Power-Aware IoT Based Smart Health Monitoring Using Wireless Body Area Network: A Review

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Abstract: *In Internet of Things (IoT), large amount of data are processed and communicated through different wireless sensor network technologies. For smart health-care application, Wireless Body Area Network (WBAN) which is based on IoT can connect wearable devices to monitor different biomedical signals. In order to ensure continuous monitoring of health over a long period of time in WBAN, power management is a key requirement. A power management technique for prolong and continuous ECG monitoring based on critical data and energy level of battery is proposed in this paper. To reduce the power consumption, a light-weight power management controller is introduced based on the present status of ECG data and battery. The proposed architecture saves up to 27% power consumption in WBAN compared to the conventional architecture without incurring significant overhead.*

Keywords: Internet of Things (IoT), Power Management, Wireless Body Area Network (WBAN), etc.

REFERENCES

[1]. Movable Patient Health Monitoring http://ieeexplore.ieee.org/xpl/freeabsall.jsp?arnumber=5479388PrintISBN: 978-1-4244-5162 3IssueDate:30-31May 2010.

[2]. Shubhangi M Verulkar, Prof. N. B. Limkar," Movable health Monitoring "National Conference on Nascent Trends in Information and Communication Technologies, proceeding of equinox - 2011, 165-167.

[3]. Z. Ullah, I. Ahmed, K. Razzaq, M. K. Naseer and N. Ahmed, "DSCB: Dual sink approach using clustering in body area network," Peer-to-Peer Networking and Applications, vol. 12, no. 2, pp. 357– 370, 2019.

[4]. S. M. Moid, N. Javaid, M. Imran, M. Guizani, Z. A. Khan et al., "BEC: A novel routing protocol for balanced energy consumption in wireless body area networks," in Proc. 2015 Int. Wireless Communications and Mobile Computing Conf., New York, US, IEEE, pp. 1–6, 2015.

[5]. S. Singh, S. Negi, A. Uniyal and S. K. Verma, "Modified new-attempt routing protocol for wireless body area network," in Proc. 2016 2nd Int. Conf. on Advances in Computing, Communication, & Automation, New York, US, IEEE, pp. 1–5, 2016.

[6]. D. Yadav and A. Tripathi, "Load balancing and position based adaptive clustering scheme for effective data communication in WBAN healthcare monitoring systems," in Proc. 2017 11th Int. Conf. on Intelligent Systems and Control, New York, US, IEEE, pp. 302–305, 2017.

[7]. J. Y. Chang and P. H. Ju, "An energy-saving routing architecture with a uniform clustering algorithm for wireless body sensor networks," Future Generation Computer Systems, vol. 35, no. 1, pp. 128–140, 2014.

[8]. A. Maskooki, C. B. Soh, E. Gunawan and K. S. Low, "Adaptive routing for dynamic on-body wireless sensor networks," IEEE Journal of Biomedical and Health Informatics, vol. 19, no. 2, pp. 549–558, 2014.

[9]. S. Omar, A. Kerrar, Y. Zetili and B. Cousin, "ESR: Energy aware and stable routing protocol for wban networks," in Proc. 2016 Int. Wireless Communications and Mobile Computing Conf., New York, US, IEEE, pp. 452–457, 2016.

[10]. K. Singh and R. K. Singh, "An energy efficient fuzzy based adaptive routing protocol for wireless body area network," in Proc. 2015 IEEE UP Section Conf. on Electrical Computer and Electronics, New York, 2015.

[11]. S. P. Nayak, S. C. Rai and S. Pradhan, "A multi-clustering approach to achieve energy efficiency using mobile sink in WSN," in Computational Intelligence in Data Mining, Singapore: Springer, pp. 793– 801, 2017.

[12]. A. Aftab and F. A. Khan, "Energy-efficient cluster-based security mechanism for intra-WBAN and inter-WBAN communications for healthcare applications," EURASIP Journal on Wireless Communications and Networking, vol. 216, no. 1, pp. 1–19, 2013.

[13]. M. Suriya and M. Sumithra, "Efficient evolutionary techniques for WBAN using cognitive radio networks," in Computational Intelligence and Sustainable Systems, Berlin, Germany: Springer, pp. 61– 70, 2019.