ABSTRACT

The recent development in internet technology and the need for it sparks various innovation, one of which is Internet of Things (IoT) that has become a trend used in almost every industries in the world. As for the implementation, data must be kept secure despite the limited resources in IoT devices. To solve this problem, the most effective encryption algorithms are proposed for IoT applications. This final project takes up on implementation of lightweight stream cipher algorithm SNOW 3G and block cipher algorithm RSA.

SNOW 3G algorithm is designed to be used as basic algorithm for 3GPP confidentiality and integrity. There's also RSA algorithm, which had been used as a standard for encryption algorithm since long. Therefore this Final Project tests and analyzes both algorithms to determine which one is better to be implemented in IoT.

As a result of this study, it is known that SNOW 3G algorithm has better Avalanche Effect than RSA algorithm, with the value of 52% which guarantees a single bit of different input will change many outputs of data. Beside, the Entropy value of SNOW 3G is also higher which guarantees the uncertainty of encrypted data. For IoT application with the case study of RFID, the result of network communication Quality of Service (QoS) is very good and fulfills the required standards.

Keyword: *Internet of Things (IoT), RFID, Lightweight Stream Cipher, SNOW 3G algorithm, RSA algorithm*