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REMOTE MONITORING L.V. SWITCHBOARD POWER STATUS WITH 5G NEW RADIO NETWORK APPLICATION

Tony Tsang and Lam Sai Chung

Centre of International Education, Hong Kong College of Technology, Hong Kong.

ABSTRACT

In a power distribution system of most of the buildings, A Low Voltage (L.V.) switchboard was applied to protect the system. There are different components in the switchboard (e.g. circuit breakers, over current protection relay, earth fault protection relay etc.). There are also some components for measure the power quality which is the power analyser. A power analyser (including Voltmeter, Ammeter, Multi-meter) is using to measure the power quality in the electrical power distribution system. Most of the electrical power distributions systems have been connected the power analysers to a building management system. The power analysers connected to a computer in a fixed position that means if someone wants to check the power distribution status, the person needs to go to the computer to check. In this project, a system would be made to monitoring the power status by 5G New Radio (NR) Network application with android smartphone. Since 5G NR Network can provide a theoretical peak download capacity of 20 Gigabits per second. It would be more convenient to monitoring the power status in different place by checking though in the Internet of Things (IoT).

KEYWORDS

Low Voltage (L.V.) switchboard, 5G New Radio (NR) Network, Internet of Things, Mobile Network.

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REFERENCES

[1] Hui-juan Jia, Zheng-hui-Guo, Research on the Technology of RS485 over Ethernet, Henan, China: IEEE 2010.

[2] Bevrani, H, Watanabe, M, & Mitani, Y, Power System Monitoring and Control, John Wiley & Sons, Incorporated, Somerset, 2014.

[3] The Hong Kong Electric Company, Limited, Supply rules, Hong Kong, 1993

[4] CLP Power Hong Kong Limited, Supply rules, Hong Kong, 2001. International Journal of Computer Science & Information Technology (IJCSIT) Vol 11, No 4, August 2019 72

[5] F. Muzzi and F. D’Innocenzo, "Implementation of a new control system for low voltage switchboards," 2010 IEEE International Symposium on Industrial Electronics, Bari, pps. 2524-2529, 2010.

[6] M. Deb and T. Singh, "Design of a common LV switchboard to comply with IEC and UL standards," 2012 10th International Power & Energy Conference (IPEC), Ho Chi Minh City, pps. 633-637, 2012.

[7] Jonathan, R., Fundamentals of 5G mobile network. United Kingdom: John Wiley & Sons, Ltd, 2015.

[8] Weinberg, P., Groff, J., Oppel, A. and Groff, J., SQL, the complete reference. New York: McGrawHill, 2010.

[9] Valade, J., PHP and MySQL for Dummies. John Wiley & Sons, 2007.

[10] Kurniawan, B, & Perry, D, Android Application Development: A Beginner's Tutorial, Brainy Software, Waterloo, 2015.

[11] P. Apse-Apsitis, A. Avotins and R. Porins, "Industrial Greenhouse Electrical Power Monitoring Using Secure Internet-of-Things(IoT) Platform," 2018 IEEE 6th Workshop on Advances in Information, Electronic and Electrical Engineering (AIEEE), Vilnius, pps. 1-4, 2018. doi: 10.1109/AIEEE.2018.8592307.

[12] Stevens, W.R., TCP/IP illustrated vol. I: the protocols. Pearson Education India, 1994.

[13] IEEE-754, “IEEE Standard for Floating-Point Arithmetic”, IEEE-SA Standard Board, 2008.

[14] Sasidharan, M.A. and Nagarajan, M.P., VHDL Implementation of IEEE 754 floating point unit, International journal of Advanced information and communication technology, 1(2), 2014.

[15] Lasky, Jack, Salem Press Encyclopedia of science, Android (operating system), Salem Press, Inc., A Division of EBSCO Information Services, Inc., 2017.

[16] Lockhart, Luke E.A., Salem Press Encyclopedia, Java programming language, Salem Press Encyclopedia, 2017.
AUTHORS

Tony Tsang (MIEE’2000) received the BEng degree in Electronics & Electrical Engineering with First Class Honours in U.K., in 1992. He studied the Master Degree in Computation from Oxford University (U.K.) in 1995. He received the Ph.D from the La Trobe University (Australia) in 2000. He was awarded the La Trobe University Post-graduation Scholarship in 1998. Dr. Tsang earned several years of teaching and researching experience in the Department of Computer Science and Computer Engineering, La Trobe University. He works in Hong Kong Polytechnic University as Lecturer since 2001. He works in Hong Kong College of Technology in 2014. He has numerous publications (more than 110 articles) in international journals and conferences and is a technical reviewer for several international journals and conferences. His research interests include mobile computing, networking, protocol engineering and formal methods. Dr. Tsang is a member of the IET and the IEEE.
SMART MOTORCYCLE HELMET: REAL-TIME CRASH DETECTION WITH EMERGENCY NOTIFICATION, TRACKER AND ANTI-THEFT SYSTEM USING INTERNET-OF-THINGS CLOUD BASED TECHNOLOGY

Marlon Intal Tayag¹ and Maria Emmalyn Asuncion De Vigal Capuno²

¹College of Information and Communications Technology Holy Angel University, Angeles, Philippines
²Faculty of Information Technology Future University, Khartoum, Sudan

ABSTRACT

Buying a car entails a cost, not counting the day to day high price tag of gasoline. People are looking for viable means of transportation that is cost-effective and can move its way through traffic faster. In the Philippines, motorcycle was the answer to most people transportation needs. With the increasing number of a motorcycle rider in the Philippines safety is the utmost concern. Today technology plays a huge role on how this safety can be assured. We now see advances in connected devices. Devices can sense its surrounding through sensor attach to it. With this in mind, this study focuses on the development of a wearable device named Smart Motorcycle Helmet or simply Smart Helmet, whose main objective is to help motorcycle rider in times of emergency. Utilizing sensors such as alcohol level detector, crash/impact sensor, Internet connection thru 3G, accelerometer, Short Message Service (SMS) and cloud computing infrastructure connected to a Raspberry Pi Zero-W and integrating a separate Arduino board for the anti-theft tracking module is used to develop the propose Internet-of Things (IoT) device.

Using quantitative method and descriptive type research, the researchers validated the results from the inputs of the participant who tested the smart helmet during the alpha and beta testing process. Taking into account the ethical consideration of the volunteers, who will test the Smart Helmet. To ensure the reliability of the beta and alpha testing, ISO 25010 quality model was used for the assessment focusing on the device accuracy, efficiency and functionality. Based on the inputs and results gathered, the proposed Smart Helmet IoT device can be used as a tool in helping a motorcycle rider when an accident happens to inform the first-responder of the accident location and informing the family of the motorcycle rider.

KEYWORDS

Smart Helmet, Internet of Things, Sensors, Real-Time Crash Detection, Emergency Notification, Tracker, Anti-Theft System Cloud Based Technology

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REFERENCES

[1] Mascarinas, E. M. (2016). Study in better safety measures for motorcycles urged - SUNSTAR. Retrieved December 11, 2018, from https://www.sunstar.com.ph/article/111646

[2] L. Ramos. (2018). Road Accidents In The Philippines: Key Figures. Retrieved December 11, 2018, from https://www.ecomparemo.com/info/road-accidents-in-the-philippines-key-figures/

[3] Nandu, R., & Singh, K. (2014). Smart Helmet for Two-Wheelers. Advances in Automobile Engineering, 03(01), 1–2. https://doi.org/10.4172/2167-7670.1000110

[4] Sung, K.-M., Noble, J., Kim, S.-C., Jeon, H.-J., Kim, J.-Y., Do, H.-H., … Baek, K.-J. (2016). The Preventive Effect of Head Injury by Helmet Type in Motorcycle Crashes: A Rural Korean Single-Center Observational Study. BioMed Research International, 2016, 1–7. https://doi.org/10.1155/2016/1849134

[5] J. Dodson. (n.d.). Motorcycle Crashes and Brain Injuries | Jim Dodson Law. Retrieved December 11, 2018, from https://www.jimdodsonlaw.com/library/motorcycle-crashes-and-brain-injuries.cfm

[6] W. Tan. (2018). WHO PH: Over 90% of Motorcycle Deaths Didn’t Wear Helmets - Carmudi Philippines. Retrieved December 11, 2018, from https://www.carmudi.com.ph/journal/philippines-90-motorcycle-deaths-didnt-wear-helmets/

[7] Lahausse, J. A., Fildes, B. N., Page, Y., & Fitzharris, M. P. (2008). The potential for automatic crash notification systems to reduce road fatalities. Annals of Advances in Automotive Medicine. Association for the Advancement of Automotive Medicine. Annual Scientific Conference, 52, 85–92. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19026225

[8] M. Glasscoe. (n.d.). What is GPS? Retrieved December 11, 2018, from http://scecinfo.usc.edu/education/k12/learn/gps1.htm

[9] Brodsky, H. (n.d.). Emergency Medical Service Rescue Time in Fatal Road Accidents. Retrieved from http://onlinepubs.trb.org/Onlinepubs/trr/1990/1270/1270-011.pdf

[10] J. Porter. (2018). The History of IoT (Internet of Things) and How It’s Changed Today. Retrieved December 18, 2018, from https://www.techprevue.com/history-iot-changed-today/

[11] Vishal, D., Afaque, H. S., Bhardawaj, H., & Ramesh, T. K. (2018). IoT-driven road safety system. International Conference on Electrical, Electronics, Communication Computer Technologies and Optimization Techniques, ICEECCOT 2017, 2018–Janua, 862–866. https://doi.org/10.1109/ICEECCOT.2017.8284624

[12] Dickenson. (2016). How IoT and machine learning can make our roads safer | TechCrunch. Retrieved December 18, 2018, from https://techcrunch.com/2016/07/13/how-iot-and-machine-learning-can-make-our-roads-safer/
[13] Faizan Manzoor, S. A. B. (2017). Faaz smart helmet, 6(6), 332–335.

[14] Hobby, K. C., Gowing, B., & Matt, D. P. (2016). Smart helmet, 5(3), 660–663.

[15] Khaja, M., Aatif, A., & Manoj, A. (2017). Smart Helmet Based On IoT Technology, 5(Vii), 409–413.

[16] Motorcyclist age group and gender data - TAC - Transport Accident Commission. (n.d.). Retrieved April 20, 2019, from http://www.tac.vic.gov.au/road-safety/statistics/summaries/motorcycle-crash-data/motorcyclist-age-group-and-gender-data

[17] Amir, G. (n.d.). Prototyping Model in Software Development and Testing. Retrieved January 22, 2019, from https://www.testingexcellence.com/prototyping-model-software-development/

[18] The Importance of Alpha & Beta Testing Services | Software Testing Tips and Best Practices. (n.d.). Retrieved April 21, 2019, from https://blog.testmatick.com/2016/04/19/the-importance-of-alpha-beta-testing-services/

AUTHORS

Dr. Marlon I. Tayag is a full-time Associate Professor at Holy Angel University and teaches Cyber Security subjects on Ethical Hacking and Forensic. He earned the degree of Doctor in Information Technology from St. Linus University in 2015 and is currently taking up Doctor of Philosophy in Computer Science at Technological Institute of the Philippines – Manila. Dr. Tayag is Cisco Certified Network Associate, 210-250 CCNA Understanding Cisco Cybersecurity Fundamentals and Fluke CCTTA – Certified Cabling Test Technician Associate. Microsoft Certified Professional and Microsoft Certified Educator.

Dr. Ma. Emmalyn A. V. Capuno is a currently the Dean of the Faculty of Information Technology of Future University Sudan with the academic rank of Associate Professor; a position she has been holding since 2009. She earned the degree of Doctor of Philosophy in Information Technology Management from Colegio de San Juan Letran – Calamba, Philippines in 2005. Her teaching and research expertise includes Operating Systems, Knowledge Management, Business Intelligence and many more.