Biometric-based Security for Data Authentication in Wireless Body Area Network (WBAN)

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***Abstract*— The empowerment in wireless communication technologies and sensors have developed the Wireless Body Area Network (WBAN). In the past few years, many researchers have been focusing on building system architecture of health monitoring to improve the technical requirement specifically designed for WBAN. Less research was found in providing the strong security system. As part of communication medium, WBAN faced various security issues such as loss of data, authentication and access control. Implementing high security system leads to inconsistency in computational performance. It is recommended that the security system for WBAN must be implemented with low computational complexity and high power efficiency. None of previous researches successfully identified solution to the above problem. This study explores the use of biometric characteristics in securing data communication within WBAN and reducing computational complexity as well as power efficiency. Hybrid authentication model is used as a conceptual framework for the system. Precisely, the proposed framework requires a unique feature of human body regarded as the authentication identity, while the other techniques use hardware and software to achieve the same purpose. In addition, an authentication process is provided by using this unique feature of the body as a key to develop a security system under the resource-constrained of WBAN sensor challenges..**

***Keyword*— Wireless Body Area Network (WBAN), Heart Rate Variability (HRV), biometric, authentication, security**

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