ABSTRACK

Wireless Body Area Network (WBAN) is a sensor located in the human body that can communicate directly to the receiving device wirelessly. The use of the WBAN system is mainly for applications in the field of wireless health monitoring. Therefore, it is expected to facilitate the process of monitoring the patient's condition, and can analyze medical record data in a certain amount, in a long period of observation, making it more efficient in obtaining medical data, and more accurate.

This research uses IR-UWB WBAN method with Binary Phase Shift Keying (BPSK) modulation, Pulse Position Modulation (PPM), and Gaussian monocycle with IEEE 802.15.6 channel. The encryption method has certain parameters, there are symmetric AES 256 and DES. By using a cryptography methods in encryption, it is to help simplify system security, and higher energy efficiency.

In this final project, will research the encryption method that fulfill these criteria. Meanwhile, the output results obtained from the encryption and decryption system in IR-UWB WBAN fulfilled, which is measured by the performance of the Bit Error Rate (BER), the level of power consumption is Signal Noise Ratio (SNR) compared to the system without encryption.

Keywords: *WBAN, IR-UWB, encryption, BER, SNR*