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A Review On Securing data With QR-code and Video Watermarking

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Abstract- Data hiding should be used concealed transmissions, closed captioning, indexing, or watermarking. It is in contrast to cryptography, where the survival of the message itself is not masked, but the content is hidden. Video Watermarking is implemented in different fields such as military and Industrial applications. The 2D Barcode with a digital watermark is a widely interesting research in the security field. In this paper propose a video watermarking with text data (verification message) by using the Quick Response (QR) Code technique. The QR Code is prepared to be watermarked via a robust video watermarking scheme based on the lossless video watermarking using DCT techniques messages can be sent and received securely. Traditionally, video watermark was based on hiding secret information in image files .Lately, there has been growing interest in implementing video watermarking techniques to video files. The advantage of using video files in hiding information is to be added security against hacker attacks due to the relative complexity of video compared to image files. Video-based watermark techniques are mainly classified into spatial domain and frequency domain based methods. The main aim of video watermark is to hide information in the other wrap media so that other persons will not observe the existence of the information. This is a major distinction between this method and the other methods of secret exchange of information because, for example, in cryptography, the individuals perceive the information by considering the implied information but they will not be able to realize the information. In the reverse process check the logo and QR code for authorized ownership.

Index Terms- 2D Barcode; Quick Response (QR) Code; singular value decomposition (SVD); Discrete Wavelet Transform (DWT).

1. INTRODUCTION

The work of this steganography is access private information into data under the assumption of others users not aware of this private information. The main work of watermarking to check the logo will be embedded in data or not. Based on the type of document to be watermarked.

1.1. Text Watermarking:

Word shift coding, feature coding, Line shift coding.

1.2. Visible Watermark:

In this watermark information can be visible in the video. Normally this information is appear in some text or logo which is identifies owner of media.

1.3. Invisible Watermark:

In that method text and logo will be hide which not seen but it will be detected by algorithms.

1.4. Dual Watermarking:

In this method used combination of visible watermark and invisible watermark.to store backup of visible watermark we used invisible watermark. It can be used to verify ownership. A quick response (QR) code is a two dimensional barcode invented by the Japanese corporation Denso Wave.

Fig. 1. 1 D Bar Code

In QR code store the information vertically and horizontally direction hence it will be stored hundred time more data as compare to traditional bar code. In QR Codes contain a large amount of information than 1D barcode. QR Code can encode in many types of characters such as numeric, alphabetic character, Kanji, Kana, Hiragana, symbols, binary, and control codes.

The rest of the paper has been organized as: section 2 indicates motivation, section 3 highlights the related work along with their downsides, section 4 discusses the proposed system modules. Section 5 shows the mathematical model of the system, section 6 displayed applications, section 7 shows result followed by conclusion and references.

2. MOTIVATION

This days, video gaining its popularity more and more. Also video is of the multimedia exchanged over internet. While transferring the video over internet, needs to be transferred securely. Video watermarking is the best solution to provide an ownership to the video.

3. RELATED WORK

Author has proposed by using DFT compare with DWT QR Code embedded technique for invisible watermarking. The DFT can allow to QR Code image broken up in to different frequency band by using block DWT that differences between coefficient and DWT algorithm that use Haar Wavelet Transform method hierarchically decompose a QR Code image into a series of successively lower frequency approximation sub band and their associated detail sub bands .In [2] author has define by using QR code hiding audio based data and for achieved this technique's quality used AI technique was watermark image and the sim value of the extracted watermark after certain attack will be poor. The robust performance can be achieved. In [3] Author has define divided block of image by QR code into the DWT domain using robust method. This technique was embedded information and extracted correctly even if the images are compressed to less percentage of the original according to the contents of the images .In [4] author has proposed reliable SVD-based imagewatermarking. It was solving the critical situation and false positive problem and get PSNR value. In [5] author has proposed SVD based watermarking algorithm for ownership protection. This techniques is more robotic and solve false positive flow in SVD based technique. In [6] author has proposed a blind and robust audio watermarking technique combined with SVD, DCT and synchronization code technique achieves very low error probability rates. With traditional and SVD based algorithms show better performance from our algorithm. In [7] to improve the quality of watermark image using different techniques of optimal robust image watermarking techniques based on SVD and the robustness of the embedded watermark against various attacks. In [8] author has proposed SVD-based watermarking scheme a good performance of the proposed scheme both in robustness and security can be achieved. In [9] author has proposed watermarking method was combines the SVD and DCT. It was should achieve the highest possible robustness without degrading image quality. In [10] author define based on MPEG-2 video watermark scheme it can achieved imperceptible and good robustness to MPEG-2 videos and security of watermark. In [11] author has proposed a practical video watermarking technique on the compressed domain it was satisfying real-time requirements and is robust to protect the copyright of HD video contents. In [13] author has proposed blind MPEG-2 video watermarking achieved high video quality and robustness to camcorder recording and other attacks. Embedding capacity of the proposed method has been computed which is better than the most cases compared to the existing methods. The MSE and PSNR value is also better than existing methods after embedding of secret image in various coefficients of the cover image. Video watermarking describes the process of embedding information in video data. Different data hiding terminologies. The important terminologies pertaining to digital video watermarking are: Digital Video: Video sequence is a collection of consecutive and equally time spaced still images. Payload: It is the amount of information that can be stored in a watermark. An important concept regarding the video-watermarking payload is watermark granularity. Watermark granularity can be defined as how much data is required for embedding one unit of watermark information. Perceptibility: video watermarking methodology is called imperceptible if humans cannot distinguish between the original video from the video with inserted watermark. Robustness: a fragile watermark should not be robust against intentional modification techniques, as failure to detect the watermark signifies that the received data is no longer authentic. In case of application such as copyright protection, it is desirable that watermark always remains in the video data, even if the video data is subjected to intentional and unintentional signal processing attacks. Hence, depending on the requirements of the application the watermark is embedded in a robust, semi-fragile or fragile manner. Security: the security of the

watermarking algorithm is ensured in the same way as in encryption methodology. According to the Kirchhoff's assumption, the algorithm for watermark embedding can be considered to be public, whereas the security depend solely on the choice of a key from a large key space.

4. MODULES

Proposed system mainly consist of two modules which comprises sub-modules,

4.1Embedding Module

1. Video Frames Extraction Module:
In first module, frames are extracted from video. This module also separates I, B, and P frames from the video. We are using I-frames for the embedding process.

2. Frames embedding Module:
In this module, logo and I-frames are get embedded using SVD algorithm. SVD algorithm is applied on I-frames of the video and company logo.

3. QR-Code generation:
In module, we are taking company name as input we is in string format. While watermark this company name, we should have to convert it into image format, so we are using QR-code for encoding company name and convert it into image format.

4. Video Watermarking Module:
Finally DWT algorithm is applied on I-frames with logo and QR-code which is created in OR-code generation module. QR-code is finally embedded into I-frames with logo and watermarked video is created.
In this barcode an unique id is present which is very important to detect stolen vehicle.

4.2Extracting Module

1. Decoding Module:
In this module, watermarked frames are get extracted from watermarked video. In this process, watermarked I-frames and QR-code are get separated. Logo is recovered from the watermarked I-frames.

2. Details Extraction Module:
Finally QR-code is read by barcode reader and original information get extracted. Company name is decoded from QR-code in string format.

4.3 Identify objects:

1. Embedding Process:
Here video frames from video are get extracted and company logo is embedded first with I-frames of the video frames. Finally company QR-code is watermarked with I-frames and logo.

2. Extraction Process:
Here at the receiver side, watermarked video frames extracted for decode the information which were watermarked with video. I-frames from watermarked video are get extracted using SVD and QR-code separated using DWT algorithm. Finally company name decoded from QR-code by using barcode reader.

5. MATHEMATICAL MODEL

Set S={I,O , Fn,S,F}

Where I is the input provided to the project

O is the output of the project and Fn is the function get performed during project.

S and F is depends on the success or failure of the project.

I={V,L, T}

Where V is the video in .mpge format. L is the company logo which is get embedded to the video, and T is the test data which is the secrete message embedded with video.

O={EV}

Where Ev is the embedded video which contains company logo and textual data hided in the video frame.

Fn= {DCT, Frame splitting, QR code generation, Embeding video}

S={Successfully embedded logo and text to the video frame}

F={Failure message with reason of failure}

6. APPLICATIONS

1. In large organization where secrete messages needs to be transferred securely.
2. Video portal where ownership is important.
3. In military application.

7. SCREENSHOTS

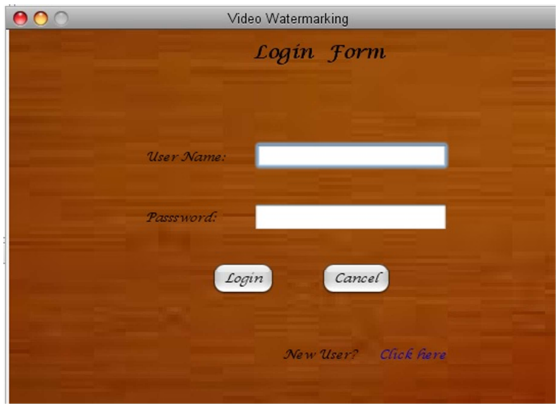

Fig. 2. Login Form

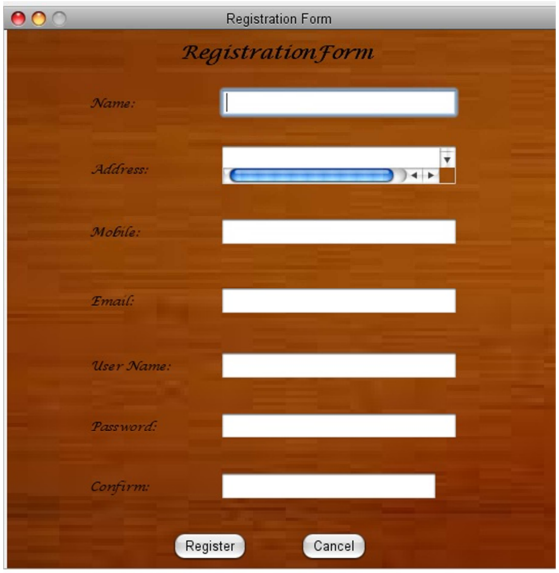

Fig. 3. Registration Form

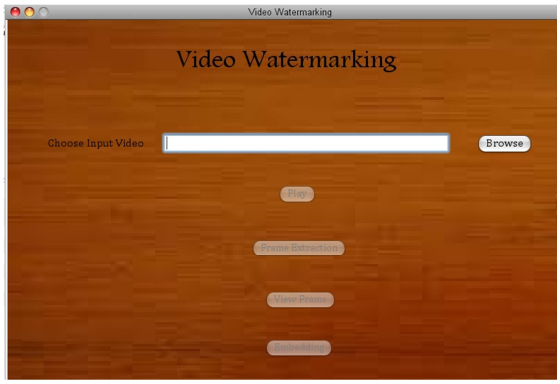

Fig. 4. Main Form

8. CONCLUSION

This method has achieved the improved reliable and secure watermarking. In this QR code encoding process and achieved best performances. In the first method watermark was in build in the dimensional element. And the other side text messages in the QR code image. So, the dual process given two authentication detail. The logo is located very safely in the QR code image. This method is convenient, feasible and practically used for providing copyright protection. Experimental results show that our method can achieve acceptable certain robustness to video processing.

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