



Robust and Brittle Secured Video For IOT

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Abstract: In this paper the system is mainly designed for the security of the military since securing our military has become a difficult task. In our day-to-day life we are computer based living and digital image processing plays a vital role in it. This process has many advantages as well as some disadvantages. A VLSI circuit is built with many millions of IC chips, so it is considered to be indivisible for the construction purpose. The Internet-Of Things (IOT) is a physical device, vehicle and the building item which is used to generate many secured techniques which are connected with the software, electrical, electronics and mechatronics devices also. The network connectivity is available for the internet of things which is used for collecting the data and exchanging the data. Better Portable Graphics Algorithm with a Context-Adaptive Binary Arithmetic Coding (CABAC) encoding algorithm is used in the existing system; this process is affected by Gaussian noise, low compression ratio and time delay. To overcome these issues and enhance them with Secure Better Portable Graphics (SBPG) compression algorithm with HEVC is present. The proposed architecture is suitable for high performance imaging in the IOT and for high quality compression files and secured transformation of image and video captured in the digital camera. Encryption and watermarking are the two techniques employed during the image capture. The watermarking technique is more secure than the previous system. This process produces high quality JPEG, and high PSNR ratio.

I. INTRODUCTION

The object in the video or image can be determined by using the process called object recognition. It is considered to be a difficult task since the object is detected depending upon various factors like the position of the object and object model difference which is relative to the camera and the lighting variation also. To determine the behavior of the object desired object between the frames and position is determined by tracking. The efficient and exciting products to market are produced due to the transformative power of IOT. The IOT is mainly useful for the military purpose for the tracking of people outside entering our area would be founded easily through this process.



Figure 1.1 Internet of things

The vehicles in which the camera is placed, and the quadrators consist of four cameras to view what is happening in the surrounding. The IOT is also called as the **smart**

device or connected device. When the IOT is connected to the sensor it makes use of many objects. It can be used in the environmental aspects like weather monitoring of the air, water and other natural hazards which are happening in our surrounding.

II. NOVEL CONTRIBUTION OF THIS PAPER

The secured better portable graphics algorithm (SBPG) is used for the secured communication process which can be highly used in the military source and defence. It consists of double layer 1. encryption and 2. watermarking.

The process of hiding the data is called the encryption. The robust watermarking is the process used in the system, watermarking is nothing but the process of giving cover image to the system. Brittle is the side channel attack, which means the process of giving cover image to the frame, when the hacking is held the data cannot be changed and the cover image is corrupted and the frame remains same. The SBPG encoding has several advantages over JPEG compression including high quality with lower size than JPEG, which makes it suitable for real time and bandwidth requirements. The aim of this process is to secure the video/image communication by using internet of things and to overcome

- Low compression ratio.

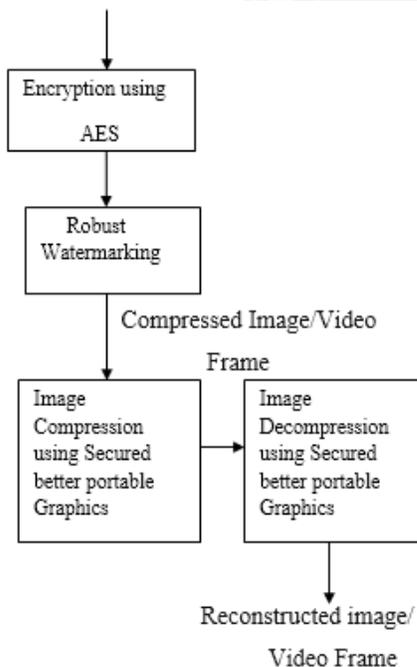


- Reconstructed image affected by Gaussian noise.
- External disturbance and error.

III. PROPOSED ARCHITECTURE FOR SBPG

A. Image And Video Compression

The process of detecting an object is considered to be difficult. The main aim is to introduce Secured Better Portable Graphics (SBPG) compression algorithm for secure image/video communication. The system is more over used in the civil application. It is being implemented in the robotics so that it is able to perform a set of task, make a decision on fly and interact with their surroundings. It can reduce the redundancy between the blocks in the HEVC frames. The process in which JPEG achieves higher compression ratio with smaller size.



B. Encryption

The conversion of electronic data into another form, and which cannot be understood by anyone except authorized parties is called the encryption. The digital data stored on computer system or transmitted via internet or any other computer system is protected by the encryption process. In early time people are not able to

read so writing the secret message was enough but the encryption was developed which covert the message to a secret code moreover the contents are reorded or replaced with the help of characters, numbers, symbol etc. In the security of IT system and communication modern encryption plays a vital role. In the usage of Iot encryption is also used in the military and government for secret communication. In many kind of civilian system encryption is used for protecting information. The encryption is divided as,

1. Symmetric encryption
2. Assymetric encryption.

The early time used method is the symmetric process which uses the letters, characters, symbol etc, which is applied to the message and it secure the data. The problem occurred in the internet or any other largest network are proceeded with the help of asymmetric encryption. The frames of the video are first encrypted and the process takes place.

C. Watermarking

Robust watermarking is used for the hiding purpose, it is called as robust when it resists a designated class of transformations. The process of hiding digital information in carrier signal is called watermarking, but the carrier signal does not have any contact with the hidden information. The watermaking mainly depends on the use case. Source tracking is considered to be the main application of watermarking. The watermarking is divided as

1. Fratile watermarking
2. Semi-fragile watermarking

The slite change or modification identified is called fragile watermarking. The interior proof system is used in the fragile watermarking. During the transformation the process which resist is called the semi-fragile watermarking. The watermarking is applicable in copyright, tracking, and broadcast monitor. After the data is encrypted the watermarking is held, which provide a cover image to the frame, so that it cannot be read by the other parties.

D. Compression

Encoding information using data compression, source coding converts large bits to smaller bits in signal processing. The two types of compression are lossy and lossless compression. The process of eliminating redundancy and identifying bits are called lossless compression. Droping non-essential detail is called lossy compression. After the completion of the encryption and watermarking the



compression is held with the help of secured better portable graphics algorithm. When it is compressed the number of frames are noted.

E. Decompression

Source encoding converts smaller bits to larger is called decompression. The opposite process of compression is the decompression. The compressed files are decompressed using the secured better portable graphics algorithm, so the number of frames are converted to the image/ video form.

IV. CONCLUSION

With the wide use of internet this work is focused to implement the internet technology to establish a system which would communicate through internet for better health. Internet of things is expected to rule the world in various fields but more benefit would be in the field of healthcare. Hence present work is done to design an IOT based secure video communication. In this work, for secure video communication double layer protection scheme is used. Double layer protection means encryption and watermarking are used. For encryption advanced encryption standard is used and robust watermarking is used for watermarking. The data is sent to the destination via a secure channel. From the experimental results this method provides better security than previous schemes.

In future fragile watermarking is used for improving security of video communications. Fragile watermarks are commonly used for tamper detection (integrity proof). To verify the authenticity or integrity of carrier signal digital watermarking may be used, which is used to identify the tracing copyright.

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