ID: **P4.3-060**   Type: **E-poster**

Security Scheme for Data over Wireless Network Connectivity with the International Monitoring System

Wednesday, 21 June 2023 10:41 (1 minute)

The security system designed for the Internet of Things (IOT) should be able to detect and prevent both internal and external attacks. This work proposes a lightweight and low energy encryption algorithm to secure data over wireless networks. The proposed algorithm meets the requirements of data and is suitable for wireless devices and sensors. It is capable of reducing the execution time and power consumption of the encryption process compared with the state of the art standard algorithm and at the same time maintains the desired security (confidentiality) level. A comparison between the proposed algorithm, the advanced encryption standard (AES) and other lightweight algorithms proposed by other research works is conducted and the results are promising. Using the proposed algorithm, a significant amount of time and energy consumption reduction is achieved to reach approximately 35% improvement over the standard AES algorithm accompanied with good level of complexity in the encryption process, making it more suitable for the wireless environment. The aim of this study is to reduce the power consumption of implementing encryption algorithms on the sensors using in the International Monitoring System. Accordingly, increasing work capacity of the sensor's battery.

Promotional text

Lightweight security solution for Internet of Things network.

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Oral preference format

in-person

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Session Classification: Lightning talks: P2.5, P4.1, P4.2, P4.3

Track Classification: Theme 4. Sustainment of Networks, Performance Evaluation, and Optimization: T4.3 Enabling IT Technologies