MOBILE DUA AND ZIKR FOR HAJJ
(MDZ4H)

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ABSTRACT

In the last decade, the number of mobile phone users has increased dramatically. Nowadays, mobile phone has become part of people's life. Today's mobile phones provide not just voice call and messaging services, but plethora of other services. This research is about the utilization of mobile phone for dua and zikr for Hajj. The main aim of this research is to develop a mobile Dua and Zikr in order to help Hajj pilgrims to recite them while performing all the required rituals. At the moment, this research focuses on developing the application on Android platform. In developing the application, all the required Dua and Zikr have to be gathered, compiled and verified before the prototype could be developed using J2ME. The prototype consists of the text and audio files of the recited Dua and Zikr in Arabic as well as the translation in Malay. Finally the prototype has been evaluated by users and experts using two sets of questionnaires. It is hoped that the developed prototype would be able to help the pilgrims to easily and conveniently recite the Dua and Zikr towards achieving Hajj Mabrur.

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Finally, I would like to dedicate this work to the memory of my grandfather Aidaroos Bin Omar Al-Kaff.

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INTRODUCTION

1.0 Introduction

Hajj (pilgrimage) is the fifth pillar of Islam that must be carried out at least once in a lifetime by every able bodied Muslim. It is the largest annual convention of faith in the world that requires travelling to Makkah. Hajj is performed based on predetermined dates, times, and places. It is a demonstration of the solidarity of the Muslims and their submission to Allah. Hajj is an important event in every Muslims' life, which offers religious, educational, scientific, social, economical, political and other benefits that are rewarded by Allah to Muslims (Khan, 2007). Two to three millions out of 1.5 billion Muslims around the world performed Hajj annually.

The term Hajj literally means to resolve for visiting a sacred place. However, technically it means to visit a sacred place for performing certain acts of worship (Ibadah). In Islam the term Hajj implies to visit the Kaabah for the sake of performing a particular kind of Ibadah that Allah (SWT) has made an obligation for those Muslims who fulfill certain conditions stipulated by him (Obaid, 2008). The cubical edifice that is known as Kaabah is situated in Makkah at the site of a house that Ibrahim (May Allah grant him peace) had built by the command of Allah (SWT)

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Butler, M. (2011). Android: Changing the mobile landscape. *IEEE Pervasive Computing, 10*(1), 4-7.

Byrom, G. (1998). If you can't read it then audio read it. *Reading, 32*(2), 3-7.

Caire, G., Porta, M., Quarantotto, E., & Sacchi, G. (2008). *Wolf–an Eclipse Plug-in for WADE.* Paper presented at the IEEE 17th Workshops on Enabling Technologies: Infrastructure for Collaborative Enterprises WETICE '08.

Carlsson, C., Hyvonen, K., Repo, P., & Walden, P. (2005). *Asynchronous adoption patterns of mobile services.* Paper presented at the 38th Annual Hawaii International Conference on System Sciences, Hawaii, USA.

Castro, E. (2001). *XML for the World Wide Web Visual QuickStart Guide* (1st ed.). Berkeley, USA: Peachpit Press.

Cha, S., Kurz, J. B., & Du, W. (2009). *Toward a unified framework for mobile applications.* Paper presented at the Communication Networks and Services Research Conference, 2009. CNSR '09. Seventh Annual.

Charlesworth, A. (2009). The ascent of smartphone. *Engineering & technology, 4*(3), 32-33.

Chase, N. (2001). *XML and Java from Scratch* (1st ed.). Indianapolis, Indiana, USA: Que Corp.

Chase, N., & Foreword By-Liberty, J. (2001). *XML and Java from Scratch* (1st ed.). Indianapolis, IN, USA: Que Corp.

Chen, S., & Wang, X. (2003). *Power quality XML markup language for enhancing the sharing of power quality data*.

Chen, S. W., Yang, C. H., & Liu, C. T. (2011). *Design and Implementation of Live SD Acquisition Tool in Android Smart Phone*. Paper presented at the Fifth International Conference on Genetic and Evolutionary Computing.

Chen, X. (2011). *Smartphone virtualization: Status and challenges.* Paper presented at the International Conference on Electronics, Communications and Control (ICECC2011).

Chen, Y. (2010). Dictionary use and EFL learning. A contrastive study of pocket electronic dictionaries and paper dictionaries. *International Journal of Lexicography, 23*(3), 275-306.

Chin, J. P., Diehl, V. A., & Norman, K. L. (1988). *Development of an instrument measuring user satisfaction of the human-computer interface.* Paper presented at the ACM CHI'88 Proceedings.

Choi, Y., Yang, J. S., & Jeong, J. (2009). *Application framework for multi platform mobile application software development.* Paper presented at the 11th International Conference on Advanced Communication Technology.

Coakes, S. J., & Steed, L. (2009). *SPSS: Analysis Without Anguish Using Spss Version 14.0 for Windows*. New York, NY, USA: John Wiley & Sons, Inc.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Dennis, A., Wixom, B. H., & Roth, R. M. (2008). *System analysis and design* (4th ed.): Wiley.

Desrosiers, R. E. (1996). *Electronic books as teaching supplements.* Paper presented at the 26th Annual Conference Proceedings of Frontiers in Education.

DiMarzio, J. F. (Ed.). (2008). *Android: A Programmer's Guide*. Chicago, United States of America: McGraw-Hill Companies.

Doukas, C., Pliakas, T., & Maglogiannis, I. (2010). *Mobile healthcare information management utilizing cloud computing and android OS.* Paper presented at the 32nd Annual International Conference of the IEEE EMBS, Buenos Aires, Argentina.

Duego, D. (2006). *A TINI Development Environment for Eclipse.* Paper presented at the 32nd Annual Conference on IEEE Industrial Electronics, IECON 2006

Elliott, G., & Phillips, N. (2003). *Mobile Commerce & Wireless Computing Systems* (1st ed.): Pearson Education.

Fathnan, A. A., Wibowo, C. P., Hidayat, N. F., Marenda, D. A., & Ferdiana, R. (2010). *Web-based Hajj simulation software Learning Hajj through interactive software.* Paper presented at the International Conference on Information and Communication Technology for the Muslim World (ICT4M 2010) Jakarta, Indonesia.

Fogg, B. J. (2002). Persuasive technology: using computers to change what we think and do. *Ubiquity, 2002*(December), 5.

Fowler, M., & Scott, K. (2000). *UML distilled: a brief guide to the standard object modeling language* (2ed ed.). Boston, USA: Addison-Wesley Longman Publishing Co., Inc.

Geer, D. (2005). Eclipse becomes the dominant Java IDE. *Computer, 38*(7), 16-18.

Gericke, A. (2009). *Analysis of Design Science Research Patterns from an Engineering Perspective.* Paper presented at the IADIS International Conference Information Systems 2009 (IS 2009), Barcelona, Spain

Glover, J. D., Sarma, M. S., & Overbye, T. (2011). *Power System Analysis and Design: Si Edition* (5th, SI ed.). Stamford, CT, USA: Thomson Engineering.

Gregory, R. L. (Ed.). (2004). *The Oxford companion to the mind* (2ed ed.). New York, NY, US: Oxford University Press.

Gruber, A., Alsallakh, B., Bodesinsky, P., & Miksch, S. (2012). *Visual Tracing for the Eclipse Java Debugger.* Paper presented at the 16th European Conference on Software Maintenance and Reengineering.

Gu, J., Mukundan, R., & Billinghurst, M. (2008). *Developing mobile phone AR applications using J2ME.* Paper presented at the 23rd International Conference Image and Vision Computing New Zealand IVCNZ 2008, New Zealand.

Hameed, S. A. (2010). *ICT to serve Hajj: Analytical study.* Paper presented at the International Conference on Computer and Communication Engineering (ICCCE 2010), Kuala Lumpur, Malaysia.

Hartness, K. T. N. (2012). INTRODUCTION TO ANDROID. *The Journal of Computing Sciences in Colleges*, 85.

Hemachandra. (n. d.). Mobile Programming with J2ME Retrieved 02-03-2012, from http://digit.lk/beta/?q=node/172

Hevner, A., & Chatterjee, S. (2010). *Design Research in Information Systems: Theory and Practice* (Vol. 22). New York, USA: Springer Verlag.

Hill, B. W. (2011). Market Overview: Message Archiving Software-As-A-Service, Q3 2011.

Himdi, T. F., & Sandhu, R. S. (1997). *Lattice-based models for controlled sharing of confidential information in the Saudi Hajj system.* Paper presented at the the 26th Annual Conference Proceedings of Frontiers in Education, Salt Lake City, UT, USA.

Hoffer, J. A., George, J. F., & Valacich, J. S. (2011). *Modern Systems Analysis and Design* (6th ed.): Prentice Hall.

Hussain, Z., Lechner, M., Milchrahm, H., Shahzad, S., Slany, W., Umgeher, M., . . . Wolkerstorfer, P. (2008). *User interface design for a mobile multimedia application: An iterative approach.* Paper presented at the First International Conference on Advances in Computer-Human Interaction.

hwan Park, J., Song, T. H., Jung, S. M., & Jeon, J. W. (2007). *XML based robot description language.* Paper presented at the International Conference on Control, Automation and Systems, Seoul, Korea.

Ichikawa, F., Chipchase, J., & Grignani, R. (2005). *Where's the phone? A study of Mobile Phone Location in Public Spaces.* Paper presented at the 2nd International Conference on Mobile Technology, Applications and Systems.

Initiative, O. S. (2007). The open source definition. *URL: http://www. opensource. org/docs/osd, accessed on*, 10-17.

Jung, I. G., & Lee, G. H. (2003). *Studies on Services with CAMEL features in 3G.* Paper presented at the 14th IEEE Proceedings on Personal, Indoor and Mobile Radio Communications.

JunWu, X., & JunLing, L. (2010). *Develop Mobile Application with J2ME for 3G networks.* Paper presented at the Second International Workshop on Education Technology and Computer Science (ETCS2010).

Khan, Q. S. (2007). *Hajj- Journey problems and their easy solutions* (1st ed.). Mumbai, India: Tanveer Publication.

Knudsen, J., & Li, S. (2005). *Beginning J2ME: from novice to professional* (3ed ed.). USA: Apress.

Koushanfar, F., Prabhu, V., Potkonjak, M., & Rabaey, J. M. (2000). *Processors for mobile applications.* Paper presented at the International Conference on Computer Design.

Laudon, K. C., & Laudon, J. P. (2009). *Management Information Systems: Organization and Technology* (11th ed.). Upper Saddle River, NJ, USA: Prentice-Hall.

Lewis, J. R. (1995). IBM computer usability satisfaction questionnaires: psychometric evaluation and instructions for use. *International Journal of Human- Computer Interaction, 7*(1), 57-78.

Mogg. (2012). US Smartphone users now over 100 million, Android increases market share Retrieved 4-4-2012, from http://www.digitaltrends.com/mobile/us-smartphone-users-now-over-100-million-android-increases-market-share/

Mohrman, S. A. (2007). Having Relevance and Impact. *The Journal of Applied Behavioral Science, 43*(1), 12-22.

Moon, S. W., Kim, Y. J., Myeong, H. J., Kim, C. S., Cha, N. J., & Kim, D. H. (2011). *Implementation of Smartphone Environment Remote Control and Monitoring System for Android Operating System-based Robot Platform*. Paper presented at the 8th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI 2011), Songdo ConventiA, Incheon, Korea.

Nielsen, J. (2006). Quantitative studies: How many users to test. *Alertbox, June, 26*, 2006.

Nusca. (2009). Smartphone vs. feature phone arms race heats up; which did you buy? Retrieved 28-3-2012 from http://www.zdnet.com/blog/gadgetreviews/smartphone-vs-feature-phone-arms-race-heats-up-which-did-you-buy/6836

Obaid, M. A. (Ed.). (2008). *Hajj Concept & Practice* (1st ed.). Malaysia, KL: A. S. Noordeen.

Ozsoyoglu, G., Balkir, N. H., Cormode, G., & Ozsoyoglu, Z. M. (2000). *Electronic books in digital libraries.* Paper presented at the ADL. Proceedings. IEEE on Advances in Digital Libraries.

Perens, B. (1999). The open source definition. *Open sources: voices from the open source revolution*, 171-188.

Ren, W., & Yu, D. (2011). *Research on encryption technology based on J2ME socket network communication.* Paper presented at the International Conference on Mechatronic Science, Electric Engineering and Computer (MEC2011),.

Röthlisberger, D., Härry, M., Binder, W., Moret, P., Ansaloni, D., Villazón, A., & Nierstrasz, O. (2011). Exploiting dynamic information in IDEs improves speed and correctness of software maintenance tasks. *IEEE Transactions on Software Engineering, 99*.

Ryan, C., & Rossi, P. (2005). *Software, performance and resource utilisation metrics for context-aware mobile applications.* Paper presented at the Software Metrics, 2005. 11th IEEE International Symposium.

Samuel, P., & Joseph, A. T. (2008). *Test Sequence Generation from UML Sequence Diagrams.* Paper presented at the Ninth ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing, 2008. SNPD'08.

Saran, M., Cagiltay, K., & Seferoglu, G. (2008). *Use of mobile phones in language learning: Developing effective instructional materials.* Paper presented at the Fifth IEEE International Conference on Wireless, Mobile, and Ubiquitous Technology in Education, WMUTE 2008. .

Sarasa-Cabezuelo, A., Temprado-Battad, B., Sierra, J. L., & Valmayor, A. F. (2009). *XML Language-Oriented Processing with XLOP.* Paper presented at the International Conference on Advanced Information Networking and Applications Workshops.

Schall, G., Grabner, H., Grabner, M., Wohlhart, P., Schmalstieg, D., & Bischof, H. (2008). *3D tracking in unknown environments using on-line keypoint learning for mobile augmented reality.* Paper presented at the IEEE Computer Society Conference on Computer Vision and Pattern Recognition Workshops, 2008. CVPRW '08. .

Scott, D., Beresford, A., & Mycroft, A. (2003). *Spatial policies for sentient mobile applications.* Paper presented at the 4th International Workshop on Policies for Distributed Systems and Networks, IEEE.

Shiratuddin., N. (2009). *Design Research in Software Development Constructing and Linking Research Questions, Objectives, Methods and Outcomes* (1st ed.). Malaysia, Kedah, Sintok: Universiti Utara Malaysia.

Spencer, P. (1999). *Professional XML Design and Implantation* (1st ed.). Birmingham, UK: Worx Press.

STONE, B. (2008). Publishers Phase Out Piracy Protection on Audio Books. *The New York Times, 3*.

Tahnoon Al Ali, M. A., Berri, J., & Zemerly, M. J. (2008). *Context aware mobile Muslim companion.* Paper presented at the 5th International Conference Proceedings on Soft computing as transdisciplinary science and technology.

Tan, Z., Zheng, S., Liu, P., Lin, G., & Yu, S. (2006). An implementation of open source operating system on multiprocessor system-on-a-chip. *Consumer Electronics, IEEE Transactions on, 52*(3), 1118-1123.

Taylor, J. M. (2004). Serving Blind Readers in a Digital Age-LC's National Library Service for the Blind and Physically Handicapped moves toward a digital future. *American Libraries, 35*(11), 49-51.

Teng, C. C., & Helps, R. (2010). *Mobile application development: Essential new directions for IT.* Paper presented at the Seventh International Conference on Information Technology: New Generations (ITNG).

Tiainen, M., Wigelius, H., & Lonnqvist, A. (2009). *Measuring mobile service innovation.* Paper presented at the Third International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies.

Tilson, D., Sørensen, C., & Lyytinen, K. (2012). *Change and Control Paradoxes in Mobile Infrastructure Innovation*. Paper presented at the 45th Hawaii International Conference on System Sciences.

Vaishnavi, V. K., & Kuechler, W. (2008). *Design Science Research Methods and Patterns: Innovating Information and Communication Technology* (1st ed.): Auerbach Publications, Taylor and Francis Group, Boca Raton, FL.

Viswanathan. (n. d.). What is a Mobile Device Retrieved 29-2-2012, from http://mobiledevices.about.com/od/glossary/g/What-Is-A-Mobile-Device.htm

Webopedia. (n. d.). Mobile Phone Retrieved 26-2-2011, from http://www.webopedia.com/TERM/M/mobile_phone.html

Wu, Y., Luo, J., & Luo, L. (2010). *Porting mobile web application engine to the Android platform.* Paper presented at the 10th IEEE International Conference on Computer and Information Technology (CIT 2010).

Zhang, X. (2009). *Design of mobile electronic commerce system based on J2ME.* Paper presented at the International Conference on Electronic Computer Technology.

Zhang, X., Liu, H., & Abraham, A. (2012). A Novel Process Network Model for Interacting Context-aware Web Services. *Services Computing, IEEE Transactions on*(99), 1-1.