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Reversible Data Hiding using RRBE

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Abstract:- **Now a days, a lot of attention is paid to reversible data hiding (RDH) in encrypted images as well as in audio and video, since it holds the excellent property that the original cover can be losslessly recovered after embedded data is extracted while protecting the image content's confidentiality. All previous methods embed data by reversibly vacating room from the encrypted images, which may be subject to some errors on data extraction and/or image restoration. In this paper, we propose a novel method by reserving room before encryption with a traditional RDH algorithm, and thus it is easy for the data hider to reversibly embed data in the encrypted image. In this we propose a new method by reserving room before encryption .By using the new RDH method improves efficiency of image. The proposed method improve efficiency & quality encrypted image usually used in medical area, aromatic etc. The new algorithm used in novel RDH used to reduce noise effect.**

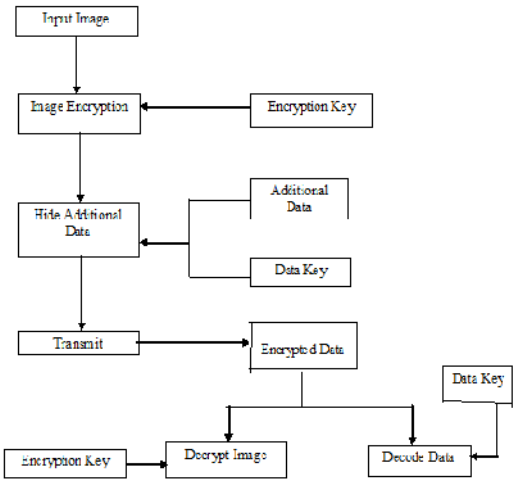
The proposed method can achieve real reversibility, that is, data extraction and image recovery are free of any error. Experiments show that this novel method can embed more than 10 times as large payloads for the same image quality as the previous methods, such as for PSNR=40 dB

Key words: Reversible data hiding, image encryption, privacy protection, histogram shift.

I. INTRODUCTION

In general, security denotes the quality or state of being secure to be free from danger. Security is classified into different layers depending on the type of content intended to be secured. Recently there has been an explosion in the use and distribution of digital multimedia data. Personal computers with (broadband) internet connections have become more and more common, and have made the distribution of multimedia data and applications much easier and faster. Electronic applications like commerce and online services in every field are being developed rapidly. Each and every analog audio and video equipment are fastly replaced by digital. Due to this digital devices captures todays consumer market. Digital data has many advantages over analog data.

II. SYSTEM FLOW



With the encryption key the image is encrypted and encrypted version is given to data hider for hiding his data into it. For this additional key is required called data hiding key which may be different from the encryption key and data hider does not know the image contents, hides data and given to the receiver for obtaining original contents from encrypted image for which two different keys are required. Thus data hider gets his data and original image is obtained at the other side.

There are various steps of proposed system

a. Image encryption

Image ecryption con be done by several ways like first image is partion into two arts like A & B.

Then smoother part B is created in this step. Pixels of B with fewer texture are merge with pixels of A with higher texture using first order function. Then using LSB replacement method, LSBs of A are replaced in B. Then image is encrypted using standard stream cipher.

b. Data Hiding

At the time of encryption first ten bits of A represent how many rows and column can be used for data hiding. That are extracted and message is hided in encrypted image with data hiding key.

c. Data extraction and Recovery

Data can be extracted by two ways, from encrypted image and from decrypted image.

Database manager take data hiding key and can extract data from encrypted image or first he can decrypt image then extract the message.

III.RESULTS

The proposed approach will be tested on public available standard images, which include House, city fort, Cat, Lena, Airplane, Barbara, Baboon, Peppers and Boat. We take standard image Lena, shown in Figure (a), to demonstrate the feasibility of proposed method. Figure (b) is the encrypted image containing embedded messages and the decrypted version with messages is illustrated in Figure (c). Figure (d) depicts the recovery version which is identical to original image. We have compared the proposed method with the state-of the- art works.

a. b.

C. d.

(a) Original image,(b) encrypted image, (c) decrypted image containing messages (embedding rate 0.1 bpp), (d) recovery version.

IV.CONCLUSION

Reversible data hiding in encrypted images is a new topic drawing attention because of the privacy-preserving requirements from cloud data management. Previous methods implement RDH in encrypted images by vacating room after encryption, as opposed to which we proposed by reserving room before encryption. Thus the data hider can benefit from the extra space emptied out in previous stage to make data hiding process effortless. The experimental results shows that the encrypted message or data are successfully obtained after decryption. The PSNR of the decrypted images are improved by 1 to 2 d B, as compared to other methods.

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