# **Second Handed Computer Purchasing Web-based**

System

Osama Ahmed A. Elgweal

University Utara Malaysia

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# Second Handed Computer Purchasing Web-based

## **System**

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)

University Utara Malaysia

By

**OSAMA AHMED A.ELGWEAL** 

(Matric No: 88322)

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Thank you UUM.

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### Abstract

In this paper we describe a web-based information system, which serves for a first contract between a university seller and buyers of second-handed computer materials. We describe advantages of an involvement of the transaction into the virtual space within a university. Our e-transaction system covers the whole sales and buys process. The objective is to make the communication between the buyer and the seller more effective and consequently to achieve considerable time and resource savings at the both parts when it comes to purchase second-hand computer material virtually.

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### Chapter One

### INTRODUCTION

### 1.0 Introduction

Basically, the traditional shopping activities necessitate some great efforts from a user and involve searching for parties interested in selling or buying what the user wants to buy or sell (e.g., by sifting through catalogs, advertisements in newspapers and television, shelves in stores, etc.), comparing prices and other features of the good or service to help make an optimal purchase decision, and exchanging currency for product through some agreed upon, and ideally secure, channels (Maes, 1995).

According to Foner, L. (1996), the activity of buying and selling among end-consumers (e.g., classified ads, yard sales and flea markets) is a particularly time-consuming and inefficient form of shopping and often includes additional steps such as negotiating on price or other features. It can be emphasized that the effective use of online agent can dramatically reduce transaction costs involved in electronic commerce, in general, and in consumer-to consumer transactions, in particular. Moreover, the pervasiveness and growing popularity of networks such as the Internet and online services have made it possible to facilitate automated transactions. However, existing efforts in the area of electronic commerce are still fairly simple, in the sense that they don't radically change the way transactions happen or don't create any new markets. Therefore, new presented efforts include the ability to pay at online stores with a credit card or with electronic cash

# The contents of the thesis is for internal user only

### References

- Akerlof, George (1970): "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism," Quarterly Journal of Economics 222: 488-500.
- Anderson, S. P., and V. A. Ginsburgh (1994), "Price discrimination via second-hand markets," European Economic Review, 38, 23-44.
- Baen, J. S. and R. S. Guttery, The Coming Downsizing of Real Estate: The Implications of Technology, Journal of Real Estate Portfolio Management, 1997, 3:1, 1-18.
- Bakos, Y., Lucas, H. C., Oh, W., Simon, G., Viswanathan, S. & Weber, B. (2000). The impact of electronic commerce on the retail brokerage industry. Working Paper, Stern School of Business, NYU, E-mail: bakos@stern.nyu.edu.
- Balasubramanian, S., Konana, P. & Menon, N. (1999). Understanding online investors: An analysis of their investing behavior and attitudes. Working Paper, University of Texas, Austin, E-mail: pkonana@mail.utexas.edu
- Barber, B. M. & Odean, T. (2000). Online investors: Do the slow die first? Working Paper, University of California, Davis, E-mail: bmbarber@ucdavis.edu.
- Bolund, P., J. Johansson, et al. (1998). Factor 10, Economic Growth and Welfare. Stockholm, FMS.
- Brezet, J. C., A. S. Bijma, et al. (2001). The Design of Eco-Efficient Services. Method, Tools and Review of The Case Study Based "Designing Eco-Efficient Services" Project. Delft, Delft University of Technology: 46.
- Chen, P. Y. & Hitt, L. M. (2000). Switching cost and brand loyalty in electronic markets: Evidence from online retail brokers. Working Paper, University of Pennsylvania, Philadelphia, E-mail: lhitt@wharton.upenn.edu.
- Choo, C.W., Detlor, B. and Turnbull, D. (2000). Web Work: Information Seeking and Knowledge Work on the World Wide Web. Dordrecht, NL: Kluwer Academic Publishers
- Clemons, E. K. & Hitt, L. M. (2000). The Internet and the future of financial services: Transparency, differential pricing and disintermediation. Working Paper, University of Pennsylvania, Philadelphia, E-mail: lhitt@wharton.upenn.edu
- Ehrenfeld, J. and H. Brezet (2001). Towards a New Theory and Practice of "Sustainable" Product/ Service Systems. ERCP 7, Lund, IIIEE at Lund University.
- Factor 10 Club (1994). Declaration of the Factor 10 Club
- Foner, L. (1996) "A Multi-Agent Referral System for Matchmaking", Proceedings of the First International Conference on the Practical Application of Intelligent Agents and Multi-Agent Technology, pp. 245-261, London, UK.

- Ghazali, Mohd Mohayidin and Shaari Abd Hamid (1998) Small and Medium Sale Enterprises in Malaysia: Technological and Managerial Capacity, Universiti Putra Malaysia: Kuala Lumpur.
- Goedkoop, M. J., C. J. G. van Halen, et al. (1999). Product Service Systems, Ecological and Economic Basis, PricewaterhouseCoopers N.V. / Pi!MC, Storrm C.S., Pre consultants
- Head (1999) "Method and circuit for enabling rapid flux reversal in the coil of a write head associated with a computer device".
- Hoffer, J. A., George, J. F. & Valacich, J. S. (1999). *Modern Systems Analysis and Design* (2nd Edition). United Kingdom: Addison Wesley Longman.
- Kraemer, Kenneth L. and Jason Dedrick (2000). Impacts of e-commerce on firm and industry organization: issues and research questions. CRITO working paper, University of California, Irvine
- Krengel,K.http://www.kbdn.net/COLUMNSkitchens/Internet\_Connections/1999/031999\_Internet\_Connections-KKrengel.asp Last accessed 5-20-04.
- Leimstoll & Liberty, J. (2005). Beginning Object-Oriented Analysis and Design. Birmingham: Wrox Press Ltd.
- Littig, B. (1998). Gemeinsame Nutzung und ökoeffiziente Dienstleistungen im Privaten Haushalt. Vienna, Institute for Advanced Sociological Studies.
- Lizzeri, Alessandro (1999): "Information Revelation and Certification Intermediaries" The RAND Journal of Economics 30(2): 214-231.
- Maes. P. (1995) "Intelligent Software." Scientific American, Vol. 273, No. 3, pp. 84-86. Scientific American, Inc.
- Manzini, E. (1999). Sustainable Solutions 2020 Systems. Towards Sustainable Product Design 4th International Conference, Centre Borschette Conference Centre, Brussels, Belgium, The Centre for Sustainable Design.
- McWilliams, Gary (2000). Dell Computer Halts Sale of Web PC Line After Only 7 Months, The Wall Street Journal.
- Mont, O. (2000). Product-Service Systems. Stockholm, Swedish EPA, AFR-report 288: 83.
- Navathe, E. A. (2007). Fundamentals of Database Systems: Data Modeling Using the Entity-Relationship (ER) Data Model. New York: Prentice Hall.
- Nielsen, J. (2003). A mathematical model of the finding of usability problems. In ACM INTERCHI. Amsterdam, The Netherlands, April. 206-213.
- Oliver, R. L. (1999) "Whence Consumer Loyalty." Journal of Marketing 63, pp. 33-44.

- Rosenfeld, L. & Morville, P. (1998). Information architecture for the World Wide Web. California: Oreilly.
- Rust, J. (1985), "Stationary Equilibrium in a Market for Durable Assets," Econometrica, 53:4, 783-805.
- Ryan, C. (1998). "Designing for Factor 20 improvement." Journal of Industrial Ecology 2(1): 3-5.
- Schmidt-Bleek, F. (1996). MIPSbook or The Fossil Makers Factor 10 and more. Berlin, Boston, Basel.
- Schneider, G. P. (2003) Electronic Commerce, 4<sup>th</sup> Ed, Thomson Course Technology, Canada.
- Schrader, U. (1996). Consumption without Ownership A Realistic Way towards a More Sustainable Consumption. 5ht International Research Conference of the Greening of Industry Network, Heidelberg
- Shneiderman, B. (1998). Designing the User Interface: Strategies for Effective Human-computerInteraction (3rd ed). MA: Addison Wesley.
- Sinclair, Joseph T (2005). eBay the Smart Way: Selling, Buying, and Profiting on the web's #1Auction Site. Fourth Edition. New York, NY. AMACOM, 381.177 Si616e 4th ed.
- Spellman. (2002). Database Independent Implementation and Programming Language. New York: Prentice Hall.
- Spulber, D. F. (1996). Market microstructure and intermediation. Journal of Economic Perspectives, 10, 3, 135-152.
- Telescript (1996) << Telescript Technology "The Foundation for the Electronic Marketplace">>> http://genmagic.com/Telescript/Whitepapers/wp1/whitepaper-1-html
- Tsvetovatyy M. & M. Gini. (1996)Toward a Virtual Marketplace: Architectures and Strategies. Proceedings of the First International Conference on the Practical Application of Intelligent Agents and Multi-Agent Technology (PAAM'96), pp. 597-613. London, UK, April
- Turban, E., Aronson, J.E., Liang, T.P. (2005) Decision Support Systems and Intelligent Systems, 7 ed, Prentice Hall, USA Hendry (1990). Database design and information system. Texas: A&M University
- Turkle, S. (2004)"How Computers Change the Way We Think." <a href="http://chronicle.com">http://chronicle.com</a> Section: The Chronicle Review. Volume 50, Issue 21, page B26. Provided at Blackboard-6 for Digital Noesis class documents.
- Vaishnavi & Kuechler (2005). Design Research in information system. Retrieved March 15, 2007 from <a href="http://www.isworld.org/Researhdesign/drisISworld.htm">http://www.isworld.org/Researhdesign/drisISworld.htm</a>
- Valacich, J. S., George, J. M. & Hoffer, J. A. (2004). Essential of system analysis and design, Prentice Hall, Upper Saddle River, NJ.

- Vergragt, P. and L. Jansen (1993). "Sustainable Technological Development: the making of a long-term oriented technology programme." Project Appraisal 8(3): 134-140.
- Wall Street Journal Eastern Edition (2001). NASDAQ reports profit fell 57% to \$19.6 million in 2<sup>nd</sup> quarter, 238(37), p. C1.
- Weterings, R. A. P. M. and J. B. Opschoor (1992). The Environmental Capacity as a Challenge to Technology Development. Rijswijk, The Netherlands, RMNO [Advisory Council for Research on Nature and Environment].
- von Weizsäcker, E. U., A. B. Lovins, et al. (1997). Factor four. Doubling wealth halving resource use. London, Earthscan.