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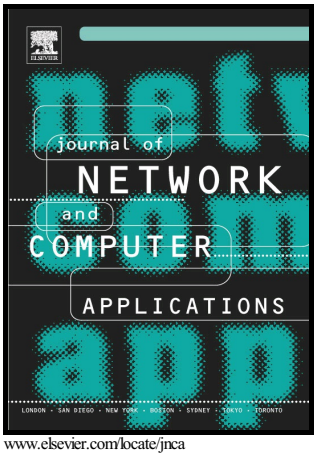

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PII: S1084-8045(17)30225-4
DOI: http://dx.doi.org/10.1016/j.jnca.2017.07.001
Reference: YJNCA1932

To appear in: *Journal of Network and Computer Applications*

Received date: 1 February 2017
Revised date: 8 May 2017
Accepted date: 4 July 2017

Cite this article as: Xiong Li, Jiangwei Niu, Saru Kumari, Fan Wu, Arun Kuma Sangaiah and Kim-Kwang Raymond Choo, A Three-factor Anonymous Authentication Scheme for Wireless Sensor Networks in Internet of Thing Environments, *Journal of Network and Computer Applications* http://dx.doi.org/10.1016/j.jnca.2017.07.001

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A Three-factor Anonymous Authentication Scheme for Wireless Sensor Networks in Internet of Things Environments

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Accepted manuscript

Abstract

Internet of Things (IoT) is an emerging technology, which makes the remote sensing and control across heterogeneous network a reality, and has good prospects in industrial applications. As an important infrastructure, Wireless Sensor Networks (WSNs) play a crucial role in industrial IoT. Due to the resource constrained feature of sensor nodes, the design of security and efficiency balanced authentication scheme for WSNs becomes a big challenge in IoT applications. First, a two-factor authentication scheme for WSNs proposed by Jiang et al. is reviewed, and the functional and security flaws of their scheme are analyzed. Then, we proposed a three-factor anonymous authentication scheme for WSNs in Internet of Things environments, where fuzzy commitment scheme is adopted to handle the user's biometric information. Analysis and comparison results show that the proposed scheme keeps computational efficiency, and also achieves more security and functional features. Compared with other similar work, the proposed scheme is more suitable for Internet of Things environments.

Keywords: Internet of Things; Anonymous; Authentication; Wireless Sensor Networks; Biometrics

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