International Journal on Recent and Innovation Trends in Computing and Communication ISSN: 2321-8169
Volume: 6 Issue: 3 246 - 249

Audio and Video based Steganography for data hiding: A Review

Monika Yadav, Mr. Sarjender Yadav
Department of Computer Science and Engineering
Rao Pahlad Singh Group of Institutions, Balana, Mohindergarh

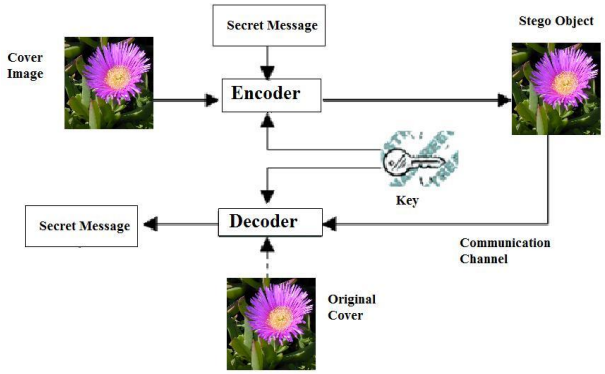
***Abstract*:** Security is most essential issue in advanced correspondence. Information security implies defensive computerized security measures that are connected to forestall unapproved access to PCs, immense databases and online information it is likewise shields information from defilement. Security is most vital issue in computerized correspondence. Cryptography and steganography are two prominent techniques accessible to give security. Steganography centers around concealing data such that the message is imperceptible for pariahs and just appears to the sender and expected beneficiary. It is valuable instrument that permits secret transmission of data again and again interchanges channel. Steganography is a method which is utilized to conceal the message and keep the identification of shrouded message. Different present day methods of steganography are: a) Video Steganography b)Audio Steganography
Audio Video steganography is a cutting edge steganography of concealing data in a way that the undesirable individuals may not get to the data.

Keywords—*Steganography, Audio Steganography, Video Steganography*

*****

Introduction

Steganography centers around concealing data such that the message is imperceptible for untouchables and just appears to the sender and proposed beneficiary. It is valuable instrument that permits clandestine transmission of data again and again interchanges channel. Steganography is a method which is utilized to shroud the message and keep the recognition of concealed message. Audio Video steganography is a cutting edge method for concealing data in a way that the undesirable individuals may not get to the data. The propose strategy is to shroud mystery data and picture behind the audio and video record individually.



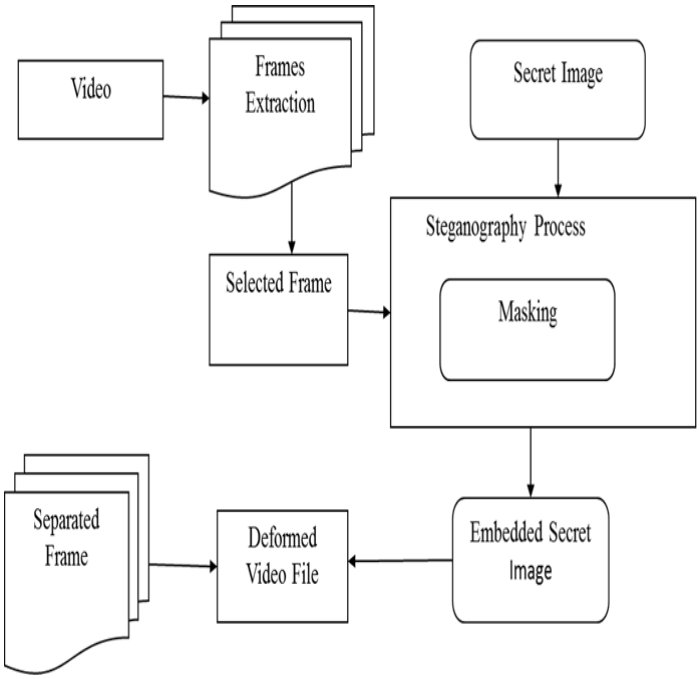
Audio Steganography

The fundamental model of Audio steganography comprises of Carrier (Audio document), Message and Password. Bearer is otherwise called a cover-record, which covers the mystery data. Encoding mystery messages in audio is the most difficult method in light of the fact that the human sound-related framework (HAS) has such a dynamic range, to the point that it can tune in finished. Audio records are generally packed for capacity or quicker transmission. Audio documents can be sent in short remain solitary fragments. There are different composes and procedure of information stowing away in audio like Least Significant Bit Encoding and Phase coding. Implanting mystery messages in audio document is more troublesome than inserting messages in computerized picture.

Video Steganography

Video is an electronic medium for the recording, copying and broadcasting of moving visual images. Video Steganography is a technique to hide any kind of files into a carrying Video file. The use of the video based Steganography can be more eligible than other multimedia files, because of its size and memory requirements. Videos are the set of images. The number of still pictures per unit of time of video ranges from six to eight frames per second.In video steganography data

hides behind the video using different techniques. Basically there are three embedding techniques for images in practice, namely Least Significant Bit (LSB), Transform based and Masking and filtering. The best technique is that to hide secret message without affecting the quality of video, structure and content of video. After hiding a secret data in video create "stego " video file which is send to the receiver.



Literature Survey

Arup Kumar Bhaumik, Minkyu Choi et.al, [1] there are three principle necessities of any information concealing framework i.e. security, limit and heartiness. Every one of these variables are conversely relative to each other and along these lines, it is exceptionally hard to accomplish them together. Here, the creators have concentrated on expanding the two components, security and limit of information concealing technique. This information concealing plan utilizes a high determination computerized video as a cover flag that implies a video is implanted behind a video and they have likewise utilized a picture for confirmation. Therefore, they have utilized vast payloads like video in video and a picture in video as a cover media. The target of stowing away such information relies upon the application and the necessities of the client of that computerized media.

Sunil K. Moon, Rajshree D. Raut, [3] in this work creator has expected to shroud mystery data behind picture and audio of video document. By installing content behind audio record and a verification picture is implanted behind casings of video document. As video is the utilization of numerous still casings of audio and picture (i.e. picture), any casing can be chosen from video and signs from the audio for concealing mystery information. Creators have utilized 4LSB strategy for picture steganography though Phase Coding calculation for audio steganography. They have attempted to expand the security of information by utilizing reasonable parameter of security and verifications, for example, PSNR and histogram that can be acquire at transmitter and collector side

Burate D. J., M. R. Dixit, [4] utilized another method for concealing content in discourse in commotion free condition. They have worked in the computerized space to conceal the content data inside discourse flag utilizing audio steganography procedure. Information concealing rate can be expanded because of this technique. They have kept up the inventiveness of the discourse transporter motions by implanting the mystery message as opposed to performing substitution task on it. They have consolidated steganography with cryptography to expand security of the framework, however as opposed to utilizing any of the cryptography procedure, they have utilized coding strategies in this technique. Because of this approach the strength of the cover flag is kept up and a higher concealing limit with respect to various audio and discourse flag inspected at various frequencies is accomplished and additionally perused at various piece rates. So this strategy gives higher concealing limit when contrasted with different systems.

Padmashree G, Venugopala P S, [5] the essential properties for audio steganography are straightforwardness, limit and strength. These properties make steganography more secure in light of the fact that it has less quantization blunders. An encoding system is utilized for inserting the message into the audio record. The mystery message is installed in the fourth piece of LSB this diminishes the inserting twisting of the host audio. Correspondingly, inserting at the fourth and fifth piece LSB of the first audio record with same information and diverse information additionally decreases twisting of the host audio. The nature of the audio record in the wake of encoding stays unaffected. An open key cryptographic calculation, RSA was likewise used to guarantee more prominent security.

K. A. Navas, Vidya V, Soniya V Dass, [6] have built up a calculation for information installing in AVI videos. In this strategy the mystery information is inserted inside the cover video in two stages. The principal stage utilizes another implanting technique for self-age of a key which relies upon the information to be inserted and the cover media. In the second stage, the encoded picture is implanted in a video. This strategy utilizes high determination advanced video as a cover motion for inserting information. In this way, this technique enables to shroud a huge nature of data which makes it not quite the same as the other information implanting strategies on the grounds that the creators have considered an application that requires altogether bigger payloads like video-in-video and picture in-video.

Praveen. P, Arun. R, [7] have proposed a method which is an audio-video crypto-steganographic system, it is the combination of audio steganography and video steganography using advanced chaotic algorithm as the secure encryption method. Their aim is to hide secret information behind image and audio of video file. Since video is an application of many audio and video frames. A particular frame can be selected for image hiding and audio for hiding a secret data. They have used 4LSB substitution for image steganography and LSB substitution algorithm with location selection for audio steganography. Advanced chaotic algorithm can be used for encryption and decryption of data and images. Suitable parameter of security and authentication such as PSNR value, histograms are obtained at both the receiver side and transmitter sides that may be identical at both ends. Hence they have tried to enhance the security of the data and image. This method can be used in fields such as medical and defence which requires real time processing.

Lovey Rana, Saikat Banerjee, [8] implemented an audio steganographic system that provides improved security. To achieve this, dual layer randomization approach is used. First layer of randomization is achieved by randomly selecting the byte number or samples. An additional layer of security is provided by randomly selecting the bit position at which embedding is done in the selected samples. Using this proposed algorithm the transparency and robustness of the steganography technique is increased.

Conclusion

The recent growth of internet users has increased the need for protection of data. Steganography is the technique used for protection of data. Video steganography is used for hiding the secret information (text, image and video) in video file. So this paper presents the various techniques of video steganography.

References

[1] A. K. Bhaumik, Minkyu Choi, Rosslin R. Robles, Maricel O. Balitanas “Data Hiding In Video” from International Journal of Database Theory and Application Vol.2-2 June 2009.

[2] Prof. D. P. Gaikwad, Trupti Jagdale, Swati Dhanokar, Abhijeet Moghe, Akash Pathak “Hiding the Text and Image Message of Variable Size Using Encryption and Compression Algorithms in Video steganography”, International Journal of Engineering Research and

Applications (IJERA) ISSN: 2248-9622 Vol. 1, Issue 2, pp.102-108

[3] Sunil k. Moon, Rajshree D. Raut, "Application of data hiding in Audio-Video using anti forensics techniques for authentication and data security", Advanced Computing Conference (IACC) 2014IEEE International.

[4] Burate D. J., M. R. Dixit "Performance Improving LSB Audio Steganography Technique" Volume 1, Issue 4, September 2013 International Journal of Advance Research in Computer Science and Management Studies.

[5] Padmashree G., Venugopala P. S., "Audio Steganography and Cryptography: Using LSB algorithm at 4th and 5th LSB layers", ISSN: 2277-3754 ISO 9001:2008 Certified International Journal of Engineering and Innovative Technology (IJEIT) Volume 2, Issue 4, October 2012

[6] K.A. Navas, Vidya V., Sonia V. Dass, "High security data embedding in video", Recent Advances in Intelligent Computational Systems (RAICS), 2011 IEEE

[7] Praveen. P, Arun. R, "Audio-video Crypto Steganography using LSB substitution and advanced chaotic algorithm", International Journal of Engineering Inventions e-ISSN: 2278-7461, p-ISSN: 2319-6491 Volume 4, Issue 2 (August 2014) PP: 01-07

[8] Lovey Rana, Saikat Banerjee, "Dual Layer Randomization in Audio Steganography Using Random Byte Position Encoding" , International Journal of Engineering and Innovative Technology, Volume 2, Issue 8, February 2013

[9] Muhammad Asad, Junaid Gilani, Adnan Khalid, "Three Layered Model for Audio Steganography", 2012 International Conference on Emerging Technologies (ICET)

[10] Kamalpreet Kaur, DeepankarVerma, "Multi-Level Steganographic Algorithm for Audio Steganography using LSB, Parity Coding and Phase Coding Technique", IJARCSSE, Volume 4, Issue 1, January 2014

[11] S.S. Divya, M. Ram Mohan Reddy, "Hiding Text In Audio Using Multiple LSB Steganography And Provide Security Using Cryptography", International Journal of Scientific &Technology Research, Vol. 1, pp. 68-70, July 2012.

[12] Kirti Gandhi, Gaurav Garg, "Modified LSB Audio Steganography Approach", International Journal of Emerging Technology and Advanced Engineering, Volume 3, Issue 6, June 2012, pp 158-161

[13] Ahmed Ch. Shakir, "Stegno Encrypted Message in Any Language for Network Communication Using Quadratic Method", Journal of Computer Science 6 (3): 320-322, 2010 ISSN 1549-3636 © 2010 Science Publications.

[14] Andreas Westfeld and Gritta Wolf, "Steganography in a Video Conferencing System", Information Hiding 1998, LNCS 1525, pp. 32-47, 1998. Springer-Verlag Berlin Heidelberg 1998.

[15] S. Suma Christal Mary, "Improved Protection in Video Steganopgraphy Used Compressed Video Bitstream", International Journal on Computer Science and Engineering Vol. 02, No. 03, 2010, 764-766, ISSN: 0975-3397