

IMPLEMENTING STEGANOGRAPHY ON DIGITAL IMAGES USING THE WEB-BASED LEAST SIGNIFICANT BIT (LSB) METHOD

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ABSTRACT

Technological advancements have facilitated the widespread dissemination of information, thereby underscoring its significance. The critical value attributed to information often results in its misappropriation, where intended recipients may not receive it and may instead fall into the hands of unintended parties. Steganography conceals messages or sensitive information, rendering them imperceptible to unauthorized individuals. This technique typically employs a container, such as an image. An image, defined as a representation on a two-dimensional plane, is generated through a digitization process. To preserve the integrity of an image, the Least Significant Bit (LSB) method can be utilized to implement steganography. This method involves substituting the original bits of the image with the bits of the information intended for concealment. This study aims to evaluate the effectiveness of the LSB method in embedding secret messages without compromising the original image's quality. The findings indicate that secret messages can be successfully embedded and subsequently extracted from images, as assessed through the PSNR and MSE parameters, which quantify the differences. The results demonstrate that the average PSNR and MSE values obtained from the insertion process suggest that the original image remains unaltered mainly despite the incorporation of the concealed message.

Keywords: *Information, Steganography, Image, Least significant bit (LSB), and Secret Message*