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Regression Analysis of Colour Images using Slicer Component Method in Moving Environments

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ABSTRACT

As we know, the Internet is widely used to share and retrieve information. Shares large amounts of information that need to be protected from unauthorized access. In it the secret colour image of any format in which the text is hidden is divided into multiple pieces. The individual slice does not give the impression of an original secret image. The original image appears after the pieces are stacked. These pieces can be sent to the desired receiver via the Internet. The pieces look like pictures so they indirectly invite hackers. The pieces are encrypted and securely transferred to prevent hacker interference in this particular way.

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1.0 INTRODUCTION

Maps can be streamed over the Internet. Unauthorized users may access this information during transmission. So far various systems have been developed to securely transfer such digital data. One method is cryptography, in which the sender's side information is encrypted and the receiver's side information is decrypted. The key is still needed to encrypt the information, and the key must be exchanged using confidential information (Naor and Shamir, 2019).

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Our goal is to develop a system that encrypts information without a key. The image slicer secretly separates the hidden image and the secret image that does not show the message into pieces. If the images are printed on transparent pages and the copies are superposed, the actual help can be obtained without the help of a computer. If we make a few pieces, only we can get the secret image outlines. If we maximize the number of pieces and sort them one by one, the true secret image will emerge frequently (Ito *et al.*, 2000).

The pieces produced are random-looking images of interest to hackers. If the pieces are converted into normal images with any meaningful image, we can avoid unauthorized access by third parties. The following section discusses the thematic overview of image slicing. Section III discusses the proposed methodology. References are given at the end of Section IV and Section V at the end of this paper.

2.0 LITERATURE SURVEY

Up to now various techniques are developed in order to create the slices of an image. The experiments were performed on black and white image in which image pixels are expanded (Ateniese *et al.*, 1996).

"The (2, 2) VC scheme divides the secret image into two shares so that reconstruction of an image from a share is impossible. Each share is printed in transparencies. Figure 1 reveals how decryption is performed by two shares tacking when the secret image is seen by the naked eye without any computation" (Eisen and Stinson, 2002).

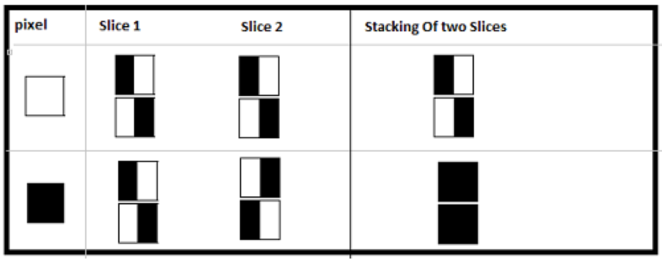

Figure 1 – Slicing Method

Experiments using probability (Shyu, 2007) using conventional image slicing. Pieces of different sizes create binary images. Both images are encrypted at the same time. Create pieces that reduce the visibility of the gray image (Hou and Quan, 2011), and then use multi-resolution methods in which pixels are divided into 3 × 3 blocks (Kumari and Bhatia, 2010) which give an idea of the gray value and the pixel halftone value.

The film was further researched by splitting it into pieces (Kumari and Bhatia, 2010). The actual image's black pixel is separated into four blocks, while the white pixel is split into two white as well as two black blocks. Since the blocks are selected at random, it is not certain that the actual image's black pixel will be sorted into two black blocks and white pixels until all the pieces have been sorted into two black as well as two white blocks. As a result, the quality of the image could be reduced. It then improves (Fang and Lin, 2016), creating two matrices that give the idea of pixel sharing.

In the first matrix all the elements in the first row are the same and the rest of the elements are zero. In the second matrix all the diagonal elements are the same and the rest are zero. For this reason, when pixels are shared, the index of the black pixel on each slice is the same, and if there are two images that lead to image quality, the probability of a white pixel is 0.5. Depending on the intensity of the black and white. An experiment was made to increase the number of pieces to clarify the picture.

"Because the pixel extension is used, the slice size is larger than the original image, which requires a large amount of storage space, and the recovered image may be of poor quality. Fixed numbers of created pieces. All methods apply to black and white images".

3.0 PROPOSED SYSTEM

We suggest an innovative method to address the shortcomings of the different approaches being used currently. We are developing a method of capturing hidden image as text input and block size input in a specific system. The block is not another, for example if the patch size is 5 then that patch contains 25 pixels.

The number of pieces created so far has been determined. In this proposed system, we can provide the facility to create pieces in a dynamic manner. Let us calculate the statistics according to the input. The image block is divided into rows and columns according to size.

We can create blank images based on the number of pieces whose pixels value is zero. We can calculate the index position of the blocks and place them in series. Take the random block and place it in the same place on the slice so the pieces should be random images. At the same time, you have to manage the counter to go to the other slice. So, we put random pixels on the pieces. The created pieces can be stored and transferred.

(A) Algorithm for creating slices

Input: Original image with secret message, block size, number of slices

Output: Slices of original image.

(1) Accept original image

(2) Accept block size and get total slice.

(3) Calculate all statistics like,

(4) Cols = width/block size

(5) Rows = height/block size

(6) Total blocks = rows × cols

(7) Blocks per slide = total patches per slides

(8) Generate blank slice images and store in slide array

(9) Generate XY coordinates of all patches and store in BlockXY array

(10) Generates blockID array for shuffling

(11) Shuffle the array

(12) For (i = 0; i ≤ total blocks; i++)

(a) Fetch the coordinate of x, y of current block

(b) Copy all the pixels of current block to the selected slice

(13) Increment slices and goes to step (6).

(14) Save slice.

(B) Algorithm for stacking the slices

Input: Slices of original images

Output: Final images same as original image

(1) Open all slice images

(2) For (i = o; i < total slices; i++)

(2.1) Perform XOR operation of all the pixel of current slice and stacked slice

(3) Extract the secret message from the image.

(4) Get the original image

(5) Get the secret text.

(6) Save image

(C) Modules

Slicer

This slicer takes the input as a secret image and divides that image into n slices as shown in Figure 1. The slices are created by randomly putting the pixels of the original image onto the blank images. The slices created are noise like images as shown in the Figure 2.

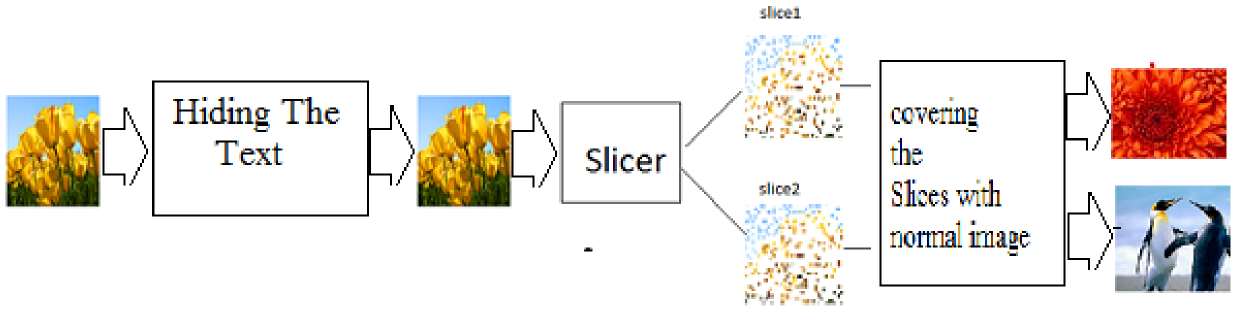

Figure 2 – Slicing the Images and Converting

3.1 Extraction of Cover Image

As the shares are like random noise images which may create an interest to the hacker. In order to avoid this the slices are covered with meaningful images and transmitted. At the receiver side the slices are uncovered.

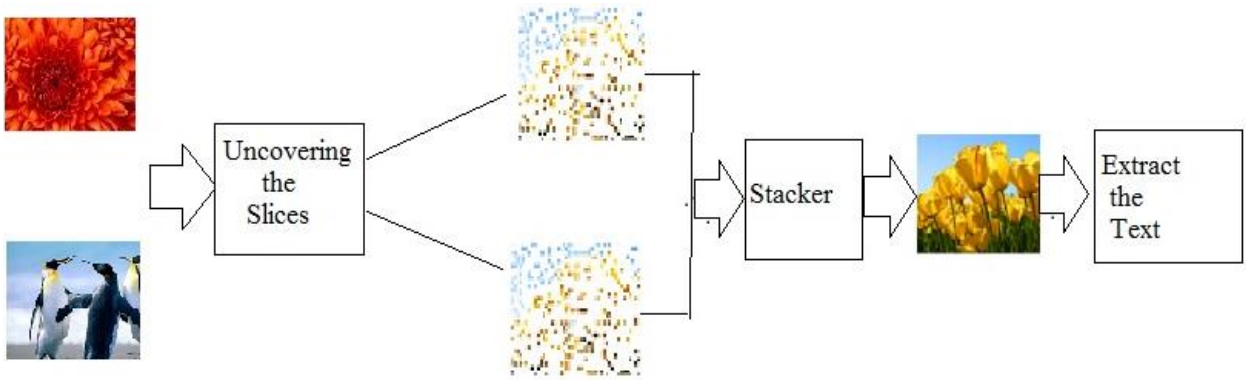

Figure 3 – Extracting and Collection Process

3.2 Stacker

After uncovering of slices at the recipient side the slices are stacked over one another to get the original secret image. Unless all the slices are not superimposed the original image is not visible. After getting the image we can extract the text from the image.

4.0 CONCLUSION

Traditional image slicing techniques use pixel magnification techniques, wasting storage space, degrading image quality and leaking information. We have suggested a system that can use the concept of undeveloped pixel separation. By creating parts of the image, we can send the image safely with secret text.

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