, 2007 All rights reserved.

PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a postgraduate degree from Universiti 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(s) 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 Universiti 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

Universiti Utara Malaysia

06010 UUM Sintok

Kedah Darul Aman.

ABSTRACT

The idea of electronic money and the digitalization of economic transactions are appealing as a result of the nowadays' technological evolution. Many proposals have been presented and several projects have been implemented in this direction, however there is still a long way ahead to widely commercially deployed applications. An electronic payment system is introduced. Mobile payments are payments that are carried out via a mobile device. In this paper we described the design and implementation of a mobile payment system prototype that can be used to facilitate UUM students to make fee payments to the UUM treasury. This has the benefit of enhancing the current UUM payment system through which payment can be made even in remote location where Internet is not accessible.

ACKNOWLEDGEMENT

First, I would like to express my appreciation to *Allah*, the Most Merciful and, the most compassionate who has granted me the ability and willing to start and complete this study. I do pray to his greatness to inspire and enable me to continue the work for the benefits of humanity. And I would like to express my gratitude to all those who gave me the possibility to complete this thesis.

I am deeply indebted to my supervisor Mr. Nurnasran Puteh from the University Utara Malaysia whose help, stimulating suggestions and encouragement helped me in all the time of research for and writing of this thesis.

I wish to express my love and gratitude to all my family and friends. Special thanks to my brothers Mohammed and Ahssin whose support enabled me to complete this work.

TABLE OF THE CONTANIT

CHAPTER ONE INTRODUCTION	1
1.0 Introduction	1
1.1 Problem Statement	3
1.2 Objective of the study	3
1.3 Scope of study	3
1.4 Research Significant	4
1.5 Research Outcome	5
1.6 Organization of the thesis	5
CHAPTER TWO LITERATURE REVIEW	7
2.1 Mobile Payment Definition	7
2.2 Overview of Mobile Payment	8
2.3 Overview of existing mobile payments methods	16
2.4 Mobile services	18
2.5 Mobile Banking Services	18
2.6 Advantages of mobile payment system	19
2.7 Disadvantages of mobile payment system	20
2.8 Survey of other mobile payment projects	20
2.9 Internet and Mobility	22
2.10 Wireless Application Protocol (WAP)	23
2.11 Wireless Markup Language	24
2.12 Previous research on similar area	25
CHAPTER THREE RESEARCH METHODOLOGY	29
3.1 System Development Life Cycle (SDLC)	29
3.2 Planning and Definition	31
3.3 Analysis	32
3.3.1 Requirements	33
3.4 Design	33
3.5 Development	34
3.6 Testing	35
3.7 Summary	35
CHAPTER FOUR DESIGN	37
4.1 Mobile Payment Design	37
4.2 Logical Design	40
4.2.1 Use case Diagram	41
4.2.2 Sequence Diagram	42
4.3 Physical Designs	47
4.4 Summary	49

CHAPTER FIVE IMPLEMENTATION	51
5.1 Tools of implementation	51
5.2 Login process	52
5.3 Get Information	53
5.4 Payment	54
CHAPTER SIX CONCLUSION	56
6.1 Conclusion of the Study	56
6.2 Future Works Recommendations	57
6.3 Summary	58
REFERENCES	59

LIST OF TABLES

Table 4.1: software and hardware	48
Table 5.1: Requirements for implementation	52

LIST OF FIGURES

Figure 2.1: System Architecture	20
Figure 2.2: Parking System Architecture	26
Figure 3.1: Phases in Systems Development Life Cycle (SDLC)	30
Figure 4.1: Context Diagram	37
Figure 4.2: Dataflow Diagram	39
Figure 4.3: Use case Diagram	41
Figure 4.4: Sequence Diagram for login	42
Figure 4.5 Sequence Diagram for Enquiry	44
Figure 4.6: Sequence Diagram for Payment	46
Figure 5.1: Login	53
Figure 5.2: Enter user name and password	53
Figure 5.3: Get information	54
Figure 5.4: Enter metric number	54
Figure 5.5: Information student	54
Figure 5.6: Get information to pay	55
Figure 5.7: Enter metric number to pay	55
Figure 5.8: The Payment	55
Figure 5.9: message the value has been transferred	55

CHAPTER ONE

INTRODUCTION

This chapter provides an overview of study of a mobile payment for UUM treasury. It starts with an introduction describing the overall idea of this study. It also discusses the problem statement, objectives and significance of the study as well as the scope of the study.

1.1 Motivation

A payment is the transfer of wealth from one party (such as a person or company) to another. A payment is usually made in exchange for the provision of goods, services, or both. It fulfills a legal obligation between a buyer and a customer. Barter system was a traditional method of business. It is the exchange of goods between two or more people. As time passed by, people started dealing with cash and began using banknotes in the process of selling and buying.

A new life begins for security cash in banks, which has led to increased expansion in the areas of investment and various funds. Banks do not stop at this point. They have developed new payment systems such as the use of credit cards to speed the payment by transferring funds from one place to a. At the same time, these banks allow customers to deal with them at anytime and anyplace. Banks use the Internet to make our lives easier. The Internet banking allows clients to register for the online banking

The contents of
the thesis is for
internal user
only

References

- Bahrami, A. (1999). *Object Oriented System Development*, McGraw-Hill, United States of America.
- Cheverst, K., Davies, N., Mitchell, K., Friday, A. & Efstratiou, C. (2000). *Developing a Context-aware Electronic Tourist Guide: Some Issues and Experiences*, Lancaster University, pp. 1-8.
- Forum Nokia (2004). "*Issy Mobile - A Wireless Payment Solution For Parking Authorities*". Version 1.0, 1-12.
- Gaedke, M. and K. Turowski (2000). *Integrating Web-based E-Commerce Applications with Business Application Systems*. In *Netnomics Journal 2* (2000).
- Goto, K., Matsubara, H., Myojo, S. (1999). *Autonomous Decentralized Systems, Integration of Heterogeneous Systems Proceedings, The Fourth International Symposium*, pp. 12-17.
- Key, P., Dietmar G. and Wiedemann (?). *What Influences Consumers' Intention to Use Mobile Payments? Mobile Commerce Working Group, Chair of Business Informatics and Systems Engineering*.
- King, K. P. (1998). *Course development on the World Wide Web*. *New Directions for Adult and Continuing Education*. 78, 25-32.
- Millard, N. J. (2001). *Creating the Customer Experience: Holistic Interaction from Website to Call Centre and Beyond*, in Smith, M.J. & Salvendy, G. (eds.), *Proceedings of HCI International 2001*.

Palmer, J. W. (2004) "Web site usability, design, and performances metrics." *Information, Systems Research* 13 (June 2002): 151-167. Retrieved from ProQuest online database 29 April 2004.

Payforit, the *new UK cross-network trusted mobile payment scheme*, retrieved on 27 2007 from
http://www.winplc.com/uploadedFiles/corporate/newsletter_sign-up/Payforit.pdf

Ranchhod, Ashok, Julie Tinson, and Fan Zhou (2001). "Factors Influencing Marketing Performance on the Web." In *Internet Marketing Research: Theory and Practice*, ed. Ook Lee, 61-76. Hershey, PA 2001.

Sizoo, S., Malhotra, N., & Bearson, J. (2003). A gender-based comparison of the learning strategies of adult business students. *College Student Journal*, 37(1), 103-110.

Smith L & Roth H. (2003). "*Parking Systems Technologies*". Retrieved on 11 August 2005 from
http://www.calccit.org/itsdecision/serv_and_tech/Parking_Systems_Technologies/park_rep_print.htm

Valacich, J.S., George, J.M. and Hoffer, J.A. (2004). *Essentials of Systems Analysis and Design*. Prentice Hall, Upper Sadder River, NJ.

Valacich, J.S., George, J.M. and Hoffer, J.A. (2004). *Essentials of Systems Analysis and Design*, Prentice Hall, Upper Sadder River, NJ.

Warschauer, M. (1996). Motivational Aspects of Using Computers for Writing and Communication. Retrieved on January 10, 2007, from
<http://www.nflrc.hawaii.edu/networks/NW01/NW01.pdf>.

WAP Forum (2002). *WAP 2.0 Technical White Paper*. Retrieved April 16, 2007 from
http://www.wapforum.org/what/WAPWhite_Paper1.pdf.