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A MOBILE GOVERNMENT PORTAL FOR DRIVING SERVICES
IN THE MALAYSIAN ROADS AND TRANSPORTS DEPARTMENT

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Abstract

The use of information technology has been one of the core elements in transforming the way government interacts with its citizens. Mobile government and the delivery of e-services from government are changing the way government governs and interacts with its citizenry. This study was implemented to create a new channel in Malaysia between the Malaysian government and its citizens and residents, to be more interactive with the delivery of e-services from the perspective of the direct service provider. The study examines the current state and the willingness of some developed countries to implement more interactive mobile portal for the delivery of e-services.

E-services are present but the sophistication is still in its infancy when used by un-developed countries. Un-developed countries only provide published information and downloadable forms. Most un-developed countries portals provides only one way of communications, all of them still in the basic level of electronic interaction. Delivery of e-services for those countries is far from being mastered by the services provider. It's particularly lacking attention on making the services more interactive. Therefore, there are needs to develop and implement more effective two way of communication between the service providers "Government Ministries" in Malaysia and the users "Citizens".

DEDICATION

I humbly thank Allah Almighty, the Merciful and the Beneficent, who gave me health, thoughts and co-operative people to enable me achieve this goal.

I wish to dedicate this work to Holy Prophet Muhammad (Peace is upon him) and his companions who laid the foundations of Modern civilization and paved the way for social, moral, political, economical, cultural and physical revolution.

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1. INTRODUCTION

1.1 Background

Electronic Government is the government that made its services available online for its citizens and users through electronic devices such as computers, mobiles, wireless and other devices that can access to internet (Kushchu, 2007). Internet and wireless devices is rapidly coming to be preferred contrivance for governments to deliver their services to their citizens in an efficient and effective way without wasting too much governmental resources, efforts and times (Borucki, Arat, & Kushchu, 2005). Nowadays, the sharply rapid of advancing and developing in mobile and internet technologies have enabled mobile phones, personal digital assistant PDA, Wi Fi, i-phone and wireless networks to deliver government's services to citizens in more efficient and effective interaction and in short time (Medjahed, Rezgui, Bouguettaya, & Ouzzani, 2003). That sharply advancing and developing have made a new conduit between governments and their citizens allow the government to offer its services by using mobile phone, Wi Fi, PDA, etc, that what now called the Mobile Government "M-Government". M-government has defined as "The strategy and its implementation involving the utilization of all kinds of wireless and mobile technology, services, applications and devices for improving benefits to the parties involved in e-government including citizens, businesses and all government units" (Kushchu & Kuscu, 2003).

Governmental information and services delivering process is a high priority governmental duty's and sometimes is not an easy doing. This responsibility allows the

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References

- Al-Sebie, M., & Irani, Z. (2005). Technical and organisational challenges facing transactional e-government systems: an empirical study. *Electronic Government, an International Journal*, 2(3), 247-276.
- Ambali, A. (2009). Digital Divide and its Implication on Malaysian E-Government: Policy Initiatives. *Social and Political Implications of Data Mining: Knowledge Management in E-government*, 267.
- Ambali, A., & Hashim, R. (2007). *e-government in Malaysia: trends, policy, issues and initiatives*.
- Antovski, L., & Gusev, M. (2003). *M-payments*.
- Avison, D., & Fitzgerald, G. (1995). *Information systems development: methodologies, techniques and tools*: McGraw-Hill London.
- Bennett, S., McRobb, S., & Farmer, R. (2005). Object-oriented Systems Analysis and Design Using UML. *McGraw Hill Higher Education*.
- Borucki, C., Arat, S., & Kushchu, I. (2005). *Mobile government and organizational effectiveness*.
- De Boor, A., & Eggers, M. (2003). Wireless communication device with markup language based man-machine interface: Google Patents.
- Deitel, H., Deitel, P., Nieto, T., & Steinbuhler, K. (2002). *Wireless internet & mobile business: How to program*: Prentice Hall New Jersey.
- El-Kiki, T. (2007). *mGovernment: A Reality Check*.
- El-Kiki, T., Lawrence, E., & Steele, R. (2005). A management framework for mobile government services. *COLLECTeR, Sydney, Australia*.
- Foo, S., Hoover, C., & Lee, W. *Dynamic WAP application development*: Manning Publications Co.
- Gang, S. (2005). *Transcending e-Government: a Case of Mobile Government in Beijing*.
- Ghyasi, A., & Kushchu, I. (2004). *m-Government: Cases of developing countries*.
- Ghyasi, F., & Kushchu, I. (2004). Uses of mobile government in developing countries. *Mobile Government Lab (mGovLab. org)* Retrieved November, 1, 2006.
- Glickman, S. (2007). The Business Case for System-Wide Information Management. *Aerospace and Electronic Systems Magazine, IEEE*, 22(10), 3-12.
- Held, G. (2000). *Data over wireless networks: Bluetooth, WAP, & wireless LANs*: McGraw-Hill Professional.

- Heuck, C. *Benefits and limitations of hybrid (broadcast/mobile) networks*.
- Hsinchun, C. (2009). AI, E-government, and Politics 2.0. *Intelligent Systems, IEEE*, 24(5), 64-86.
- Imielinski, T., & Badrinath, B. (1994). Mobile wireless computing: challenges in data management. *Communications of the ACM*, 37(10), 18-28.
- Jaworski, J., Perrone, P., & Chaganti, V. (2000). *Java security handbook*: Macmillan Press Ltd. Basingstoke, UK, UK.
- Jong-Weon, K., Kyu-Tae, K., & Jong-Uk, C. (2006). Securing E-Government Services. *Computer*, 39(11), 111-112.
- Kaur, R. (2006). Malaysian e-Government Implementation Framework.
- Khalid, N. (2003). *E-government in Malaysia: Improving responsiveness and capacity to serve*: Pelanduk Publications.
- Kiki, T., & Lawrence, E. (2006). *Government as a Mobile Enterprise: Real-time, Ubiquitous Government*.
- Kothari, C. (2005). *Research Methodology: Methods & Techniques*: New Age International.
- Kushchu, I. (2007). *Mobile government: an emerging direction in e-government*: IGI Publishing Hershey, PA, USA.
- Kushchu, I., & Kuscu, H. (2003). *From E-government to M-government: Facing the Inevitable*.
- Lahann, J., Mitragotri, S., Tran, T., Kaido, H., Sundaram, J., Choi, I., et al. (2003). A reversibly switching surface. *Science*, 299(5605), 371.
- Laudon, K., & Laudon, J. (1995). *Management information systems: organization and technology*: Prentice-Hall, Inc. Upper Saddle River, NJ, USA.
- Lee, S., Tan, X., & Trimi, S. (2005). Current practices of leading e-government countries. *Communications of the ACM*, 48(10), 104.
- Lewis, J. (1995). IBM computer usability satisfaction questionnaires: psychometric evaluation and instructions for use. *International Journal of Human-Computer Interaction*, 7(1), 57-78.
- Lim, E. (2001). Mobile commerce: promises, challenges, and research agenda. *Journal of Database Management*.
- Mandato, D., Kovacs, E., Hohl, F., & Amir-Alikhani, H. (2002). CAMP: a context-aware mobile portal. *IEEE Communications Magazine*, 40(1), 90-97.
- MCMC. (2009). Hand phone Users Survey Retrieved 20\1\2010, 2010, from http://www.skmm.gov.my/index.php?c=public&v=art_view&art_id=11

- Medjahed, B., & Bouguettaya, A. (2005). Customized delivery of e-government Web services. *Intelligent Systems, IEEE*, 20(6), 77-84.
- Medjahed, B., Rezgui, A., Bouguettaya, A., & Ouzzani, M. (2003). Infrastructure for e-government Web services. *Internet Computing, IEEE*, 7(1), 58-65.
- Mukherjee, A., & Biswas, A. (2005). *Simple implementation framework for m-government services*.
- Östberg, O. (2003). *A Swedish View on 'Mobile Government'*.
- Pao-Long, C., & Chiung-Wen, H. (1998). The development strategies for Taiwan's semiconductor industry. *Engineering Management, IEEE Transactions on*, 45(4), 349-356.
- Paukkunen, M. (1999). Wireless Application Protocol. *Internet Citation, Apr*, 14.
- Ruth, S., & Doh, S. (2007). Is E-Government Ready for Prime Time? *Internet Computing, IEEE*, 11(2), 80-82.
- Sadeh, N. (2002). *M-Commerce: Technologies, services, and business models*: John Wiley & Sons, Inc. New York, NY, USA.
- Siau, K., & Shen, Z. (2003). Mobile communications and mobile services. *International Journal of Mobile Communications*, 1(1), 3-14.
- Thekens, J. R. (1997). Open system concepts for modular avionics. *Aerospace and Electronic Systems Magazine, IEEE*, 12(10), 30-34.
- Trimi, S., & Sheng, H. (2008). Emerging trends in M-government. *Communications of the ACM*, 51(5), 53-58.
- Vaishnavi, V., & Kuechler, W. (2004). Design research in information systems. *January*, 20, 2004.
- Weiss, L., & Thurbon, E. (2006). The business of buying American: Public procurement as trade strategy in the USA. *Review of International Political Economy*, 13(5), 701-724.
- Wescott, C. (2001). E-government in the Asia-Pacific Region. *Asian Journal of Political Science*, 9(2), 1-24.
- Wood-Harper, T., Ibrahim, O., & Ithnin, N. (2004). *An interconnected success factor approach for service functional in Malaysian electronic government*. Paper presented at the Proceedings of the 6th international conference on Electronic commerce, Delft, The Netherlands.
- Wood-Harper, T., Ithnin, N., & Ibrahim, O. (2004). *Effective collaborative partnership for Malaysian electronic government service delivery*.