

Voltage, Current, Power Consumption Monitoring: A IOT Based System

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Abstract: Electricity is a basic human necessity that is extensively employed for home, industrial, and agricultural purposes. In this way, energy waste leads nations to lose revenue. Solutions based on technology, such as The Internet of Things (IOT) connects the physical and digital worlds, This IOT application, In this scenario, manages and/or analyze energy consumption.. Furthermore, the advancement of micro and Nano-electronics has made it possible to the creation of connectivity modules like the XBEE that enables the rapid deployment of a wireless sensor network effectively, using the least amount of energy possible employed for responsibilities of monitoring and control. By developing a hardware and software solution, the given prototype takes advantage of the previously indicated features. It uses a scalable and modular platform with XBEE technology and a developed protocol for data exchange between the modules that make up the system to allow remote monitoring of electricity consumption in a home. The prototype's accuracy is shown when compared to readings acquired with a regular electric bill, according to the conclusions.

Keywords: BMS, BAS, SMACS, XBEE

REFERENCES

- [1]. ARUP (2016). Building Energy Efficiency Guideline for Nigeria, Abuja: Federal Ministry of Works Power and Housing.
- [2]. Ben U. I. and Margaret C. I. (2014). Adopting Intelligent Buildings in Nigeria: The Hopes and Fears, 2nd International Conference on Emerging Trends in Engineering and Technology (ICETET'), May 30-31, 2014 London (UK).
- [3]. BTL (2018). The Evolution of the Smart Building: Past, Present and Future [online] Available at: <https://btlnz.co.nz/news/the-evolution-of-the-smart-building/> [Accessed 14 October, 2018]
- [4]. Clarke, E. (2008). The Truth about Intelligent Buildings [online] Available at: <http://www.climatechange.org/content.asp?ContentID=5471> [Accessed 22 October, 2018]
- [5]. Comly Wilson (2017). 4 Limitations of Building Management System (BMS) Data [online] Available at: <https://www.enertiv.com/resources/4-limitations-bms-data> [Accessed 25 Oct, 2018]
- [6]. Daintree Networks (2009) – Lighting Control Saves Money and Makes Sense. [online] Available at: <http://www.daintree.net/downloads/whitepapers/smart-lighting.pdf> [Accessed 15 Dec, 2018]
- [7]. Domingues, P., Viera, R. and Wolfgang, K. (2015). Building Automation: Concepts and Technological Review, Austria, Elsevier 22(5) pp. 23 – 28.
- [8]. Dounis, A.I., Tiropanis, P., Argiriou, A., and Diamantis, A. (2011). Intelligent Control System for Reconciliation of the Energy Savings with Comfort in Buildings using Soft Computing Techniques. Energy and Buildings, 43(1), pp. 66-74.
- [9]. Energy Savings Trust (EST, 2015) [online] Available at: <http://www.energysavingtrust.org.uk/> [Accessed 15 Sep, 2018]
- [10]. Forsberg A. and Malmberg F. (2004). Tools for Environmental Assessment of the Built Environment, Building and Environment, 39, pp. 223-228.
- [11]. Frost and Sullivan (2009). The Bright Green Buildings Convergence of Green and Intelligent Buildings,

Continental Automated Buildings Association (CABA), [online] Available at:
<http://www.caba.org/brightgreen>[Accessed 28 Sep, 2018]

- [12]. Daintree Networks (2009) – Lighting Control Saves Money and Makes Sense. [online] Available at:
<http://www.daintree.net/downloads/whitepapers/smart-lighting.pdf>[Accessed 15 Dec, 2018]