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A HIGH CAPACITY DATA HIDING METHOD USING ADVANCE PVD

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ABSTRACT:

This project proposes a high capacity data hiding method using modulus function of pixel-value differencing (PVD) and least significant bit (LSB) replacement method. Many novel data hiding methods based on LSB and PVD methods were presented to enlarge hiding capacity and provide an imperceptible quality. A small difference value for two consecutive pixels is belonged to a smooth area and a large difference one is located on an edge area. In our proposed method, the secret data are hidden on the smooth area by the LSB substitution method and PVD method on the edge area. From the experimental results, the proposed method sustains a higher capacity and still a good quality compared with other LSB and modified PVD methods.

Keywords: Content-based steganography, least-signifi-cant-bit (LSB)-based steganography, pixel-value differencing (PVD), security, steganalysis.

1.INTRODUCTION

STEGANOGRAPHY may be a technique for data concealing. It aims to infix secret information into a digital cover media, like digital audio, image, video, etc. we will use digital pictures, videos, sound files, and alternative pc files that contain perceptually moot or redundant data as covers or carriers to cover secret messages. Once embedding a secret message into the cover image, we tend to get a supposed stegoimage. It's vital that the stego-image doesn't contain any detectable artifacts because of message embedding. A third party might use such artifacts as a sign that a secret message is gift. Once a third party will faithfully determine that pictures contain secret messages, the steganographic tool becomes useless. Obviously, the less data we tend to infix into the cover image, the smaller the likelihood of introducing detectable artifacts by the embedding method. Another vital issue is that the alternative of the cover image. The choice is at the discretion of the one who sends the message pictures with a low number of colors, computer art, and images with unique semantic content (such as fonts)ought to be avoided as cover images. Some steganographic specialists suggest grayscale pictures because the best cover pictures. They suggest uncompressed scans of images or pictures obtained with a photographic camera containing a high variety of colors and think about them safe for steganography. In previous work, we've

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shown that pictures hold on antecedently within the JPEG format area unit a poor alternative for cover pictures. As a result of the division introduced by JPEG compression can function a watermark or distinctive fingerprint, and you'll be able to discover even tiny modifications of the cover image by inspecting the compatibility of the stegoimage with the JPEG format. Pfitzmann and Westfeld introduced a technique supported applied math analysis of pairs of values (PoVs) changed throughout message embedding. Pairs of colors that disagree within the LSB solely, for instance, might type these PoVs. This technique provides reliable results once we recognize the message placement (such as sequential). However, we will solely discover every which way scattered messages with this technique once the message length becomes com-parable with the amount of pixels within the image.

2. TERMINOLOGY AND PROBLEM STATEMENT

We find that in most existing approaches, the selection of embedding positions among a cover image in the main depends on a pseudorandom range generator while not considering the link between the image content itself and therefore the size of the hidden message.

A small distinction worth may be situated on a smooth area and therefore the massive one is found on an edged space. within the smooth areas, the secret information is hidden into the cover image by LSB technique whereas exploitation the PVD technique within the edged areas. As a result of the vary dimension is variable, and therefore the space within which the secret information is hid by LSB or PVD technique area unit exhausting to guess.

3. IMPLEMENTING LSB AND PVD ALGORITHMS

Least-Significant-Bit (LSB) matching, a steganographic methodology for embedding message bits into a still image. within the LSB matching, the selection of whether or not to add or subtract one from the cover image constituent is random. The new methodology uses the selection to line a binary perform of two cover pixels to the desired value. The embedding is per-formed employing a try of pixels as a unit, wherever the LSB of the primary constituent carries one little bit of data, and a perform of the two pixel values carries another little bit of data. Therefore, the changed methodology permits embedding a similar payload as LSB matching however with fewer changes to the cover image. The experimental results of the projected methodology show higher performance than ancient LSB matching in terms of distortion and resistance against existing steganalysis. In conjunction with that during this project we have a tendency to use advance PVD i.e; adaptive PVD wherever in a gray scale image the pixel values ranges from zero to 255. However once we use pixel-value differencing (pvd) methodology as image steganographic theme, the pixel values within the stego-image might exceed gray scale vary. An adaptive steganography supported changed pixel-value differencing through management of pixel values inside the vary

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of grey scale has been projected during this paper. PVD methodology is employed and check whether or not the pixel values exceeds the vary on embedding. positions wherever the pixel exceeds boundary has been marked and a fragile handle is employed to stay the worth inside the vary. From the experimental it's seen that the results obtained in projected methodology provides with identical payload and visual fidelity of stego-image compared to the PVD methodology.

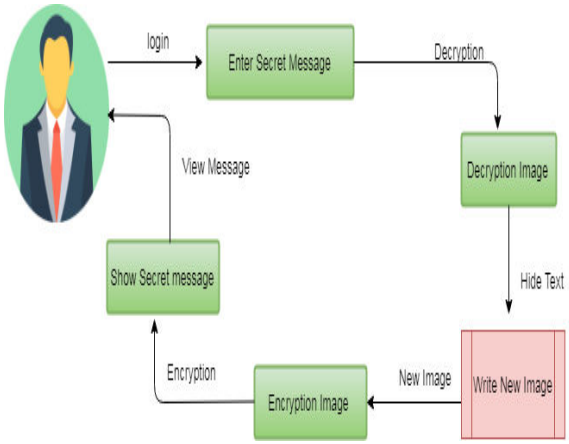

Figure 1: System Architecture

4. CONCLUSION

In this project, a position adaptive image steganographic theme within the spacial SLSB domain is studied. As known in, there typically exists some smooth regions in natural pictures, which might cause the SLSB of cover pictures to not be utterly random or perhaps to contain some texture data similar to those in higher bit planes. If embedding a message in these regions, the SLSB of stegoimages becomes additional random, and in step with our analysis and intensive experiments, it's easier to discover. In most previous steganographic schemes, however, the pixel/pixel-pair choice is principally determined by a PRNG while not considering the connection between the characteristics of content regions and therefore the size of the secret message to be embedded, which implies that those smooth/flat regions are additionally contaminated by such a random choice theme even if there are many available edge regions with good hiding characteristics. To preserve the statistical and visual features in cover images, we have proposed a novel scheme which can first embed the secret message into the sharper edge regions adaptively according to a threshold determined by the size of the secret message and the gradients of the content edges. The experimental results evaluated on thousands of natural pictures victimization completely different forms of steganalytic algorithms show that each visual quality and security of our stegoimages square measure improved considerably compared to typical SLSB-based approaches and their edge adaptive versions.Furthermore, it's expected that our adaptive plan may be ex-tended to different steganographic strategies like audio/video steganography within the spacial or frequency domains once the embedding rate is a smaller than the supreme amount.

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