IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, November 2022
Impact Factor: 6.252

Information Hiding using Audio Video Extraction Technique

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Abstract: *Steganography is the technique for concealing any mystery data like secret key, content, and picture, sound behind unique spread record. In this paper we proposed the sound feature crypto steganography which is the blend of picture steganography and sound steganography utilizing PC crime scene investigation method as an instrument for confirmation. Our point is to shroud mystery data behind picture and sound of feature document.*

Keywords: Steganography, mystry, crypto, crime, shroud

I. INTRODUCTION

Nowadays steganography is the technique for concealing any mystery data like secret key, content, and picture, sound behind unique spread record.In "backstabber following" every duplicate of a given film contains an advanced watermark with an extraordinary serial number and the motion picture merchant knows not every serial number has been conveyed. At the point when a duplicate gets to be bargained, the film organization just needs to separate the serial number from the duplicate being referred to and begin following it to the point of beginning. Therefore for each country it has ended up essential need to secure its outskirts and additionally the specialized strategies, which field are right now been most supported territory of interest and significance.PC scientific and numerous other legal fields, for example, computerized measurable, interchange information stockpiling criminological and so on have been growing quickly because of advances in PC frameworks and information stockpiling gadgets and also different PC specialized routines. In this way there are different privately owned businesses are creating and contributing cash for improvement of different PC legal devices to investigate the information on the web.

II. LITERATURE SURVEY

2.1 Data Hiding in Video

Authors: Arup kumar Bhaumik, Minkyachoi,

We propose a video data embedding scheme in which the embedded signature data is reconstructed without knowing the original host video. The proposed method enables a high rate of data embedding and is robust to motion compensated coding, such as MPEG-2. Embedding is based on texture masking and utilizes a multi-dimensional lattice structure for encoding signature information. Signature data is embedded in individual video frames using the block DCT. The embedded frames are then MPEG-2 coded. At the receiver both the host and signature images are recovered from the embedded bit stream.

2.2 Information Hiding in BMP Image Implementation, Analysis Evaluation

Authors: Alkhraisathabes.

Steganography techniques allow one party to communicate information to another without a third party even knowing that the communication is occurring. The ways to deliver these “secret messages” vary greatly. This paper explores several methods in detail, and attempts to test them out in code, and in practice, through several examples. “The goal of steganography is to hide messages inside other harmless messages in a way that does not allow any enemy to even detect that there is a second secret message present.

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2.3 Data Hiding in Audio Signal, Video Signal Text and JPEG Image

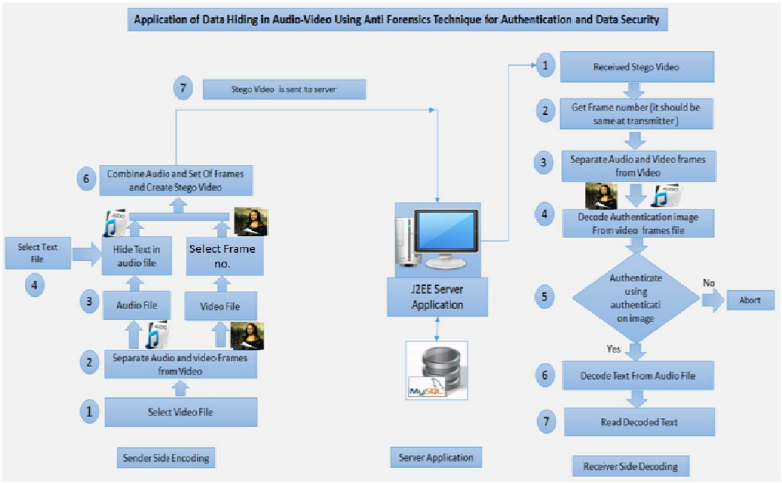
Authors: V. Sathya, K Balsubramaniyam, N, Murali

Steganography means hiding a message. Information hiding technique is a new kind of secret communication technology. Information hiding system uses multimedia objects like audio, images and text. Digital audio, images, text are increasingly furnished with distinguishing but imperceptible marks, which may contain a hidden copyright notice or serial number or even help to prevent unauthorized copying directly. Today the growth in the information technology, especially in computer networks such as internet, mobile communication and digital multimedia applications such as digital camera, handset video etc.

III. PROBLEM STATEMENTS

In early days' cryptography is used for encryption of data and provides data security, though your code may be unbreakable, any hacker can look and see you've sent a message. To overcome this drawback steganography is used for sending data like image and audio and make hidden. So it help to enhance the higher information security for our country.

IV. SYSTEM ARCHITECTURE



V. DESIGN OF THE PROJECT

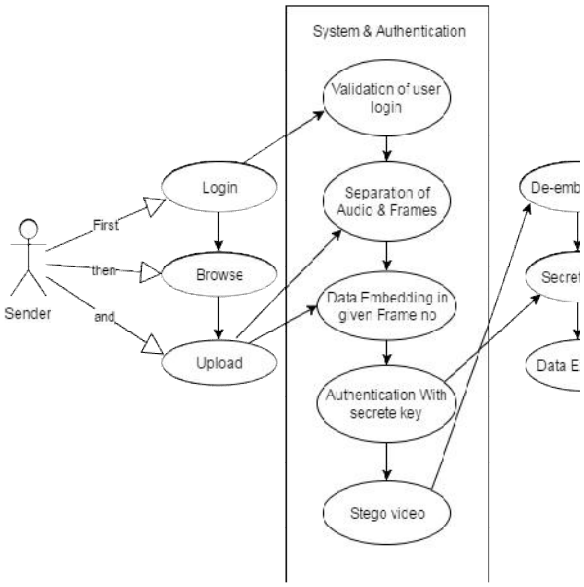


Figure: UML Case Diagram

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VI. SYSTEM IMPLEMENTATION-CODE DOCUMENTATION

6.1. Selecting Video File

- Select any available video file, behind which user want to hide data.
- Separate audio and video from selected audio-video file using available s/w 'Easy Audio-Video Separator'.
- Save video file as encrypted video file, this is the original separated video file.

6.2. Video Steganography

- Collect all frame's structure in one folder and Read the structure. Play video using 'movie' function.
- Accept one of the frame no from user, behind which an authentication image is to be hidden.
- Read the frame and store it in variable 'a'.
- Select one of authentication image read that image and store it in variable 'b'.
- To extract msb of frame, bitand frame with 240 using function 'bitand'.
- To extract msb of authentication image, bitand image with 240 using function 'bitand.
- Reverse the place of msb of authentication image to lsb by dividing each element by 16.
- Reshape the image bits into one row.
- This reshaped row vector of authentication image data is embedded on the frame matrix, by adding each row Vector bits to last 4 bits of frame bits.
- This forms a stego frame, overwriting this stego frame with original video file create stego-video file.
- Using 'Video Writer' function new create stego-video file, in which authentication image is hidden.
- Close the file.

6.3. Creating Stego Audio File

- Combine stego audio and stego frames file using 'Cute audio video merger'.
- This forms the stego audio-video file at transmitter side which has hidden text and image in it.

6.4. Authentication (At Receiver Side)

- After transmission the stego audio-video file obtained at receiver side.
- Read the stego audio-video file; store the data in one variable 'a1'.
- Select the frame no. The frame no should be same at transmitter and receiver side, then only the authentication
- Process start else it gets terminated.
- To recover the authentication image from the selected frame bit and frame data with 16 using 'bit and' function.
- Authentication image data is available at Lsb of frame recovered. It is in row vector.
- Select the authentication image at receiver side. Compare recovered authenticated image with the selected Image.
- If both the images matched, then only user can recover the text behind audio else process is terminated.

VII. TEST CASES

7.1 Test Plan

To test this application we are going with proper sequencing of testing like unit, integration,
Validation, GUI, Low level and High level test cases, major scenarios likewise. We will go with the GUI testing first and then integration testing. After integration testing performs the high level test cases and major scenarios which can affect the working on the application. It also intends to cover any deviations that the project might take from the initially agreed Test Strategy in terms of scope, testing methodology, tools, etc. This test plan covers details of testing activities for this project and scope.

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7.2 Software to be Tested

A. Edraw Max

It enables students, teachers and business professional store liable create and publish various kinds of diagram store present any ideas. With this application users can easily create professional- looking flow charts, organizational charts, network diagrams, business presentations, building plans, mind maps, science illustration, fashion designs, UML diagrams and much more.

B. Star UML

Star UML is a fully fledged, open source, UML modeling tool thats supports the ability to create software designs, from basic concepts, through to the coded solution. The user should be aware that this tool is more complex than a simple UML diagram editing tool, in that, through the use of the model Drive Architecture (MDA) standard, the tool supports complex modeling which is realizable in code.

7.3 Test Cases

A. GUI Testing

Graphical User Interface (GUI) testing is the one of the mechanism in which user interface developed System Under some graphical rules. GUI testing includes checking various controls- menus, buttons, icons, dialog boxes and windows etc. Proposed system is tested for user inputs against different modules, validations are done. GUI is tested for appearance of different controls, visibility graphs is tested. GUI testing involves following actions:

1. Check all elements for size, position, width, length and acceptance of characters or numbers. For instance, you must be able to provide inputs to the input fields.
2. Overall functionality related with performance of user's graphical interface are checked.
3. Check Error Messages are displayed correctly
4. Check the font, layout details, style and display warning messages if it is false.
5. Check the positioning of GUI elements.

B. GUI Testing

GUI Test 1

Test case	Login Screen- Sign up
Expected Result	All required/ mandatory fields should display with symbol "*". Instruction line "* field(s) are mandatory" should be displayed
Test case	Create a Password >>Text Box Confirm Password >>Text Box
Objective	Check the validation message for Password and Confirm Password field
Expected Result	Correct validation message should be displayed accordingly or "Password and confirm password should be same" in place of "Password mismatch".

GUI Test 2

Test case	Display Menu
Objective	Click on On Off Button
Expected Result	It will give menu Various Option

System Testing:

Test Case 1

Test case	Input Audio/ Video File
Objective	To upload Audio/ Video File
Expected Result	Audio/Video file should be Uploaded.

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Test case 2

Test case	Video Steganography.
Objective	To perform Video Steganography operation.
Expected Result	Video Steganography operation should be done successfully.

Test Case 3

Test case	Authentication.
Objective	To perform Authentication operation.
Expected Result	Authentication operation should be done properly.

Test Case 4

Test case	File Recovery.
Objective	To perform File Recovery operation.
Expected Result	Finally user should be able to recover his file.

VIII. CONCLUSION

We have introduced a robust method of imperceptible audio data hiding. This system is to provide a good, efficient method for hiding the data from hackers and sent to the destination in a safe manner. This proposed system will not change the size of the file even after encoding and also suitable for any type of audio file format. Thus we conclude that audio data hiding techniques can be used for a number of purposes other than covert communication or deniable data storage, information tracing and finger printing, tamper detection. As the sky is not limit so is not for the development. Man is now pushing away its own boundaries to make every thought possible. So similarly these operations described above can be further modified as it is in the world of information technology. After designing any operation every developer has a thought in his mind that he could develop it by adding more features to it.

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