

**DESIGNING AND IMPLEMENTING RESEARCH SUPERVISION  
SYSTEM FOR AWANG HAD SALEH GRADUATE SCHOOL OF ARTS  
AND SCIENCES (AHSGS)**

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**UNIVERSITI UTARA MALAYSIA**

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**DESIGNING AND IMPLEMENTING RESEARCH SUPERVISION  
SYSTEM FOR AWANG HAD SALEH GRADUATE SCHOOL OF ARTS  
AND SCIENCES (AHS GS)**

**A Project Submitted To Dean of Awang Had Salleh Graduate School of Arts  
and Sciences in Partial Fulfillment of the Requirement for the Degree of  
Master of Science (Information Technology) Universiti Utara Malaysia**

**By**

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## **ABSTRACT**

Supervision and monitoring of the student's research is a great task that lecturers of higher learning institution always face. The research takes the bull by the horn by researching on how to bring the system into existence in their domain. Achieving the said task will surely ease the tasks being face during the supervision of the research students to the viva level. This research adopts the system development technique in software engineering to achieve the goal and evaluate the prototype by using statistical package for social sciences version 16. The result shows that the research supervision system for Awang Had Salleh Graduate School of Arts and Sciences in University Utara is efficient, ease to use and eradicate the difficulties being faced in supervising the student's project or thesis.

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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0 Introduction**

Postgraduate unit of the College of Arts and Sciences, Universiti Utara Malaysia (UUM CAS) was formed on 1<sup>st</sup> January 2008 and upgraded to the Awang Had Salleh Graduate School (AHSGS) of Arts and Sciences on 23<sup>rd</sup> September 2010. The main role of AHSGS is to manage postgraduate affair of UUM CAS. Mainly, it manages Masters and PhD programs for the UUM CAS. Through World Class academic programs, rigorous research, high-impact publications, innovative consultations and solutions to multifaceted issues, AHSGS hopes to transform all of its postgraduate students into graduates that would be proud of in the near future. It is the duty of AHSGS to provide ample and much needed knowledge and experiences that its students need upon graduation (CAS portal, 2011).

The dynamic behavior of the organizations and their environments generates new informational and structural needs that are necessary to satisfy for the survival of the organizations. Information Systems (IS) have a major role by ensuring the collection, storage, share and the integrity of the data within the organization (Bellifemine, 2001).

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## REFERENCES

- Amon, K. L. (1997). *The Application of Counseling Theory to Clinical Supervision: Enhancing the Effectiveness of Supervision*. Hofstra University Press, pp. 1 – 2.
- Ballard, G. & Zabelle, T. (2000). Project Definition, White Paper No 9, Lean Construction Institute, USA.
- Bellifemine, F., Poggi, A. & Rimassa, G. (2001). Developing multi-agent systems with FIPA-compliant agent framework. *Software – Practice and Experience*, vol. 31, pp. 103-128.
- Bers, T. H (1989). Tracking Systems and Student Flow. *Wiley Periodicals*, 66, 3-7.
- Bohdanowicz, J.E., Chliaev, P., Volochinov, V. & Sadykh, A. (2004). GeneSys Project: Supervision of Distributed Systems (03E-SIW-043). Retrieved February 29, 2008, from <http://genesys.sztaki.hu/downloads/03E-SIW-043.pdf>.
- Bradshaw, G. (2003). *Creation, Development and Use of a Database-driven Management Tracking System*
- CAS Site. URL: [www.cas.uum.edu.my](http://www.cas.uum.edu.my), retrieved on 04/10/2011.
- Charles, S., Elizabeth, F., & Fillipe, F. (1995). Towards Adaptive UIMS for Supervision Systems. *IEEE Explore*, pp. 2598-2603.
- Douglas, K.H. (1999). Tracking Systems as a Catalyst for Incremental Innovation. *MCB University Press*, 37(10): 786-791.

- Florida Virtual School (2006). Keeping track of your students. Retrieved on December 10<sup>th</sup>, 2011, from [www.flvs.net/educators/keepingtrackstudents.php](http://www.flvs.net/educators/keepingtrackstudents.php)
- FLVS (2006). Keeping Track of Your Students. URL: [www.flvs.net/educators/keepingtrackstudents.php](http://www.flvs.net/educators/keepingtrackstudents.php), retrieved on 5<sup>th</sup> October, 2011.
- GeneSys Project: Supervision of Distributed Systems (03E-SIW-043). Retrieved on December 15<sup>th</sup>, 2011 from <http://genesys.sztaki.hu/downloads/03E-SIW-043>
- Helic, D., Maurer, H. & Scherbakov, N. (2000). On Web Based Training: What Do We Expect From The System. *8th International Conference on Computers in Education*, pp. 1689-1694.
- Ling, J., Wang, M., Yang, Z., & Chen, F. (2010). Research and Design of the Financial Supervision and Management System Based On Data Center. *IEEE Explore*, pp. 28 – 31.
- Liu, G. (2006). Study on the System of the Teaching Quality Safeguard and Supervision in Colleges and Universities. *Heilongjiang Researches on Higher Education*, 24(4), pp. 70-72.
- Martin, T. & Bakhto, A. (2007). *System Supervision. Physical Security*.
- McConnell, S. (1997). Tool Support for Project Tracking. *IEEE Software*, 15(5): 119-120.

- Microsearch (2005). *Student Tracking System*. Retrieved on November 11<sup>th</sup>, 2011 from [www.microsearch.net](http://www.microsearch.net)
- Nelson, J., & Tahir, M. (2001). *Homepage Usability 50 Website Deconstructed*. New Rider. p. 69.
- Ocheng, N.S & Foo, W.C. (2004). *A Real-Time Work Flow Tracking System for a Manufacturing Environment*. Emerald Group Publishing Ltd 53(1), pp. 33 - 43.
- Ong, N.S & Foo, W.C (2004). A Real-time work flow tracking system for a
- Oppaga (2006). *Student Tracking Systems Can be Used to Enhance Graduation and Retention Rates*. [www.oppaga.state.fl.us/reports/pdf/0648rpt.pdf](http://www.oppaga.state.fl.us/reports/pdf/0648rpt.pdf), retrieved on 5<sup>th</sup> October, 2011.
- Ragan, L. C. (1998). Good Teaching Is Good Teaching: an emerging set of guiding Principles and practices for the design and development of distance education. DEOSNEWS, the American Center for the Study of Distance Education. *Pennsylvania State University*, 8(12).
- Rui, X., & Hui, B. (2011). Research Of AC Adjusting Speed System Based On DTC And Neural Network Supervision Control. *IEEE Explore*, pp. 4279 – 4281.
- Sadovykh, A. (2004). *Innovative Concept of Generic System Supervision*.
- Shiwu, X., Rongli, D., & Wang, X. (2009). *Research of Post-Approval Supervision System Based On GIS*. National “863” Program, Research on

- Cross-Platform Spatial Analysis Model Framework and Application Rapid Building Environment, pp. 1 – 5.
- Snene, M., Pardelas, J., & Leonard, M. (2004). Information System Architectures: Where We Are? *IEEE Explore*, pp. 509 – 510.
- Vanco, E. C. (2010). Integrated Agent-Based University Information System. *2<sup>nd</sup> International Conference on Mobile, Hybrid, And On Line Learning*, pp. 36 – 40.
- Wang, L., & Wang, F. (2006). The Research on Teaching Quality Supervision System of University on Development Level. *6<sup>th</sup> World Congress on Intelligence Control and Automation*, pp. 497-500.
- Yunna, W., & Yisheng, Y. (2011). A Research on Agent Construction Supervision System of Government Investment. *IEEE Explore*, pp. 421 – 425.
- Zuo, Q. (2006). Relationship between Province, Nation and University While Monitoring Teaching and Learning Quality of Higher Education. *Journal of Social Science of Hunan Normal University*, 35(2), pp. 121-124.