Universiti Teknologi MARA

Analysis of Image Steganography using AES

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ABSTRACT

Data hiding and encapsulation are both important concepts of Data hiding emphasizes so much on data protection and encapsulation emphasizes mostly on covering the complexity of the program. As our privacy is important in this modern world due to data stealing, both methods are widely used. However, the effectiveness of this method does have some lack in terms of security. This project aims to provide better security in data hiding as this project improves the security of existing system from the past research. Based on the past research, it is only providing the encryption and decryption of the text without hiding the text. In this project, we combine the method of cryptography and steganography using Advanced Encryption Standard (AES) and Least Significant Bits (LSB) algorithms. At first, the plaintext was encrypted to cipher text and hidden in the image. There is also decryption so the user can get back to the original data. Finally, as the result of the implementation, the user will receive an image with hidden data. The project is developed using Matlab software.

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CHAPTER 1

INTRODUCTION

Chapter 1 provides the background of the project and an overview of the study of Image Steganography using triple DES. The introduction will give the details of the objectives to be achieved throughout the process and the problems that happen in the current situation that lead to this project.

1.1 Background Study

Image steganography is one of the methods in information hiding. Security technologies are split into two, hide data and encryption. Two techniques under hide data are steganography and watermarking. Steganography requires writing that is hidden. Steganography seeks to insert hidden or private data into a image such that the details are not identified in the image.

In the modern world, our secret data and information are not secure anymore as many attackers and hackers try very hard to leak our data. Hence, they need to secure their private information. We proposed image steganography using Advanced Encryption Standard (AES) to analyze and evaluate the performances. In this project, I combine a cryptography and steganography technique that involves AES and Least Significant Bit (LSB). Cryptography is used to convert original text to unreadable form which is original plain text to cipher text. Steganography is used to conceal the message's presence while cryptography is used to hide the content of the message. So, the combination of both techniques gives stronger security for hiding the secret message.