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A Novel Video Watermarking Method for Reliability and Security in an Avi Video Using Least Significant Bit

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Abstract— Digital watermarking techniques have fastest growing techniques for copyright protection and authentication. Watermarking is classified into three domain i.e. spatial, transform and wavelet. Today's media use watermarking techniques for various applications such as copyright protection, copy control and tamper recurrence. In this paper we are focused on the extraction of watermark image in such a way so that no one can extract the watermark from the original image. We have introduced an algorithm in which we replace the watermark image to the part of original image so that the watermarked image would have same size and treated as single image from starting coordinate to maximum coordinate. Extraction is impossible in this technique.

Keywords- Image watermarking, video frames Extraction, Audio Extraction, copyrights, Authentication

I. INTRODUCTION

In this digital world very large network of media is available. So the security issues are much sensitive now a day. We need to secure it from spreading and and copying which is spreading at high speed. It is very easy to get a copy of other person's digital media. it may lead to large-scale unauthorized copies, which effect the development of the publishing industry. There is need of some protection mechanism for the owner of digital media content such as visible watermarking and invisible watermarking. Since old technique like encryption is no longer sufficient for copy right protection and authentication [18] Digital watermarking is an art of embedding and extracting watermark image into original image with two forms visible watermarking and invisible watermarking. [18] Because the coping and tempering of any digital video is quite easy, in order to protecting copy right, digital video watermarking technology taken as an important and more urgent component. [4] Video based applications like voice over internet protocol, video conferencing, wireless videos, video broadcasting, set-top box, video-on-demand, videophone and internet multimedia are becoming more and more popular and has increased the demand for a secure distribution of videos. [3][5].

II. VIDEO WATERMARKING

Digital watermarking is nothing but a digital code embedded into digital cover content e.g. text, image, audio and in our case video sequence. [2][3][7] A watermark can be any random or serial number, ownership identifier, information about the creator, date etc.[2] It can carry any unlimited information, but as more information watermark carry, the original information will be more vulnerable. So the amount of watermark must be limited by the size of an original message, here video sequence. As watermark prefers to robustness, it carries tens to thousands bits per one video frame. [7]

Video Watermarking Terminology

DIGITAL VIDEO: Digital video is a sequence or collection of consecutive still images.
Payload: The amount of information that can be embedded into the video sequence.
SECURITY: In watermarking the security is assured in the same way as in encryption. Though the algorithm of watermarking process is public, security depends on the choice of the key. [2]

The principle of video watermark

The complete process of digital video watermarking is described into four steps: Watermark insertion or embedding, Watermark transmission or distribution through a channel, Watermark extraction or detection and Watermark decision (Figure 1.2).

Watermark embedding algorithm embedded a watermark into original video using a Key, which may be either public or symmetric key. Then the watermarked video transmitted over the channel. At the receiver side, watermark detection/ extraction algorithm used to detect a watermark. In last step, watermark decision, watermarking system analyzes the extracted data. [6]

III. LITERATURE SURVEY

As per the article Sourav Bhattacharya et al[1].some few years digital watermarking is very fast growth technique there are some very advanced video cods for better video quality ,at present the the video cods use to copy write

protection and authentication .In this paper perform and search watermarking available technologies. This paper Method LSB (Least significant bit) applied to video for security and reliability.

As per the article Jaishri Guru1, Hemant Damecha2et al [2] watermarks are mostly use in any where security and authentication are required, watermark in a way for copy write and proof ownership .digital information are easy to produce the number of copy available audio video and images and distributed for reading, in software industries many times the authorized user are missing the important copies of data.

They are distance can be use to watermarking technique, in few years the watermarking technique are used to copy write protection and owner ship

For available audio ,video and images there are many technique but digital watermarking are nearly all interest this paper introduces watermarking firstly and there notations.

As per the article Deepshikha Chopra1, Preeti Gupta2, Gaur Sanjay B.C.3, Anil Gupta4et al [3] In current year digital watermarking is one of the most important part for copy write protection of audio ,video and images because the internet revolution result in an explosive growth in audio ,video and images applications. Internet is medium to send data and information to faster the different location by hackers that's why use digital watermarking technique to protection a data. In this paper an invisible watermarking technique (least significant bit) and a visible watermarking technique is implemented this paper are general overview for video watermarking .and reliability and security.Diffrent types of attacks performed by digital watermarking video and their impact are also reads ,this paper used watermarking LSB (Least significant bit) Method .

As per the article et Maninder Kaur, Nirvair Neeru al [4] The area of Internet fatly growth to exchange the data and information in overall network but the other security issues copies the data and important information are speedily developed .watermarking is an techniques to protect this problem ,digital watermarking technique to protected the all multimedia applications .This paper used watermarking LSB (Least significant bit) Method for copy write security and ownership various attacks are discussed.

As per the article et Preeti Parashar1 and Rajeev Kumar Singh2 al [5]In few years Multimedia application security are important issue in networking areas because of ease to copies , creating duplication and send to fast in different locations .Digital watermarking technique to protect the copies and duplication of multimedia applications .this paper present the searching of video watermarking technique and the result are match the different available watermarking technique outputs .In digital watermarking have been provide a copy write protection and ownership identification.

IV. PROPOSED METHODOLOGY

Algorithm

(1) Select AVI uncompressed video

(2) Separate Frames and audio.

(3) Select Watermark Image using bit method.

(4) Watermark an image on Each Frames of Extracted Video.

I. Select Images.

II. Select Watermark Images

III. if Size (Watermark Image) <Size (Image) then go to step 4
else end.

IV. select Input Image Region== size of watermark Image.

V. Replace RI=RW && GI=GW && BI=BW and Keep A=0.

VI. Example:

VII. Let Image Pixel is of 24 Bits

Pixel																							
RGB Components																							
Pixels Values(Input Image)	1	0	0	0	1	1	1	0	1	0	1	0	0	0	0	1	1	1	1	1	0	0	1	1
	Red(R)								Green(G)								Blue(B)							
Pixels Values(Watermark Image)	1	0	1	0	1	0	1	0	1	0	1	1	0	1	0	1	1	1	0	1	1	0	1	1
	Red(R)								Green(G)								Blue(B)							
Pixels Values(Result Watermark Image)	1	0	1	0	1	0	1	0	1	0	1	1	0	1	0	1	1	1	0	1	1	0	1	1
	Red(R)								Green(G)								Blue(B)							

VIII. Stop

(5) Create video from all watermarked frames.

(6) Insert an Audio into newly created video.

(7) Analyze PSNR graph.

(8) Analyze resultant video

(9) Go to top

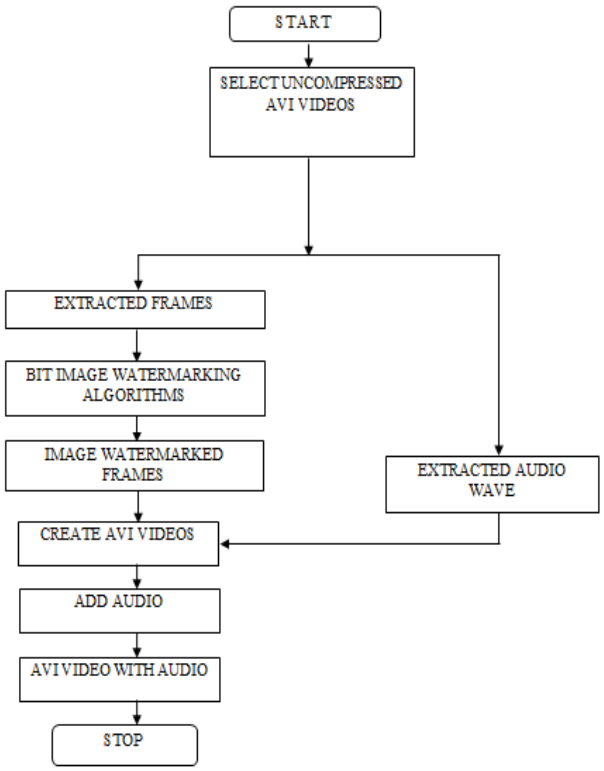

Fig: 1. Proposed flowchart

V. RESULT ANALYSIS

S N	Input video name	Size of input video	Frame Size	Audio Size	No of Frames	Audio Format	Image Format
1	Sun.avi	10MB	200x250	5MB	115	.wav	.bmp
2	Sun1.avi	20MB	200x300	15MB	178	.wav	.bmp
3	Sun2.avi	30MB	200x350	20MB	165	.wav	.bmp
4	Sun3.avi	40MB	300x350	25MB	231	.wav	.bmp
5	Sun4.avi	50MB	400x400	25MB	326	.wav	.bmp

VI. CONCLUSION

We as a researcher have got so many options to secure multimedia application including our research that is digital watermarking. Many aspects of digital atermarking like security, robustness, high capacity complexity, and low distortion etc. In this dissertation I have proposed a new scheme which is based on visible watermarking. This includes Pixel method or can say least significant bit in a frequency domain. Using Pixel or bit method we have applied an algorithm to insert a watermark in such a way that the particular area or coordinates are replaced with the area in original separated images. This method provide high security and robustness to owner that no one can extract the watermark since it is the single watermark image so if anyone try to remove it will destroy entire image which will result that no one can take profit of this. This method used an uncompressed AVI video as input which came from any digital camera. I have analyzed the resultant video with the prior works and have found a great difference in performance. This dissertation provides a scheme which is very valuable for owner and all watermark users

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