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WATERMARKING USING ARNOLD TRANSFORMATION AND PRIVATE KEY

HARJOT KAUR
STUDENT
LUDHIANA COLLEGE OF ENGINEERING & TECHNOLOGY
KATANI KALAN

GURINDER SINGH
ASST. PROFESSOR
LUDHIANA COLLEGE OF ENGINEERING & TECHNOLOGY
KATANI KALAN

ABSTRACT

This paper introduces algorithm which is required to protect copy right of data entropy based robust watermarking scheme using number of techniques mainly Hadamard transform technique and Arnold transform technique. The watermarking is used to hide the data or identifying information (audio, video or image) of digital multimedia. It is based on Discrete Cosine Transformation (DCT) and Discrete Wavelet Transform (DWT) used to protect the security and rectitude of transmitted biometric color images. This technique can hide an entire image or pattern as a watermark directly into the original image. The original image is needed in watermark detection which is used for extended feature coefficient necessary for robust detection and resolve the value of one bit of watermark spread into block by using DWT prior to DCT which provide better imponderable. In this paper, to reduce the complexity by using the Hadamard transformation which is used to convert the cover page from spatial domain to transform domain and increases security using Arnold transformation and private key.

KEYWORDS

watermarking, transformation, DCT, DWT, hadmard transform.

INTRODUCTION

By the amelioration of the internet, there is need to protect copyright. Watermarking is one of the multimedia certification technique. Watermarking is the process in which embedding the digital information into any multimedia data such as an image, audio or video file[1]. Due to this security increases. Many serious attacks are resolved. Biometric system also increases security and certification in information technology community.

Biometric system takes specific characteristics of person because person specific features is not possible to transfer

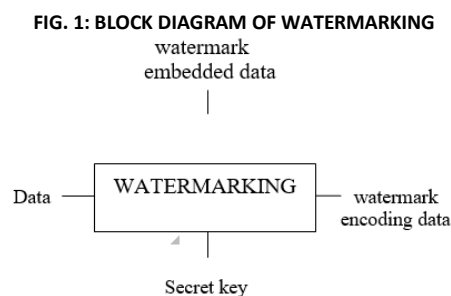
1. Finger print
2. Hand
3. Audio Feature
4. Facial
5. Handwriting and Signature

BLOCK DIAGRAM OF WATERMARKING

The given figure 1 shows the block diagram of Watermarking.

Important Feature of watermarking are

1. Reliability
2. Invisibility
3. High Capacity



Digital watermarking derived from steganography, its means covered writing. The main purpose of steganography is to suppress information[2]. Mainly two types of watermarks are used, nested and thus the resulting watermark is embedded in lower (LL) and high frequency(HH) band [3]. There is a steerable pyramid transform as watermarking domain, it has a lot of useful properties. Main properties of steerable pyramid transform are

1. Invariance
2. Capture of Multi scale
3. Multiresolution

Aspect Invariance properties of the steerable pyramid transform may be exploited to counterattack geometrical attacks[4]. DCT and DWT based digital watermarking algorithm can resist various watermark attacks rather than embedding the watermark to the DCT mid frequency coefficient and DWT beforehand. To cultivate the security and robustness further[5].

The watermark is generated as DCT domain signal which employ a message, it may be analog or digital then it going to expand and after expansion apply DCT then obtained watermark image[7].

DCT: With the character of Discrete Fourier Transform(DFT),DCT turn over the image edge to make the image transformed into form of even function, its one of the most common linear transformation in digital signal process technology. Two dimensional DCT is defined as:

Two dimensional DCT is defined as

$$C(u)=\alpha(u) \sum f(x)\cos[\pi(2x+1)u/2N] \dots\dots\dots (1)$$

Here F(x), x=0,1,2,3, (x-1)

The IDCT is defined as

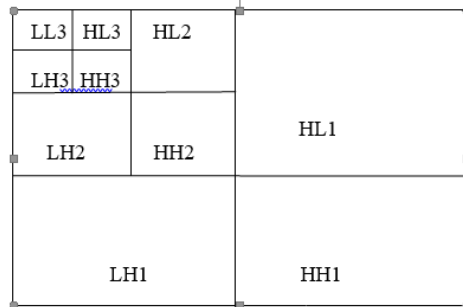
$$f(x) = \sum \alpha(u) c(u) \cos[\frac{\pi}{2}(2x+1)u/2N] \dots\dots\dots(2)$$

The two dimensional DCT can not only concentrate the main information or original image into the smallest low frequency coefficient.

DWT: Wavelet transformation is a time domain localized analysis method with the fixed size. There is quite good frequency differentiated rate in its low frequency part.

The information of low frequency district is an image close to the original image. Most of signal information of original image is in this frequency district. The frequency district of LH, HL and HH represents the level detail[6] in fig 2.

FIG. 2: DWT DECOMPOSED IMAGE



Hadamard Transformation: Hadamard transform is orthogonal, non-sinusoidal that decomposes a signal into a set of orthogonal rectangular wave form. The transformation has no multipliers and has only two value i.e +ve one and -ve one[1].

The watermark is generated as DCT domain signal which employ a message, it may be analog or digital then it going to expand and after expansion apply DCT then obtained watermark image[7].

Entropy: Entropy defined as

$$E = -\sum L \log_2(L)$$

Let L contains the histogram counts[1].

Arnold transform: The AxA binary watermark image W is transformed into W' by Arnold transformation to lower the autocorrelation coefficient of image and then the intimacy of watermark is strengthened. Arnold transformation is periodic and when it is iterated sometimes the original signal will be obtained. The Arnold transformation is defined as:

$$\begin{pmatrix} a \\ b \end{pmatrix} = \begin{pmatrix} 1 & 1 \\ 1 & 2 \end{pmatrix} \begin{pmatrix} a1 \\ b1 \end{pmatrix}$$

Inverse Arnold transformation is obtained by using the equations given below:

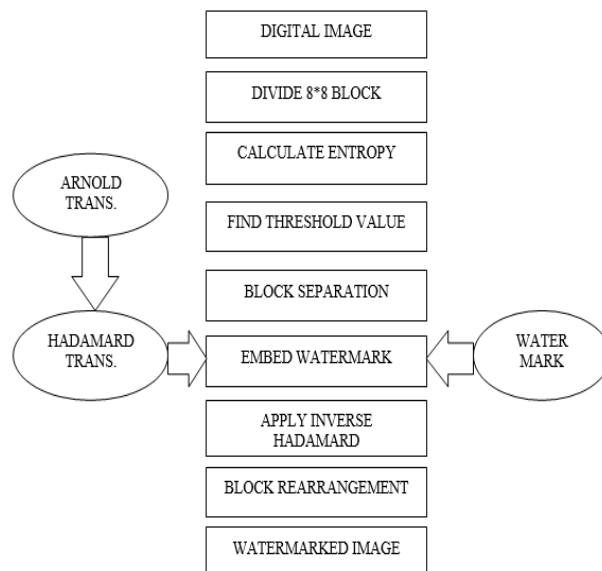
$$\begin{pmatrix} a' \\ b' \end{pmatrix} = \begin{pmatrix} 2 & -1 \\ -1 & 1 \end{pmatrix} \begin{pmatrix} a2 \\ b2 \end{pmatrix}$$

METHODOLOGY

A. Watermarking embedding process

- If cover image is color image first of all convert it in grey scale image then divide the image into blocks of 8x8 size. Now find the entropy of each block and find its threshold value. Now apply Hadamard transformation at the selected blocks. Now divide watermark into blocks of same size 8x8. Then apply inverse Hadamard transform(IHT)to the blocks. Then rearrange the modified blocks with unmodified blocks. After this process integrate the watermark image to display. Then apply Arnold transformation or a private key. Here this transformation and private key work as a Lock system or a key. By using this Arnold transformation surveillance of system increases.

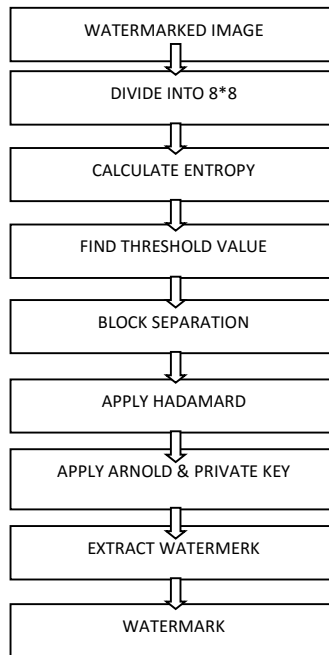
FIG. 3: EMBEDDING PROCESS



B. Watermark Extraction process

- If cover image is color image first of all convert it in grey scale image, then divide the image into blocks of 8×8 size. Now find the entropy of each block and find its threshold value. Now apply Hadamard transformation at the selected blocks. Then extract the watermark block from the respective block using constant factor. Now apply IHT. Then rearrange watermark blocks and original blocks. Now integrate the blocks to display the original image and watermark blocks to display the watermark image. Then convert the cover image into color image[1].

FIG. 4: EXTRACTION PROCESS



RESULTS

Original carrier image watermark of PSNR value is 48.29 db with good watermark transparency, with the naked eye from in fig. a. Original image choose 256 × 256 standard. Watermark image choose 32 × 32 size in fig b.

FIG. 5 (A): ORIGINAL IMAGE



FIG. 5 (B): ORIGINAL WATERMARK



FIG. 5 (C): SCRAMBLED WATERMARK



FIG. 5 (D): WATERMARKED IMAGE



FIG. 5 (E): EXTRACTED WATERMARK



FIG. 6

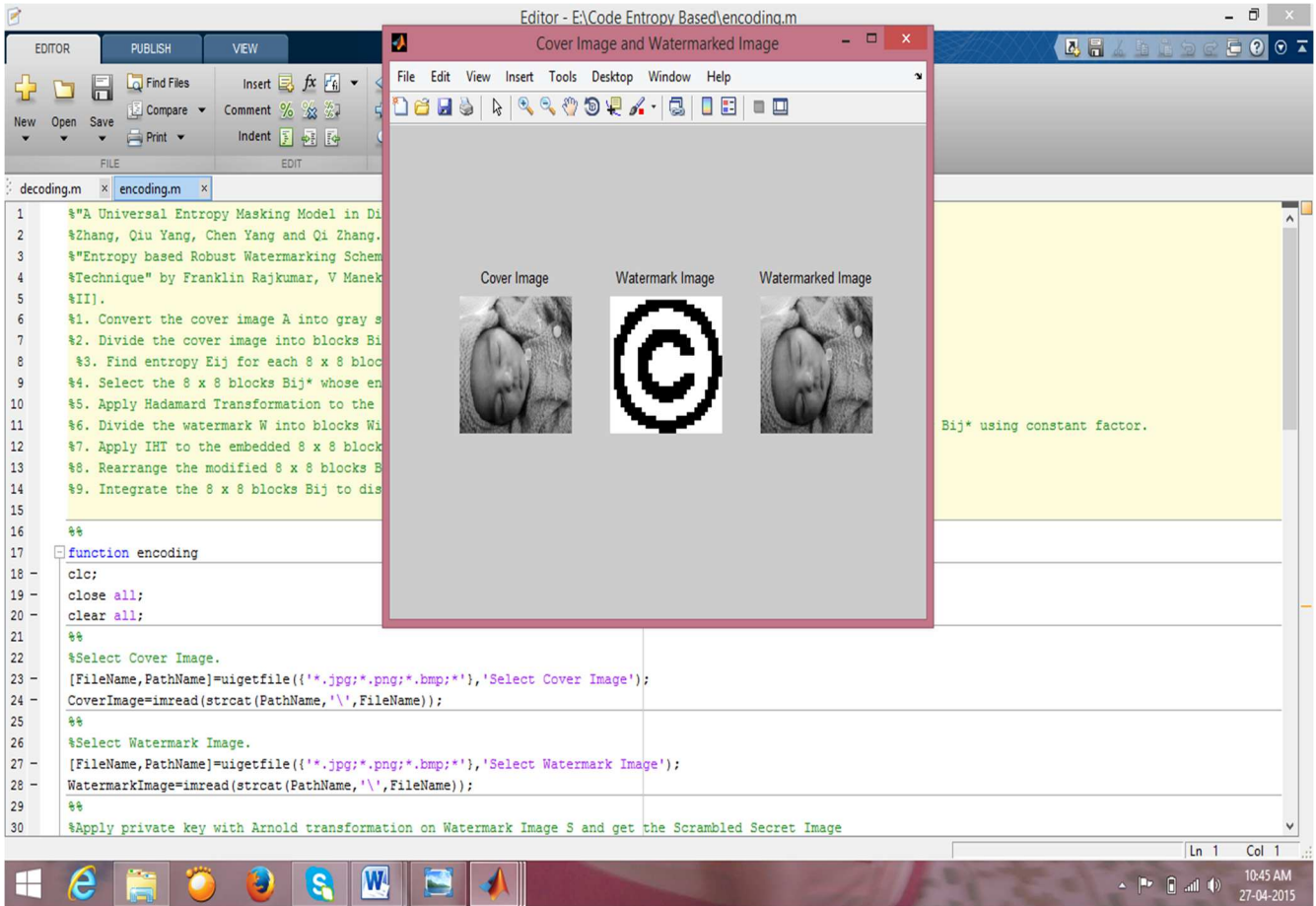


FIG. 7

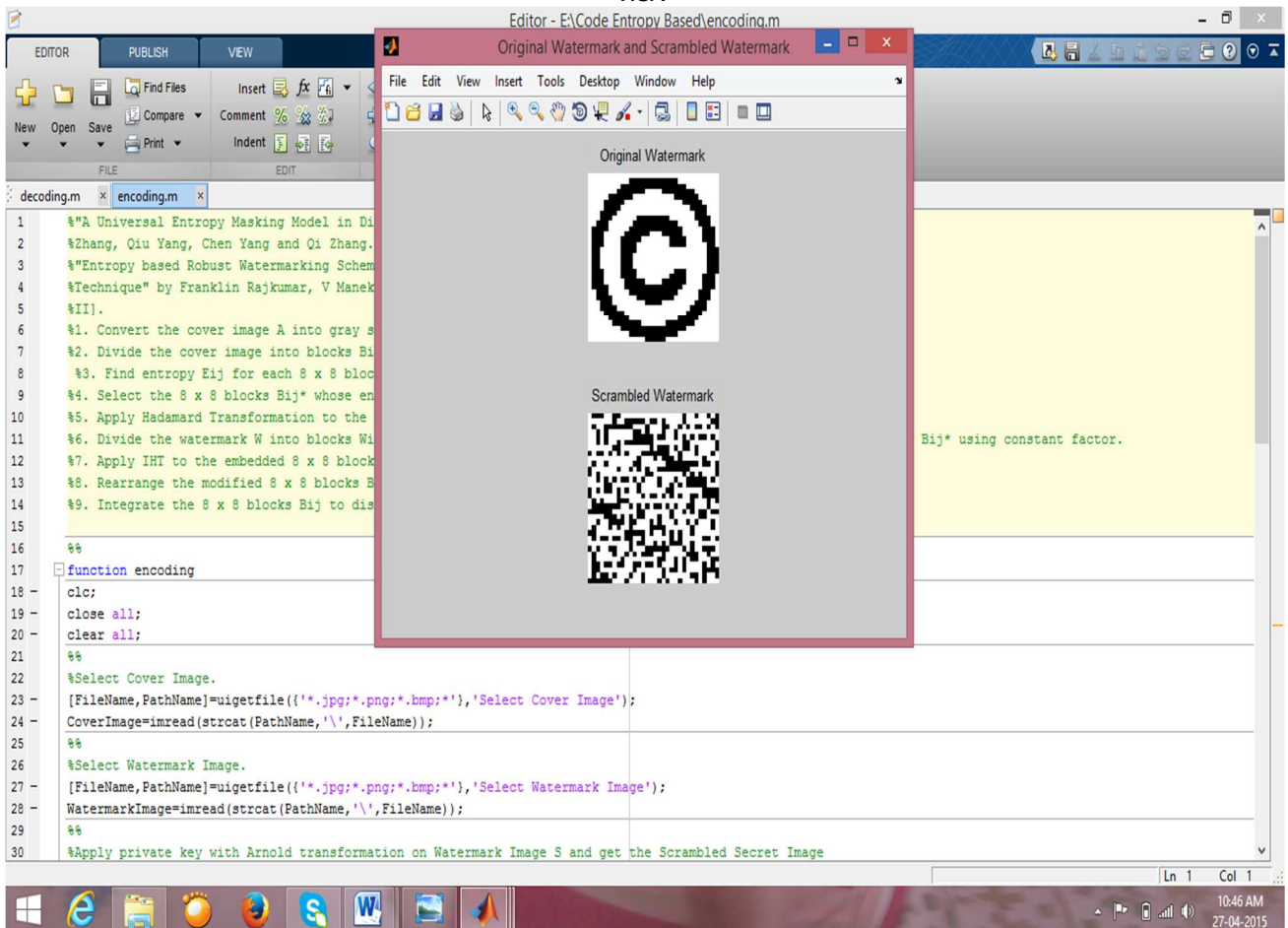


TABLE 1

	PARAMETERS	VALUES
1	Mean Square Error is	0.9628
2	Peak Signal to Noise Ratio is	48.2953 db
3	Average Difference is	-1040
4	Structural Content is	0.9997
5	Maximum Difference is	57.5
6	Normalized Absolute Error is	0.0005
7	Normalized Cross Correlation is	1
8	Bit-Error-Rate is	0.00%

CONCLUSION

There are many techniques to hide the data and copyright protection. The digital watermarking is comprehensible and easier method for hiding. Also this is more potent and more adopted because of its efficiency than the other hiding techniques. Watermarking is pinpoint on security by secret key, or Arnold transformation applied in the method. The requisition of security is increasing day by day because of cybercrime. It provides security not only for images but also for video, text and audio. Secure watermarking is an easy and efficient way of transmitting digital data.

REFERENCES

1. **Hernández J. R., Amado M., González F. P. (2000)**, "DCT-Domain Watermarking Techniques for Still Images: Detector Performance Analysis and a New Structure", IEEE, VOL. 9, issue 3, PP 331-342.
2. **Podilchuk Christine I., Edward J. Delp (2001)** "Digital Watermarking Algorithms and Applications", IEEE signal processing magazine, Vol. 8, issue 12, PP 33-46.
3. **Saraju P. Mohanty, Ramakishnan K. R (2004)** "An Adaptive DCT domain Visible Watermarking Technique for protection of publicly Available images", International Journal of computer science engineering, Vol. 2, issue 4, PP 195-198.
4. **Bhaskar D. Lalitha, Damodaram A, Avadhan P.S (2006)**, "Watermark insertion Algorithm implementation using Auxiliary carry and LSB methods", International conferences on system ices, cybernetics and informatics, Vol. 4, issue 2, PP 224-229.
5. **Abdulsalen Salah**, "Digital image watermarking algorithm wavelet transform domain using HVS characteristics" Thesis in MSC.
6. **Wang James Ze, Wiederhold Gio "Wave Mark (2009)**, "Digital Image Watermarking Using Daubechis' Wavelets and Errors Correcting Coding", International conference on system ices, cybernetics and informatics, Vol. 6, issue 4, PP 1-9.
7. **Channalli Shashikala, Jadhav Ajay (2009)** "Steganography an Art of Hiding Data", International Journal on computer science and engineering, Vol. 1, issue 3, PP 137-141.
8. **Jiansheng M., Sukang L., Xiaomei T., (2009)**, "A Digital Watermarking Algorithm Based On DCT and DWT", Proceedings of the International Symposium on Web Information Systems and Applications, Vol.3, issue 2, PP 104-107.
9. **Lingling W., Deng W., Zhang J., Dongyan H. (2009)**, "Arnold Transformation Algorithm and Anti-Arnold Transformation Algorithm's", 1st International Conference on Information Science and Engineering, Vol. 6, issue 9, PP 332-344.
10. **Drira Fadoua, Denis Florence, Baskurt Atilla (2010)**, "Image Watermarking technique based on the steerable pyramid transform", International conference on system ices, cybernetics and informatics, Vol. 4, issue 5, PP 1-12.

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