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RESEARCH ARTICLE

RECOVER ORIGINAL IMAGE IN WATERMARKING USING COSINE FUNCTION

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Abstract: Internet development, along with improvement in the tools of digital multimedia has created a most important impact in creating the content of multimedia for storage and distribution is a straightforward tasks. To provide security for contents of multimedia becomes a very important issue and there is a requirement in protection of the digital content against illegal copying, counterfeiting. Digital watermarking is a developing field that needs continuous try to find the possible method for protection of multimedia content. In this project embedding a watermark within an image and extracting watermark from an image no distortion of original image using interpolation method and cosine function. Recover back the original image after embedding and extracting of watermark using proposed method. The Peak Signal to Noise Ratio values provides the robustness of the proposed technique.

INTRODUCTION

Hiding a message within an image or video is referred as watermarking. An image is used as a cover to hide the message which is intentional for transmit. Digital watermarking is used in a range of applications in the current existing system. Watermarking is essentially used for security purposes. Stage of intimidation faced as a result of watermarking depends on the application area. The properties of a high-quality watermark are supposed to consist of forcefulness and imperceptibility. From time to time a watermarked image might be squeezed together earlier than transferring. In a forceful watermarking plan, an image is a lesser amount of scratched later than retrieving. The watermarked image is able to be noticed

effortlessly, if the superiority of the watermarked image is critically pretentious later than inserting. The possessions of a lesser amount of deprivation of an image are referred as imperceptibility. A class of delicate watermarking is reversible watermarking. Reversible watermarking is of lossless type. The clandestine message is implanted as an unseen mark in addition to recovered reverse later than the drawing out of watermark. The properties are the identical as watermarking method. The watermark is able to be without difficulty implanted and retrieved by the users.

IMPLIMETATION OF PROPOSED METHOD

The algorithm description involved different step to get a recover of original image. Embedding of watermark image within the original and extraction of water mark from the original image and recovered back to original image as same as the original image.

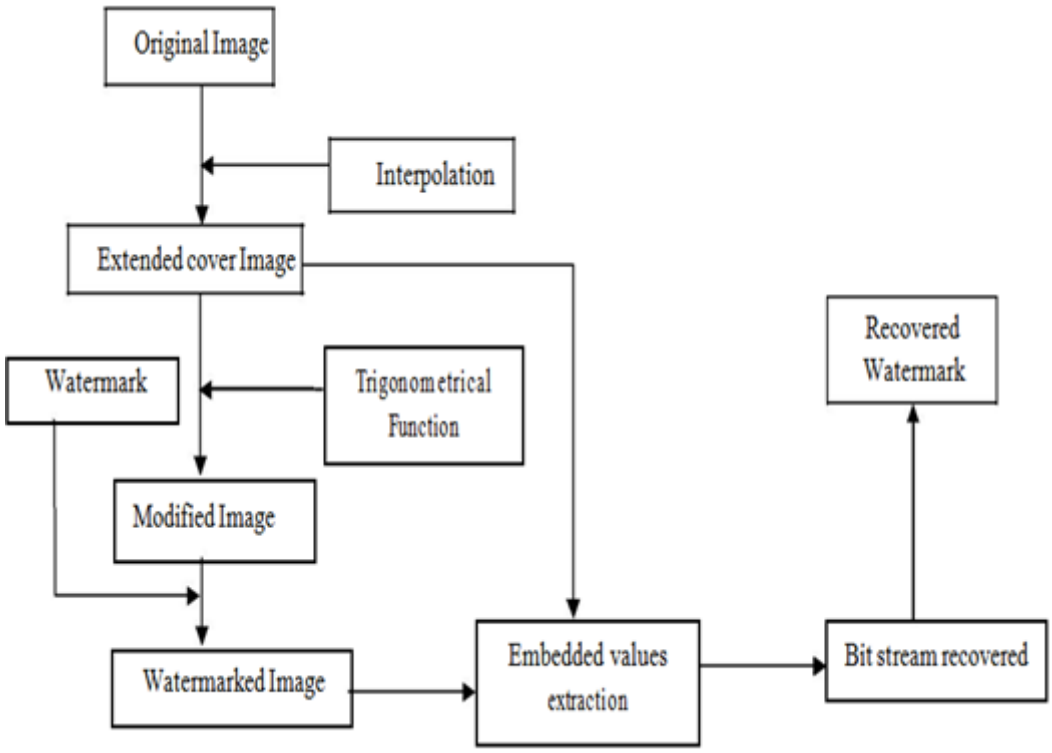

Fig 1Embedding and extraction of watermark

Watermark embedding within the image

Every two rows and two columns of blocks of original image are converted into three rows and three columns of blocks using interpolation method.

The I is the original image C is the extended cover image this process is in the following steps

I=

5	6
1	84

C (1, 1)=I(1,1)=5

C (1, 3) =I (1, 2) =6

C (3, 1) =I (2, 1) =1

C (3, 3) =I (2, 2) = 84

After this process we obtained three rows and three columns of block which is shown in below.

C=

5	0	6
0	0	0
1	0	84

In the above block place of the zero elements are obtained by using following formulas

$$C(1,2)=\sqrt{\frac{\{C(1,1)\}^2+\{C(1,3)\}^2}{2}}$$

$$C(1,2) = \sqrt{\frac{(5)^2 + (6)^2}{2}}$$

$$C(1,2) = \sqrt{\frac{25 + 36}{2}}$$

$$\left\{ 5.5227 + 2\cos\left(\frac{5+6}{2}\right) \right\}$$

5.5227+2cos (5.5) =6.9400

$$C'(2,1) = C(2,1) + 2\cos\left\{\frac{C(1,1)\} + \{C(3,1)}{2}\right\}$$

$$\left\{ 3.6056 + 2\cos\left(\frac{5+1}{2}\right) \right\}$$

3.6056 +2cos (3) =1.6

$$C(1, 2) = 5.5227$$

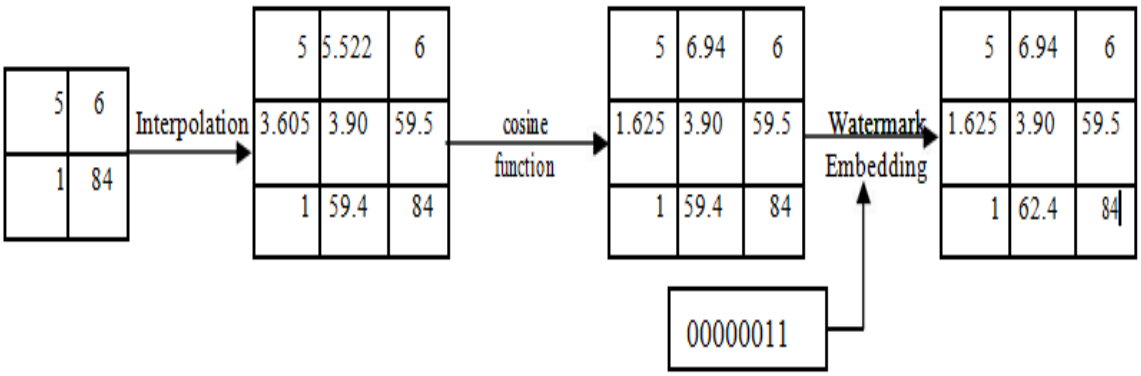

Fig 2 Watermark embedding technique

Watermark extraction from watermarked image

Now we obtained embedding process of watermark image into the original image. A percentage of random noise is added to the watermarked image it becomes noisy watermarked image.

Separate the elements of original block from the watermarked block we obtained recovered image.

5	6.9400	6
1.6256	3.9051	59.54
1	62.40	84

5	6
1	84

Separate the watermark image is subtraction of the 3x3 block obtained using formulas from the 3x3 block cosine function

5	6.9400	6
1.6256	3.9051	59.54
1	59.40	84

5	6.9400	6
1.6256	3.9051	59.54
1	62.40	84

After subtracting the difference gives two decimal values. These decimal values are converted into binary and concatenated to produce 8 bit binary data. This data is kept in the (1, 1) position.

RESULTS AND DISCUSSIONS

In this chapter the results is obtained by applying interpolation and cosine function to the original image and to obtain recovered image same as original image. The watermark embedded and extracted from original image, no distorting the original image. This process of embedding and extraction is done by using interpolation and cosine function.

Experimental results

The experimental results are shown in the below figure.

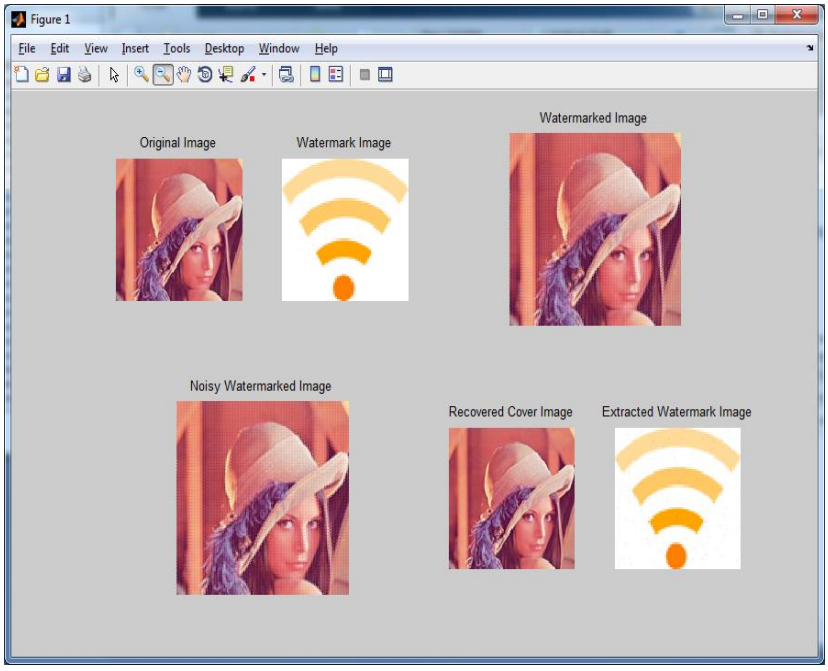

Fig.3 Recovered original image

CONCLUSION AND FUTURE ENHANCEMENT

In this chapter Conclusion of the dissertation work is presented and also this chapter provides the future enhancement of the work.

Conclusion

In this project, proposed method suggests the embedding the watermark within the image and extraction of watermark from the image. In this process of watermark embedding within the image and extraction of watermark without damaged original image using a proposed method. In this proposed method using cosine function and interpolation technique. We are able to recover back the original image. We obtained the robustness of the proposed method by the high PSNR.

Future work

The proposed method can be extended to video, embedding watermark within the video and extracted watermark from the video without distorting the original video.

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