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Application of A Video And Image Watermarking Based On Histogram Shape

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***Abstract*—** Digital watermarking is a powerfull tool to protect digital multimedia content from illegal distribution and unatherised acces.Thus it can be used in multimedia applications for videos and images.Here we are proposing a new watermarking scheme which is Histogram based and it can be used to provide high security, robustness.This watermarking is aimed for images and videos also. The shape of histogram of image is manipulated to for the efficient insertion of digital watermarks to the images.The movement of pixels from one region to other will remove the side effect of Gaussian filtering. The proposed system is highly robust as it makes changes to the histogram of the image. The use of secret key improves the security of the proposed system. Also the imperceptiblity of watermarking makes the scheme perfect.Here the three step scenario for watermarking makes a good protection system for digital contents.In video watermarking the video frames are seperated before inserting the watermarks.The digital watermarking can be used in applications like identifying content owners, Protection of video contents,filtering of digital contents,ownership communication,..etc

***Keywords*—**Digital watermarking,Histogram,Content owners

I. INTRODUCTION

Digital watermarking is a good and important method to handle attacks against multimedia object.we can handle the integrity if digital images by means of digital watermarking.various attaks against images and videos are desturbing the multimedia communication world.thus we have to provide a blasting technology to protect the multimedia content from the illegal manipulation.these type of protection schemes can be used in various applications like content authentication,content filtering etc..

Section I contains the introduction of digital image and video watermarking , Section II contain the related work of histogram based watermarking technich, Section III contain some measures of defferent methodologies used, Section IV contain the architecture and essential steps of the watermarking scheme, section V explain the watermarking methodology with flow chart, Section VI describes results and discussion regarding watermarking, Section VII contain the recommendation of the proposed system.and Section VIII concludes research work with future directions.

II. RELATED WORK

Watermarking is a widely used technic in multimedia content management systems.thus it is very common that the study of wateramking systems.various methods and applications are there.here we are concentrated on the hitogram based watermarking for authentication and content preserving applications.other applications of watermarking from different sources are content filtering,Tampering detection.recovery of tamperd multimedia content .etc

III. METHODOLOGY

The proposed system of watermarking is a very powerful tool against tampering.the main application of this watermarking is Tampering Detection and content management.

Explaining the application of tampeing detection can be done by using a figure.The steps are:

1. Process the recieved image
2. Construct the histogram
3. Identify the watermak
4. Compare the watermark
5. Make decission based on the comparison

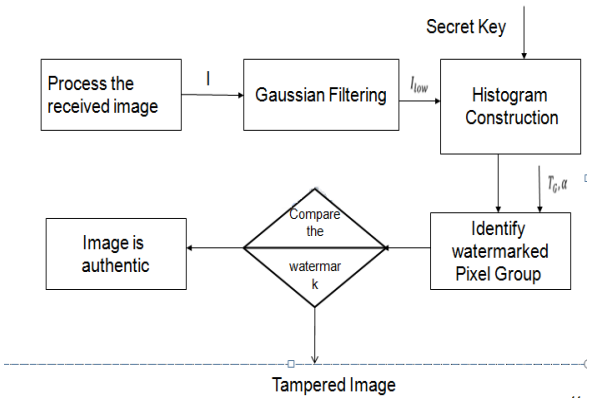

Fig 3.1 Diagam of Athentication application of the Images

The same scenario can be used to identify the tampering detection of videos.the different phases are listed below.

1. Process the recieved Video.
2. separate audio and video
3. identify the watermarked frame
4. Construct the histogram of frame
5. Identify the watermak
6. Compare the watermark
7. Make decission based on the comparison

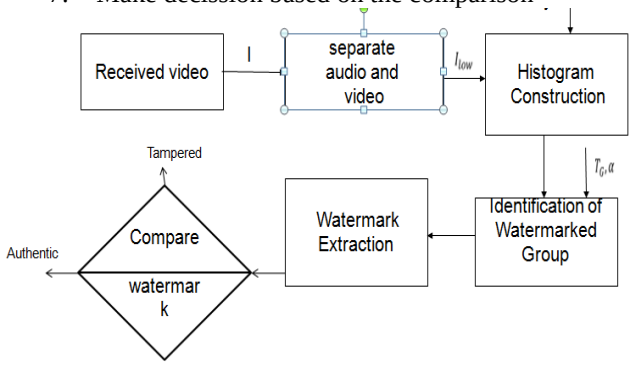

Fig 3.2 Diagam of Athentication application of the Images

IV. RESULTS AND DISCUSSION

The proposed system is capable to handle the above application only if it have better perceptualquality and robustness.In order to calculate the perceptual quality of the watermarked image,computed the structural similarity matrix for various input set by keeping the watermarking input and threshold values are constant.the table shows the SSIM of watermarked image with the unwatermarked image.most of the images are almost equal to the watermarked image.that is the value of SSIM is above 0.5.if the value of SSIM is 1.Then the input image and output image is almost equal.The values near to 1 in SSIM shows good watermarking scheme. The performance of the video watermarking is calculated by checking the PSNR.

Table 4.1: Computed Values of PSNR And SSIM dataset 1

Image	PSNR	SSIM	PSNR 2	SSIM 2
1	30.0126	0.98	20.875	.85
2	33.0149	0.98	25.087	0.78
3	32.0278	0.96	25.087	0.78
4	37.3781	0.99	25.08	0.698

values of the watermarked frame with the input video frames.The value of PSNR is 42.06 db.that is the proposed system is perceptually good for video watermarking also. The Peak signal to noise ratio is calculated to determine the quality of watermarked image.PSNR value shows good performance above 20db and excellent performance from 30db to 80 db.The proposed method gives PSNR values in between 25 and 40.that means the proposed system is very powerful tool to provide multimedia content protection. The tables 4.1 shows the experimental results of the proposed method.The PSNR and SSIM values of the proposed method as compared with other method in the tables.so the values are much better for the proposed system for different data sets.so we can conclude that the proposed system is robust and perceptual.So the proposed system can be used for the applications explained in the methodology section.

V. CONCLUSION AND FUTURE SCOPE

The main application of the proposed system is authentication of multimedia content.another important use is owners information protection.both are very important in multimedia communication,This Method can be used in other applications like video content filtering to avoide illegal transmission of videos,provide communication in the copyright and auther information,providing security for images.The watermarking for video can be used to identify illegal copies of films and other videos.c

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