MOBILE ALERT SYSTEM FOR CHILDREN IMMUNIZATION

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Universiti Utara Malaysia

2008

MOBILE ALERT SYSTEM FOR CHILDREN IMMUNIZATION

A Thesis submitted to college Arts & Sciences in partial

Fulfillment of the requirement for the degree master

(Information Technology)

Universiti Utara Malaysia

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ABSTRACT

Nowadays integration of the new technology for different purpose, need to provide new facilities that satisfy with the users needs. The study proposed the mobile alert system for children immunization to support parents by provide them with the appropriate technology to alert immunization date. For their children rapid growth with the using of mobile services becomes more necessary in various fields especially for those who familiar with the mobile devices. With mobile alert system for children immunization, parents will be able to receive alert messages about the immunization state of their children anytime and anywhere. The proposed system save time and effort of parents to make their immunization check in case of forget the date of the immunization. Mobile alert system for children immunization obtains the easy way to enquire about their children immunization state by the alert messages, that the immunization center provides it.

ACKNOWLEDGEMENT

My gratefulness to my supportive and helpful supervisor, **DR.** Faudziah Ahmad for assisting and guiding me in the completion of this research. With all truthfulness, without her, the project would not have been a complete one. She has always been my source of motivation and guidance. I am truly grateful for her continual support and cooperation in assisting me all the way through the semester. I am grateful to **ASSOC PROF. DR.** Wan Rozaini Sheik Osman for their help in making my project successful.

I would like to present my thanks to my father, my mother and all my family who has always been there for me. Finally, I would like to express my appreciations to all my friends, colleagues, FTM staff, and everyone who has helped me in this journey.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter briefly elaborates the main idea of this work, providing answer of the question why the study was conducted and what is the main element involved in the study. The first sub-topic describes the overall idea in this study through the introduction and motivation that lead to the implementation of the whole project. This is followed by the problem statement, objectives of the study, significance of the study and scope of the study. The last sub-topic elaborates the way this project is organized.

1.1 Overview

Mobile services differ from traditional services in their ability to provide service offerings regardless of temporal and spatial constraints. They are also different from traditional interpersonal services that are delivered face-to-face, or from other types of e-services, such as wireless online services, where the service delivery is linked to a specific fixed local area network or specific location. Although an increasing number of academic studies are starting to focus on mobile services from a service management

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REFERENCES

Anastasi, G., Bandelloni, R., Conti, M., Delmastro, F., Gregori, E. & Mainetto, G. (2003) Experimenting an Indoor Bluetooth-Based Positioning Service. ICDCSW'03: 23rd International Conference on Distributed Computing Systems Workshops 2003, 480–483.

Arehart, C. et al., "Professional WAP", Wrox Press, Oct 2000

Axel van Lamsweerde: Building Formal Models for Software Requirements. APSEC 2000: 134

Barnes, S. J. (2003) Known By the Network: The Emergence of Location-Based Mobile Commerce. Advances in Mobile Commerce Technologies, 171–189.

Barwise, P. & Strong, C. (2002) Permission-Based Mobile Advertising. Journal of Interactive Marketing. Vol. 16, no. 1, 14–24.

Brasche, Gotz and Walke, Bernhard "Concepts, Services, and Protocols of the New GSM Phase 2+ General Packet Radio Service". IEEE Communications Magazine, August 1997, pp. 94-104

Center of disease control and prevention retrieved on 10th September from http://www.cdc.gov

Christopher, C., & George V.(2002). Mobile marketing using location based services, in Proceedings of the 1st International Conference on Mobile-Business, 6(5) 407-408, Athens: Greece..

Christian, L., (2002). E-Health with mobile grids: The akogrimo heart monitoring and emergency scenario. in Sixth Framework Programme Priority Ist- 2.3.1.18

Cia, Jian and Goodman, David J. "General Packet Radio Service in GSM". IEEE Communications Magazine, October 19997, pp. 122-131.

Dancel, R., "WAP-enabled cell phone war begins", Philippine Daily Enquirer, May 2000, http://www.inquirer.net/infotech/may2000wk1/info_5.htm

Dimitri K., Val J., & Richard B. (2002). mobiHealth innovative 2.5 / 3G mobile services and applications for healthcare. in Proceedings of the Eleventh Information Society Technologies.

Dragomir R. Radev, Eduard H. Hovy, Kathleen McKeown: Introduction to the Special Issue on Summarization. Computational Linguistics 28(4): 399-408 (2002).

El-Masr, S. (2005). Mobile comprehensive emergency system using mobile web services, in The Second International Conference on Innovations in Information Technology (IIT'05).

F. G. Dias, Elaboration of use case specifications: an approach based on use case fragments 2008,ppt 614-618.

Fredrik Törner, Martin Ivarsson, Fredrik Pettersson, Peter Öhman: An Empirical Quality Assessment of Automotive Use Cases. RE 2006: 86-95

George, M. G., Ada, P. & Argiris T. (2002). On the potential use of mobile positioning technologies in indoor environments. In 15th Bled Electronic Commerce Conference eReality: Constructing the eEconomy.

Giaglis, G.M., Kourouthanassis, P. & Tsamakos, A. (2002) Towards a classification framework for mobile location services. in Mennecke, B.E. and Strader, T.J. (Eds.), Mobile Commerce: Technology, Theory, and Applications:Idea Group Publishing.

Guerra, A., Fernando, A. (2007). Delays in immunization have potentially serious health consequences, 9(3) (pp. 143-148) : Adis International.

Hierarchical Text Summarization for WAP-Enabled Mobile Devices Dragomir Radev School of Information University of Michigan 304 West Hall Ann Arbor, MI 48109-1092

Holle R, Zahlmann G (1999) Evaluation of telemedical services. IEEE Trans Inf Technol Biomed 3(2):84–91, June

Inderjeet Mani. Automatic Summarization. (2001). Amsterdam: John Benjamins.

Jacobson, Van, McCanne, Steven and Leres, Craig "TCPDUMP". Lawrence Berkely National Laboratory, University of California, Berkeley, CA.

Kanchana, K., Apinun T., & Mohammad, A. (2007). A Multimedia communication system for collaborative emergency response operation in disaster-affected areas. Internet Education and Research Laboratory (intERLab).

Kementarian kesihatan Malaysia retrieved on 10th September from http://www.moh.gov.my.

Kaasinen, E. (2003) User Needs for Location-Aware Mobile Services. Personal and Ubiquitous Computing. Vol. 7, no. 1, 70–79.

Kern SE, Jaron D (2003) Healthcare technology, economics and policy: an evolving balance. IEEE Eng Med Biol Mag 22:16–19, Jan–Feb

L. Bao and J. Garcia-Luna-Aceves. Transmission scheduling in ad hoc networks with directional antennas. In Proc. ACM English Annual International Conference on Mobile Computing and Networking, pages 23–28, Atlanta, Georgia, USA, 2002.

Lin JC (1999) Applying telecommunications technology to health-care delivery. IEEE Eng Med Biol 28–31, July–August

Mouly and Pautet, "The GSM System for Mobile Communication", 1992, 701 pages, ISBN 2-9507190-0-7.

Munson, J. & Gupta, V. (2002) Location-Based Notification as a General-Purpose Service. International Conference on Mobile Computing and Networking. 2nd International Workshop on Mobile Commerce, 40–44.

Octopus. http://www.mobileforum.org/octopus/ [referenced 22 Oct 2003].

Ojala T., Korhonen J., Aittola M., Ollila M., Koivumäki T., Tähtinen J. & Karjaluoto H. (2003) SmartRotuaari – Context-aware mobile multimedia services. MUM 2003: 2nd International Conference on Mobile and Ubiquitous Multimedia, 9–18.

Orkut Buyukkokten, Oliver Kaljuvee, Hector Garcia-Molina, Andreas Paepcke, Terry Winograd: Efficient web browsing on handheld devices using page and form summarization. ACM Trans. Inf. Syst. 20(1): 82-115 (2002)

Phone.corn: UP.SDK Development Kit, Release 4.1, 2000. URL: http://developer.phone.com/

Ranganathan, A. & Campbell, R. (2002) Advertising in a Pervasive Computing Environment. International Conference on Mobile Computing and Networking. 2nd International Workshop on Mobile Commerce, 10–14.

Ram Ramanathan, Jason Redi, Cesar Santivanez, David Wiggins, and Stephen Polit. Ad hoc networking with directional antennas: A complete system solution. IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS, 23(3):496–506, March 2005. IAB Platform Status Report: A Mobile Advertising Overview July 2008

Telecommunications Industry Association (TIA). TIA/EIA/IS-95 "Mobile Station - Base Station compatibility Standard for Dual-Mode Wideband Spread Spectrum Cellular Systems", August 3, 1998. http://www.tiaonline.org.

Tang, D. and Baker, M. "Analysis of a Metropolitan-Area Wireless Network". Mobicom '99, Seattle Washington USA, 1999, pages 13-23.

Varshney, U. & Vetter, R. (2002) Mobile Commerce: Framework, Applications and Networking Support. Mobile Networks and Applications. Vol. 7, no. 3, 185–198. Varshney U, Vetter R (2000) Emerging wireless and mobile networks. Communications of the ACM 43(6):73–81, June

WAP Forum: Wireless Markup Language Specification, April 30, 1998. URL: http ://www.wap forum.org/

WAP Forum: WMLScript Specification, April 30, 1998. URL: http://www.warpforurn.org/

Wojtek Michalowski (2005). Design and development of a mobile system for supporting emergency triage. In Journal Methods of Information in Medicine, 44(1) (pp.14-24).

Yunos, H., Gao, J. & Shim, S. (2003) Wireless Advertising's Challenges and Opportunities. IEEE Computer. Vol. 36, no. 5, 30–37.