

Secured Data Hiding In Audio Using LSB Approach

Mamta Gupta

School of Polytechnic, Lovely Professional university, Phagwara, India.

ABSTRACT

Our rule is to give a tolerable, capable system for hiding the data from developers and sent to the objective in a secured manner. This proposed structure won't change the size of the report impressively in the wake of encoding and besides sensible for a sound record plan. As a future expansion we can use the encoding estimation name as RSA, ECC for data encryption which will offer security to the data that if any software engineer can unscramble data from the archive so won't have the choice to decode the data as it won't be in cautious structure and moreover we can work with finding the gainful region finding in the sign by using the swarm understanding computation for a model ACO (underground bug state improvement), GA (Genetic count, etc.)

INTRODUCTION

Steganography can be characterized as the workmanship and study of undetectable correspondence. This is cultivated through concealing data in other data, along these lines concealing the presence of the imparted data. The requirement for made sure about correspondence presents the idea of "steganography". Steganography, the word itself shows that data inside data; it is the best system to shroud the mystery data by utilizing spread items. Mystery data might be a book, picture or a sound record. The word steganography originates from Greek word steganos which means secured or mystery and the graphy implies composing or drawing. Along these lines, strict significance of steganography is "secured expressing" [1]



Fig1. Steganography

In sound Stenography the shortcoming of the Human sound-related framework is utilized to shroud data in the sound. Anyway implanting mystery messages in computerized sound is typically a progressively troublesome procedure at that point inserting information in other media and can shroud information into a host signal is perceptually straightforward [1]. Inserting data into sound Stenography appears to be progressively secure because of less steganalysis methods for assaulting to sound. Besides, characteristic affectability and trouble

of chipping away at sound and improvement in related procedures is required. All these Stenography systems manage a couple of normal sorts of Stenography methodology relying upon the variety of the host media. That implies the spread item or bearer object which will be utilized to shroud the information.

Audio terms:

- **Sampling** is the process in which the analogue values are only captured at regular time intervals.
- **Quantisation** converts each input value into one of a discrete value.
- **Popular sampling** rates for audio include 8KHz,9.6KHz,10KHz,12KHz,16KHz,22.05KHz and 44.1KHz.

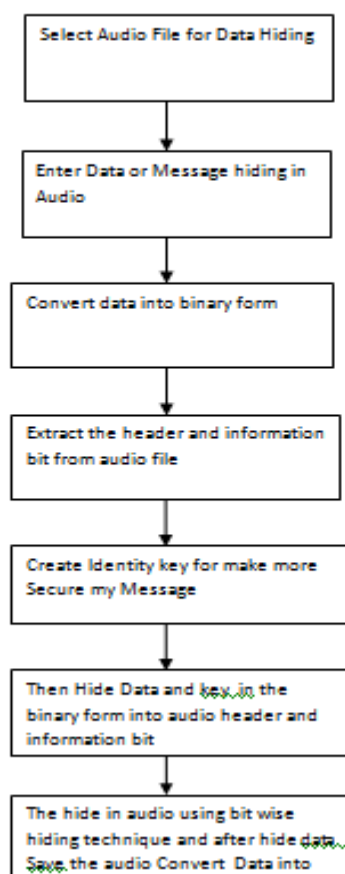
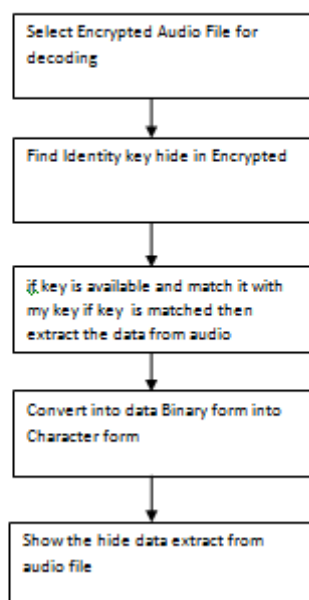
Encoding Algorithm and Decoding Algorithm

Encoding Steps

1. Input the text to be embedded.
2. Convert the text into 5 bit code by checking the redundancy in binary code of alphabets and numbers.
3. Read WAV audio file as cover file.
4. Select audio sample and hide the converted 5 bit code of the text in WAV file using LSB algorithm.
5. Repeat till the whole message can be embedded in audio.

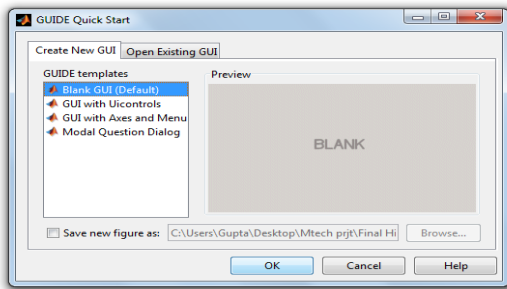
4.3.2 Decoding Steps

1. Read the stego-object i.e. cover audio after encoding.
2. Extract the message by reading the control symbols in samples and reading LSB.
3. Select all samples and store all LSB position bits in array.
4. Divide the array into number of rows and columns
5. Display the secret message.

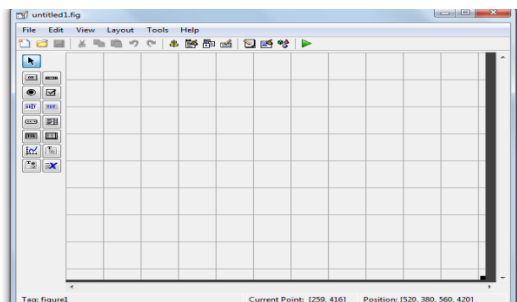
Encoding Algorithm**Decoding Algorithm**

RESULT ANALYSIS

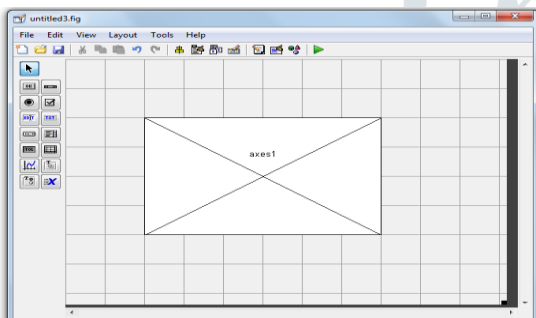
1st: A blank GUI was created.



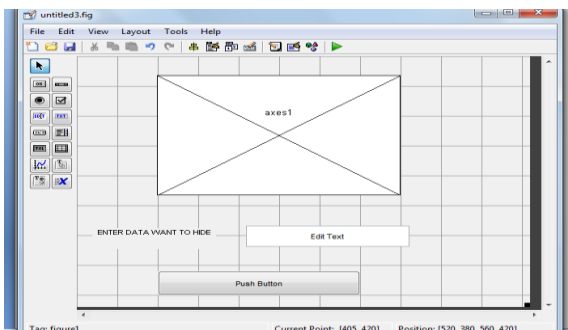
2nd: Blank GUI was created to start with project.



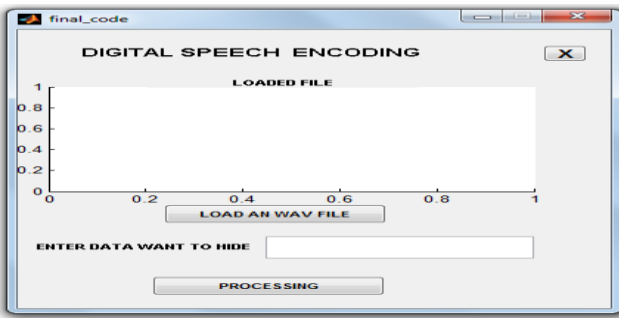
3rd: Axes was created to get audio signal.



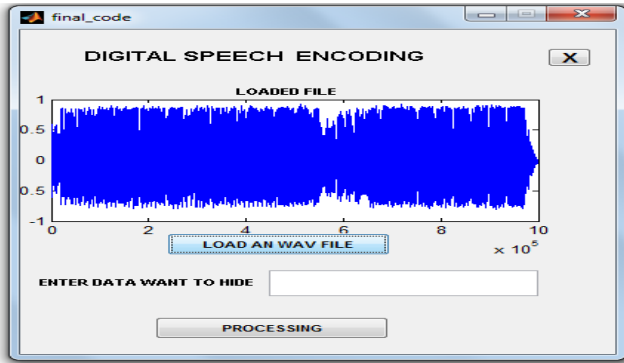
4th: Push button, Static button and Edit text was created for encoding operation.



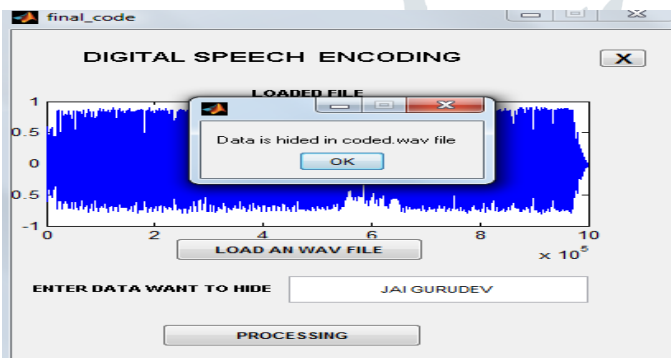
5th: A GUI for Steganography was created to perform Steganography using LSB technique.



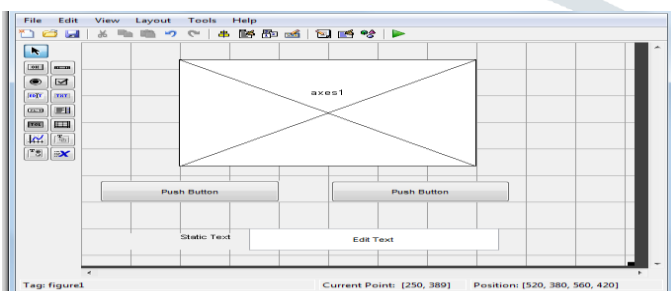
6th: Audio file is loaded in an axes1.



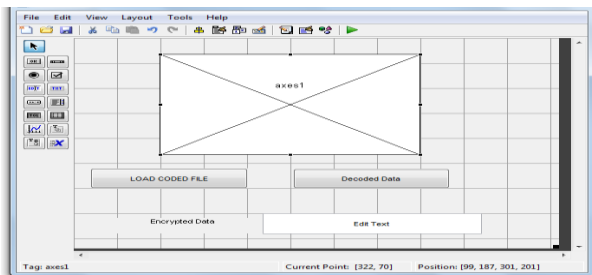
7th: Data is entered to hide and processing done.



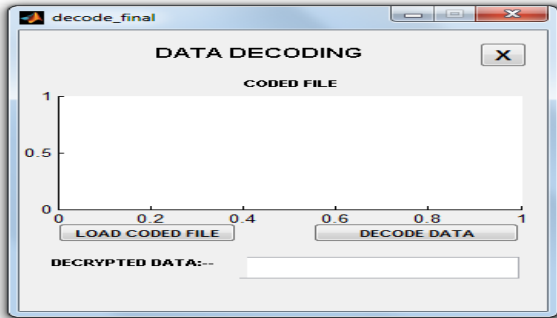
8th: A GUI with axes1 to perform reverse operation was created in which two push buttons, one static button and one edit text was used.



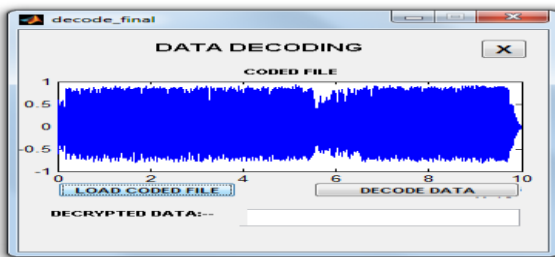
9th: A GUI to perform reverse operation (Decoding) was created i.e. to extract data from steganography.



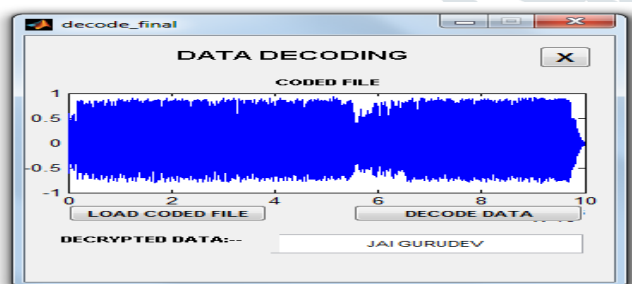
10th: Data Decoding



11: Get an audio file back to get decoded data .



12th : By using decoding message hided will be decoded back.



CONCLUSION

As a conclusion after implementing the LSB algorithm in steganography of audio signals are seem more efficient and secured than the other media as image or text encryption. The result of the technique implemented in this project is much secured and can be enhanced further by implementing the encoding algorithm. So the overall performance of the system designed in this project is much secured, robust and the efficient for data communication using audio files as a medium.

REFERENCES

- [1] Wu D. C and Tsai W. H. (2003), "A steganographic method for images by pixel-value differencing", Pattern Recognition Letters, vol. 24, no. 9-10, pp. 1613-1626.
- [2] Nedeljko Cvejc, Tapio Seppben "Increasing the capacity of LSB-based audio steganography" FIN-90014 University of Oulu, Finland ,2002. .
- [3] M. Pooyan, A. Delforouzi, "LSB-based Audio Steganography Method Based on Lifting Wavelet Transform", in Proc. 7th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT'07), December 2007, Egypt.
- [4] Neil F.Johnson, Z.Duric and S.Jajodia. "Information Hiding Steganography and Watermarking-Attacks and Countermeasures",Kluwer Academic Publishers, 2001
- [5] Min Wu, Bede Liu. "Multimedia Data Hiding", Springer- Verlag New York, 2003.
- [6] N. Taraghi-Delgarm, "Speech Watermarking", M.Sc. Thesis, Computer Engineering Department, Sharif University of Technology, Tehran, IRAN, May 2006.
- [7] Masoud Nosrati, Ronak Karimi, Mehdi Hariri, An introduction to steganography methods, World Applied Programming, Vol (1), No (3),August 2011. 191-195.
- [8] "audio steg: methods", Internet publication on www.snotmonkey.com
<http://www.snotmonkey.com/work/school/405/methods.html>
- [9] Samir K Bandyopadhyay, Debnath Bhattacharyya, Debashis Ganguly, Swarnendu Mukherjee and Poulami Das, "A Tutorial Review on Steganography
- [10] R.A.Santosa and P. Bao,"Audio-to-image wavelet transform based audio steganography," Proc. of47th Int. Symposium ELMAR, June 2005, pp. 209- 212.