ABSTRACT

The use of the internet network is a crucial thing that is increasingly becoming an important thing for the progress of the world. However, the development of this technology tends to be vulnerable to attacks on data security and confidentiality. Therefore, it is necessary to have a technique to protect the security and confidentiality of the information data sent, one of which is by using a combination of cryptography and steganography techniques.

In this final project, we simulate and analyze the performance of the encryption security method of the RSA (Rivest Shamir Adleman) cryptographic technique. Cryptographic techniques are used to maintain the confidentiality of the information data that you want to send. The encryption method is inserted with the steganography technique, namely the least significant bit (LSB) method which is used to hide a secret message into another medium which in this thesis research uses medical image samples.

Based on the test results, the computational time is more influenced by the size of the image, where the larger the image size, the greater the computational time required for testing. The length of the message character and the number of prime numbers chosen do not have much effect on the computation time. The fastest computation time in the encryption-embedding process required is 5.53 seconds, while the longest computation time required is 95.12 seconds. The fastest extraction-decryption process is 3.49 seconds with the longest computation time taking 56.21 seconds.

Keywords: *Cryptography, Steganography, RSA, Rivest Shamir Adleman, LSB, Least Significant Bit*