An Integrated Multimedia Application: A Review Model and Design during Wireless Cellular Transmission

Zhao Guangzhi[1], AAmir Shahzad[1], Muhammad Irfan[2], Hyangran Lee, and Malrey Lee[1]

[1] 561-756, Center for Advanced Image and Information Technology, School of Electronics & Information Engineering, Chon Buk National University,
664-14, 1Ga, Deokjin-Dong, Jeonju, Chon Buk, Korea, frankzgz1234@gmail.com,
mail2aamirshahzad@gmail.com, orange1469@naver.com,
mrlee@jbnu.ac.kr (Corresponding Author)
[2] Infrastructure University Kuala Lumpur (IUKL), MalaysiaKuala Lumpur, Malaysia,
Irfanview2@gmail.com

Abstract. Now days, wireless multimedia applications demands have been growing, due to busy life. The proposed study emphasized on special issues that are residing in the life of human, more especially, during pray time. This study trends the new directions and resolved the issues of cell communication, which are arising, during pray time in Muslim Mosques and Christian churches and other pray temples. The problem statement has been conducted that show, mostly, men/women (or human) forgot to off (or shut down) their cell phones during pray time, which creates the issues or disturbance within pray. An especial wireless multimedia application design has proposed to resolve the cell communication issues during pray time. This wireless multimedia application detects and analyzes the real cell phone devices, and it belonging details and display them on the especial integrated screen or display. Therefore, during entrance of prayer(s) (or men/women), this application captures the belonging detail of cell phones, analyzed them and display the details on display screen, with especial purpose blinking (or blinking alarm). On displaying the belonging detail of cell phones, the prayers should able to silent or shutoff their devices. In this paper, a detail review model has described and subsequently, this special purpose application would be tested in simulation environments and security issues are analyzed, and resolved.

Keywords: Wireless transmission, Smartphone, Detection system, Multimedia application, integrated review model and designed, Security issues.

1 Introduction

With the demands of information technologies, the mobile based multimedia applications are getting more popularity and are more useable in various disciplines of interactive information contents. Nowadays, cellular phones are providing many communication facilities and are connected with various multimedia devices [1], [2]. Multimedia applications such as images and animation, text, audio/video, computer

vision, pattern recognition, and applications in the forms of interactive content, have important concerned in arena of information technology, and also combine to make feasible for various incorporative fields in the terms of communications, computing, and information processing [1], [2], [3]. In this section, an overview has created to understand the basic logic behind the components that would be employed in proposed study.

Wifi is most prominent technology that is designed and employed in wireless local area network (WLAN) to connect the devices with the specifications of "2.4 GHz UHF and 5 GHz SHF ISM radio bands". Wifi defines for products which are based on IEEE 802.11 standards, and allows the devices such as "desktop computers, laptops and tablets, cellular phones, digital video games, player, and cameras" to participate in computer networking or in WLANs. Usually these devices can connect and use the resources such internet access and other, via access points (or wireless access points) that are connected to provide the access in the range of 20 meters indoors and more range of kilometers can be extend to connect the outdoors devices using multiple wireless access points [4].

Bluetooth is wireless communication standard which is employed to exchanges information over a short distance, up to 10 meters (or more). In 1994, the Ericsson company developed the Bluetooth technology which is originally formulated as wireless in-placed of RS-232 serial communication. It has been used with several devices such as "desktop computers, laptops and tablets, hand watches, modems, robotics systems, digital video games, player, and cameras, cellular phones, and others electronic and networking devices", and developed to overcome the synchronizing issues of these devices. Usually, connection is initiated and maintained by participated devices including master or slave, based on agreement, and may change the communication roles from master to slave or vice versa.   For example, in a piconet, a master device can able to communicate with seven maximum slaves (or other devices with Bluetooth), after initialization and confirmation of connection, master device roles would be changed to slave. Bluetooth technology also provides specification of scatternet, in which more than two piconets are joined together; few devices are designated to perform simultaneously, master roles in one piconet, and slaves in another piconet. In transmission, information can be exchanged between master and slave devices, excepting data broadcasting. Master device is authorized to select the each slave device to address, and usually follows the round-robin scheme to move from one device to another. During transmission, master device has managed light load as compared with slave device(s), as described, master is permitted to select the slave device(s), and each slave device should wait and listen the incoming traffic at receiving ports. Consider a piconet, a master device initialization and communication with seven slaves' devices is easily than, for a slave which is designated to communicate with multiple master devices [5].

2   Proposed Model and Simulation Design

The proposed designed is significant not only to detect and track the cellular devices or/and other electronic devices, but also should be marvelous for other systems such as vehicle tracking and monitoring system, person identification systems, remote
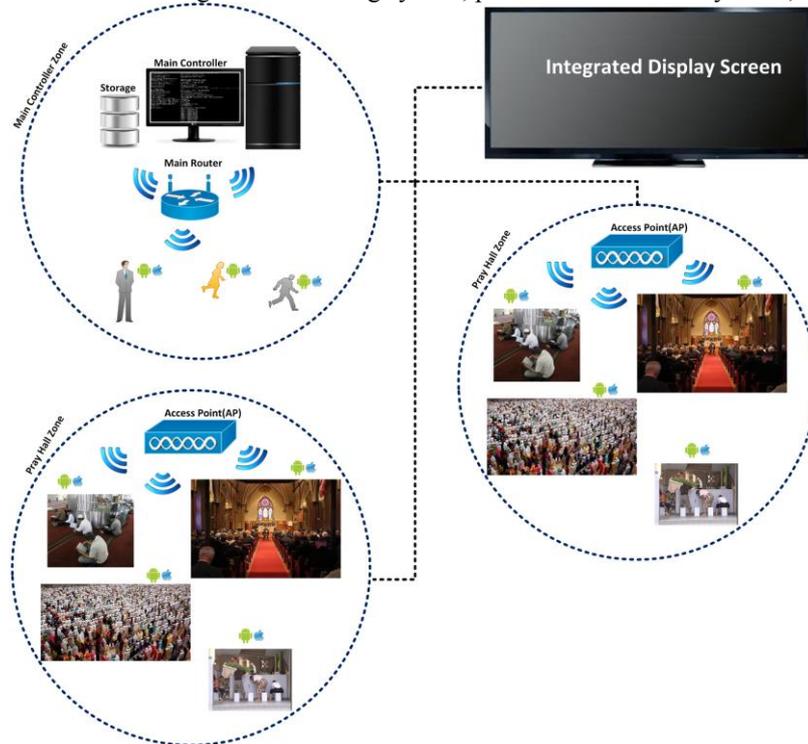

Fig.1. Model and Simulation Design

monitoring of plants and other similar systems. In initial design, this study only emphasizes to detect the cellular phone through various signals such as wi-fi signals, Bluetooth signals and infrared signals and then, accounted the cellular phone status future development(s). In figure 1, various sensors are distributed in various locations of place called pray house and configured to detect the cellular phones. When each prayer is enter in the main entrance of pray house, his/her cellular phone is detected and simultaneously message is displayed on multimedia screen that is placed in front main entrance. By this way, each cellular phone information is visualized on multimedia screen that delivery and signaled each prayer, and also the overall information is simultaneously stored in database in main controller station. The control station is employed that controls each sensor that may placed in various locations in pray house. Each sensor detects the cellular phones and person identity while moving inside pray house under the signaling range(s). This study is significant also to track the un-authorized activities of prayer inside pray house.

3 Conclusion

This is a simulation based study in which multimedia based generic model is deployed to detect the wireless cellular phone and it's belonging while entering to especial places such as Muslim Mosques and Christian churches and other pray temples. Typically in all over the world, the fact has been computed by analyzing the human (or men/women) psychology that they forgot to shut off their cell phones during special occasions such as, in meeting, in lecture, in pray and others. As consequence, the disturbance is created during special occasions if mobile or other beep based devices do not in silent mode or/and off mode. To resolves the problem, this study employed simulation model that detects the real time status of cellular phones while entering into main area of pray or/and pray hall(s). This is significant study that minimized the disturbance created by cellular devices during pray(s) and also gives future directions to detect and track the other electronic devices and vehicles.

References

1. Escudero, J.I.; Rodriguez, J.A.; Romero, M.C.; Diaz, S: Deployment of digital video and Audio Over electrical SCADA networks, Power Delivery, IEEE Transactions on , vol.20, no.2, pp.691,695, April 2005, doi: 10.1109/TPWRD.2004.833906
2. Escudero, J.I.; Gonzalo, F.; Mejias, M.; Parada, M.; Luque, J.: Multimedia in the operation of large industrial networks, Industrial Electronics, 1997. ISIE '97., Proceedings of the IEEE International Symposium on , vol., no., pp.1281,1285 vol.3, 7-11 Jul 1997, doi: 10.1109/ISIE.1997.648929
3. Morsi, I.; El Deeb, M.; El Zwawi, A.: SCADA/HMI Development for a Multi Stage Desalination Plant, Future Computing, Service Computation, Cognitive, Adaptive, Content, Patterns, 2009. COMPUTATIONWORLD '09. Computation World: , vol., no., pp.67,71, 15-20 Nov. 2009, doi: 10.1109/ComputationWorld.2009.114
4. http://en.wikipedia.org/wiki/Wi-Fi
5. http://en.wikipedia.org/wiki/Bluetooth
6. http://csrc.nist.gov/publications/nistbul/august-2012_itl-bulletin.pdf