

## **WEB BASED ONLINE VOLUNTEER TRAINER SYSTEM (OVTRS)**

**ALORFI, ALMUHANNAD SULAIMAN M**

**UNIVERSITI UTARA MALAYSIA**

**2012**

## **WEB BASED ONLINE VOLUNTEER TRAINER SYSTEM (OVTRS)**

A project submitted to Dean of Research and Postgraduate Studies Office in partial  
Fulfillment of the requirement for the degree  
Master of Science (Information Technology)

Universiti Utara Malaysia

**By**

**ALORFI, ALMUHANNAD SULAIMAN M**



**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, certifies that)

**ALORFI, ALMUHANNAD SULAIMAN M  
(808938)**

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

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

**WEB BASED ONLINE VOLUNTEER TRAINER SYSTEM (OVTRS)**

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

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

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

Tandatangan  
(Signature)

: Rozaini Tarikh (Date) :

1/7/2012

**ASSOC. PROF. DR. WAN ROZAINI BT SHEIK OSMAN**

*Rozaini*

MM-001

Asia Pacific Centre of Excellence for Rural ICT Development  
Convention Complex  
Universiti Utara Malaysia  
06010 UUM Sintok  
Kedah Darul Amran

**DEAN OF AWANG HAD SALLEH GRADUATE SCHOOL**

**UNIVERSITI UTARA MALAYSIA**

**PERMISSION TO USE**

In presenting this project in partial fulfillment of the requirements for a postgraduate degree from the 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 project in any manner in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence by the Dean of Awang Had Salleh Graduate School. It is understood that any copying or publication or use of this project 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 project.

Requests for permission to copy or to make other use of materials in this project, in whole or in part, should be addressed to

Dean of Awang Had Salleh Graduate School

College of Arts and Sciences

Universiti Utara Malaysia

06010 UUM Sintok

Kedah Darul Aman

Malaysia

## **ACKNOWLEDGEMENTS**

**“In The Name of ALLAH the Most Gracious and the Most Merciful”**

First and foremost, all praise to ALLAH (SWT), the almighty, and the most gracious and most merciful, without those divine guidance and blessing, I would not have been able to even begin, let alone complete, such a complex and confounding undertaking.

My sincere thanks go to my supervisor Assoc. Prof. Dr. Wan Rozaini Sheik Osman for all guidance, support, and ideas that helped me to achieve this project on time. I will always be thankful to you, Terima Kasih !.

My heartfelt thanks go to my beloved family. I remain indebted to my beloved parents and grandparents who have always been there for me. May Allah reward your efforts!. To my brothers (Bara, Moayd, Anas, Ma'an) and my sister (Shukran). Special thanks go to my uncles, aunts, and my deceased grandfather (Masad) may Allah have mercy on him. Also, I owe my heartfelt thanks to my dearest friends (Ala'a Dmour, Ahmad Hawamleh, Hussain Qm, Brian Kulick, Linzi Mckechnie, Nicky Christie ).

## **TABLE OF CONTENTS**

### **CHAPTER ONE: INTRODUCTION**

1.1 BACKGROUND TO THE STUDY .....	1
1.1.1 Brief background information on Universiti Utara Malaysia (UUM) .....	2
1.1.2 Corporate Social Responsibility at the Universiti Utara Malaysia (UUM) .....	3
1.1.3 The International Telecommunications Union – Univerisiti Utara Malaysia (ITU-UUM): The Asia Pacific Centre of Excellence for Rural ICT Development .....	3
1.1.4 The main research issue .....	5
1.2 STATEMENT OF RESEARCH PROBLEM .....	7
1.3 RESEARCH OBJECTIVES .....	9
1.4 RESEARCH QUESTIONS .....	9
1.5 RESEARCH SIGNIFICANCE .....	9
1.6 SCOPE AND LIMITATIONS OF THE STUDY .....	11
1.7 CHAPTER SCHEME .....	11

### **CHAPTER TWO: LITERATURE REVIEW**

2.1 INTRODUCTION .....	12
2.2 THE INTERNET TECHNOLOGY .....	12
2.2.1 Types of Web Sites .....	13
2.3 WEB APPLICATIONS .....	13

2.3.1 Benefits of Web Applications .....	13
2.4 PROTOTYPING.....	14
2.5 ONLINE SYSTEMS .....	15
2.5.1 Online Registration System (ORS) .....	15
2.5.2 Benefits of Volunteer Trainer Registration System .....	16
2.6 THE DATABASE .....	17
2.6.1 Selected database system (MySQL).....	17
2.6.2 Strength of MySQL.....	17
2.7 FINDINGS AND POSTULATIONS FROM PREVIOUS RESEARCH.....	18
2.8 CONCLUSION.....	20
<b>CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY</b>	
3.1 INTRODUCTION .....	21
3.2 RESEARCH DESIGN AND METHODOLOGY .....	21
3.2.1 The Problem Identification Phase .....	22
3.2.1.1 Interviewing.....	22
3.2.1.2 Document Sampling .....	22
3.2.1.3 Determination of system requirements .....	23
3.2.2 The OVTRS Design Phase .....	23
3.2.3 The OVTRS Development Phase.....	23
3.2.4 The OVTRS Evaluation Phase .....	24

3.2.5 The OVTRS Deployment Phase .....	24
3.3 THE OVTRS OUTLOOK .....	24
3.3.1 OVTRS Operation.....	24
3.3.2 Summary of OVTRS Features .....	25
3.4 COMPARISON WITH OTHER METHODOLOGIES .....	26
3.5 LIMITATIONS TO THE METHODOLOGY.....	28
3.6 CONCLUSION .....	29
<b>CHAPTER FOUR: ANALYSIS AND DESIGN</b>	
4.1 INTRODUCTION .....	30
4.2 SYSTEM REQUIREMENTS .....	30
4.2.1 Non-Functional Requirements .....	31
4.2.2 Functional Requirements.....	32
4.3 UNIFIED MODELING LANGUAGE (UML) .....	34
4.3.1 Login .....	35
4.3.2 Trainer Registration.....	37
4.3.2.1 Add a Trainer.....	37
4.3.2.2 Modify a Trainer.....	37
4.3.2.3 Delete a Trainer .....	38
4.3.3 Trainee Registration .....	39
4.3.4 Trainers Enrollment.....	40

4.4 USE CASE MODEL.....	41
4.4.1 Actors .....	42
4.4.2 Sequence Diagram.....	45
4.4.3 Collaboration Diagram.....	45
4.4.4 Class Diagram .....	46
4.4.5 Class Session Description .....	48
4.5 CONCLUSION.....	49

## **CHAPTER FIVE: PROTOTYPE DEVELOPMENT AND EVALUATION**

5.1 INTRODUCTION .....	51
5.2 PROTOTYPE DEVELOPMENT .....	51
5.2.1 Platform for Development .....	51
5.2.1.1 Hardware Requirement.....	51
5.2.1.2 Software Requirement.....	51
5.3 EVALUATION OF THE PROTOTYPE.....	56
5.3.1 Usability Test .....	56
5.3.2 Data Analysis .....	56

## **CHAPTER SIX: CONCLUSION AND RECOMMENDATION**

6.1 INTRODUCTION .....	61
6.2 LIMITATIONS.....	61
6.3 RECOMMENDATIONS AND FUTURE WORKS .....	62

6.4 SIGNIFICANCE AND CONTRIBUTION .....	62
REFERENCES .....	63
APPENDIX A .....	66

## **LIST OF TABLES**

Table 1.1: ITU Asia Pacific Centre of Excellence .....	4
Table 2.1: Summary of Findings and Postulations from Previous Research.....	19
Table 3.1: Methodology Comparisons.....	28
Table 4.1: NonFunctional Requirements .....	31
Table 4.2: Functional Requirements .....	33
Table 5.1: System Aspects Frequencies.....	58
Table 5.2: Descriptive Statistics .....	59
Table 5.3: Summary of Reliability Test.....	60

## LIST OF FIGURES

Figure 3.1: Five Phases of OVTRS Development .....	21
Figure 4.1: Login Activity Diagram .....	36
Figure 4.2: Trainer Registration.....	38
Figure 4.3: Trainee Registration .....	39
Figure 4.4: Trainer Enrollment .....	41
Figure 4.5: Use Case Diagram .....	44
Figure 4.6: Login Sequence Diagram .....	45
Figure 4.7: Login Collaboration Diagram .....	46
Figure 4.8: Class Diagram .....	48
Figure 5.1: Home page of Online Volunteer Trainer Registration System .....	53
Figure 5.2: Registration Menu .....	54
Figure 5.3: Trainer Registration Form .....	54
Figure 5.4: Trainee Registration Form.....	54
Figure 5.5: Administrator Home Pgae .....	55
Figure 5.6: Venues Home Page .....	55

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 BACKGROUND TO THE STUDY**

The arrival of the internet on the global stage has transformed many aspects of human existence by turning cumbersome activities into easy tasks. It is one of the biggest contributors in making the world into a global village. The use of the internet has grown tremendously since it was introduced; this is mostly due to its flexibility, reduced costs, ease of use and availability. Nowadays people can access the internet easily in their homes, work places and service centres. The internet have empowered individuals and communities with new ways of doing things, as well as transformed our ways of learning and sharing knowledge.

Advancement in computer technology and the evolution of internet technology in the last few decades has enabled sophisticated system to be built for home, enterprise and industrial users. Computer technology allows us to store, update, remove, present and retrieve data in a systematic way. Apart from that, the security of computer based systems is considered higher than manual systems (Turban, Lee, King, and Michael, 2004).

In their quest to achieve excellence and efficiency, many organizations have introduced enhanced data collection mechanisms that supports decision making at the management level of these organizations. Organizations nowadays implement various information systems in order to achieve maximum efficiency, reduce cost of operations and effort as well as improve operational competitiveness. The introduction of computer-based

The contents of  
the thesis is for  
internal user  
only

## REFERENCES

- Ahmad, H., Udin, Z. M., Yusoff, R. Z. (2001, July). *Integrated process design for e-learning: a case study*, Presented at the Sixth International Conference on Computer Supported Cooperative Work in Design, London, Ontario, Canada
- Ahn, T., Ryu, S. & Han, I. (2004). The Impact of the Online and Offline Features on the User Acceptance of Internet Shopping Mall. *Electronic Commerce Research*, 3(4), pp. 405-420.
- Al-Shaikh, A. M. (2009). Online Registration System. *International Journal of Computer Science and Security (IJCSS)*, 4 (3), pp. 34-103
- Boroson, E. (2003). Course Registration System. *The On-line Registrar*. Retrieved 04/03/2012, from <http://www.cs.brown.edu/courses>
- Carat, G. (2002). *E-Payment Systems database – Trends and Analysis*, Electronic Payment Systems Observatory (ePSO), Institute for Prospective Technological / European Commission.
- Chan, P. (2008, October). *Dynamic Web Service Composition: A New Approach in Building Reliable Web Service*. AINA '08 Proceedings of the 22nd International Conference on Advanced Information Networking and Applications, IEEE Computer Society Washington, DC, USA
- Ciebiera, k., Mincer-Daszkiewicz, J., & Walen, T. (2004, August). *New Course Registration Module for the University Study-Oriented System*. Presented at the EUNIS' 2004, the 10th International Conference of European University Information Systems, Bled, Slovenia.
- Cole, R., Purao, S., Rossi, M., & Sein, M. K. (2005, June). *Being proactive: Where action research meets design research*. In proceedings at the 26th international conference on information systems, Las Vegas, USA.
- Cui, H. (2005). Digitized O A system construction of University based on web service technology. *Journal of Software*, 113(5), pp. 698 - 702.
- Dennis, A., Wixom, B. H. & Tegarden, D. (2005). *System analysis and design with UML version 2.0: An object oriented approach*. United States of America: John Wiley & Sons Inc.
- Dumas, J. S., & Redish, J. (1999). *A practical guide to usability testing*: Intellect Ltd.
- Hevner, A. R, and S. March, and J. Park, and S. Ram. (2004). Design science in information systems research. *Management Information Systems Quarterly*, 28 (1), pp. 75-105.
- Johnson, G., Scholes, K. and Whittington, R. (2008). *Exploring Corporate Strategy*. (8th ed.). Essex, UK: Pearson Education Limited - Prantice Hall.

- Kerner, S. M. (2006). Is PHP The Cure For The 'Broken' Web?. In *internetnews.com*. Retrieved 16/05/2012, from <http://www.internetnews.com/dev-news/article>
- Laudon, K. C. & Laudon, J. P. (2004). Management Information Systems - The Digital Firm. Retrieved 10/04/2012, from [www.daimlerchrysler.com](http://www.daimlerchrysler.com),
- Lund, A. (2001). Measuring usability with the USE questionnaire. STC Usability SIG Newsletter, 8 (2).
- March, S. T., & Smith, G. F. (1995). Design and natural science research on information technology. *Decision Support Systems*, 15(4), pp. 251–266.
- Naini, V., and Tanik, M. (2008, March). *A Web-based interactive Student Advising system using Java frameworks*. Presented in conference proceedings of Southeastcon, 2008 IEEE 172 – 177 at the University of Alabama Birmingham, USA.
- Nunamaker, J., Chen, M. and Purdin, T. (1991), Systems Development in Information Systems Research. *Journal of Management Information Systems*, 7(3), pp. 89-106
- Raghu Ramakrishnan and Johannes E. Gehrke (2003). *Database Management Systems*. (3<sup>rd</sup> ed.). New York: McGraw Hill.
- Rubin, J., & Chisnell, D. (2008). *Handbook of usability testing: how to plan, design and conduct effective tests*: Wiley-India.
- Schmitt, S. (2006). Engaging a Rich Web Experience. Greenwich: Manning Publications Co.
- Shelly, B. G., Cashman, J. T. and Vermaat, M. E. (2006). *Discovering Computer : A Gateway to Information and Web Enhanced Complete*. USA: Thomson Course Technology.
- Shklar, L. and Rosen, R. (2003). *Web Application Architecture: Principles, Protocols and practices*. London, England: John Wiley & Sons Ltd.
- Simon, H. A. (1996). *The sciences of the artificial* (3rd ed.). Cambridge, MA, USA: MIT Press.
- The International Telecommunications Union – Universiti Utara Malaysia (ITU-UUM). (2012). Asia Pacific Centre of Excellence for Rural ICT . In *About Us*. Retrieved 29/05/2012, from <http://itu.uum.edu.my/index>.
- The Universiti Utara Malaysia (UUM). (2012). Background. In *About Us*. Accessed on 17/04/2012 from <http://www.uum.org.my/index.php/en/about-uum>
- Treiber, M. (2007). Active Web Service Registries. *IEEE Computer Society*, 11(5), pp. 66 – 71.

- Turner, J (2002). Mysql And Jsp Web Applications. *Data-driven Programming Using Tomcat and Mysql*. Retrieved on 12/04/2012, from <http://www.biblio.com/isbn/9780672323096.html>
- Turban, E., Lee, J. K., King, D., and Michael, H. C., (2004). *Electronic Commerce and Update Package*. London, UK: Prentice-Hall
- Vaishnavi, V. and Kuechler, W. (2007). Design Science Research Methods and Patterns: Innovating Information and Communication Technology. Boston, MA, USA: Auerbach Publications.
- Yasuhiko, H., Tsutomu, A., and Syun, T. (2006). Construction and operation of a registration system in a university. *Systems and Computers in Japan*, 37(10), pp. 69 – 80.
- Zainal, A., and Hasibuan, H. (2005, July). *The Use of E-Learning towards New Learning Paradigm: Case Study Student Centered E-Learning Environment*. Presented in a conference at the Faculty of Computer Science, University of Indonesia.