

Enhance Light Fidelity Security Level in Internet Data Communication by Using Cryptography

By

Wassan Sami Haichal Aldolimi

Supervisor

Dr. Adnan Hnaif

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Abstract

Symmetric encryption algorithms rely on using the same key in encryption and decryption. One of the advantages of symmetric encryption is that it is easy to use and fast. The algorithm adopted in this thesis is Advanced Encryption Standard (AES). This method is considered official and secure for encryption due to the length of the encryption key

Because of the possibility of any breakthrough occurring to the algorithm, and by proving that one of the research studies the presence of a delay due to a specific step in the algorithm and it must be abandoned in order to overcome the delay.

This thesis was proposed to improve the security of the algorithm and to make an amendment to the previous laws, we also relied on number 1 in one of the coding stages in the algorithm, in addition to Proposed in the function of the key. the study factors that have been positively impacted by improving the results and comparing them through Hamming, Avalanche

and Balance standards experiments showed improved rate was hamming 65%, avalanche 0.44% and balance 60%. Finally, it was proposed to send this encrypted data by a light communication technology called light Fidelity (LIFI). This technology is considered to be very secure and fast much more than the Internet used in our daily life. So, this thesis will suggest encryption of the data and a significant security in terms of improving the algorithm and the presence of optical communication technology.