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Android Image Steganography

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ABSTRACT

The mini project titled "ANDROID IMAGE STEGANOGRAPHY" is a simple android application that implements steganography concept. In this project, image steganography is used so that a text message can be hidden securely in an image. The project involves a simple and user-friendly interface with two modules for encoding and decoding. Here, the sender is uploading an image which is the carrier media to store the message. Sender should add a secret message and a secret key in order to encode the message and hide it into the image. Receiver can decode the message with the secret key shared by the sender. The project is good in effective information hiding and secret communication while maintaining Confidentiality and Authentication.

Keyword: - Steganography, Encoding, Decoding, Secret Key, Secret message, Confidentiality.

1. INTRODUCTION

Maintaining confidentiality is an important and inevitable aspect in the cyber space. Here comes the importance of information hiding. Steganography is the concept of concealing a secret file within another non-secret and normal looking file. The word steganography is originated from Greek term "Steganographia", which integrate the words "steganos" which means "covered or concealed", and "graphia" which means "writing". Steganography is really a useful concept for maintaining the security principles like confidentiality and authentication.

As we are already familiar with other methods like crypto-graphy which is used to maintain secrecy, steganography still makes a better option. In cryptography, plain text is converted into cipher text using encryption algorithms and the receiver decrypts it to view the original data. This process is definitely secure but attracts attention of people. Irrespective of cryptography, here form of data is not altered.

2. STATEMENT OF PROBLEM

The problem statement of this project would be to create a method to hide text in image without creating suspicion. Cryptography technique changes the form of data and transmits over network. It is obvious that encrypted messages can be identified. This will cause suspicion in unintended people.

3. SIGNIFICANCE

The project is good in secret communication without disturbing or generating suspicion among those people who are not expected to read the message. This maintains confidentiality not only in the message but also in the whole process. Images are not changing its form even after adding a secret message. This can also be used in public platforms without causing wariness. Here, the fact that a secret communication is happening is hidden.

4. REQUIREMENT SPECIFICATION

Requirements Specifications specifies the usage of both Hardware and Software with their corresponding versions, modules etc., which are necessary for the overall outcome of the project.

Hardware specifications include:

- i3 Processor Based Computer
- 4 GB - Ram
- 1 TB Hard Disk
- Android Device

Software specifications include:

- Windows 10
- Android Studio [4]
- SQL Server 2008 [5]

5. PROPOSED SYSTEM

- The Image Steganography application allows the user to hide text message inside an image file.
- The user (sender) has to upload an image in which the message is to be hidden.
- The user has to enter the secret message and set a secret key.
- The image file is then encodes and saved in the device.
- Receiver uploads the image in which message is hidden.
- The receiver then decodes the message using the same secret key.

6. MODULES

A project comprises of two modules:

Encode:
Step 1: Start the process
Step 2: Load a multimedia data, here it is an Image
Step 3: Enter the Secret Information
Step 4: Enter Secret Key
Step 5: Hiding secret information with its security key into the multimedia data
Step 6: Stop the process

Decode:
Step 1: Start the process
Step 2: Enter the Image
Step 3: Extract secret information from the image medium by using secret code.
Step 4: Stop the Process

7. SEQUENCE DIAGRAM

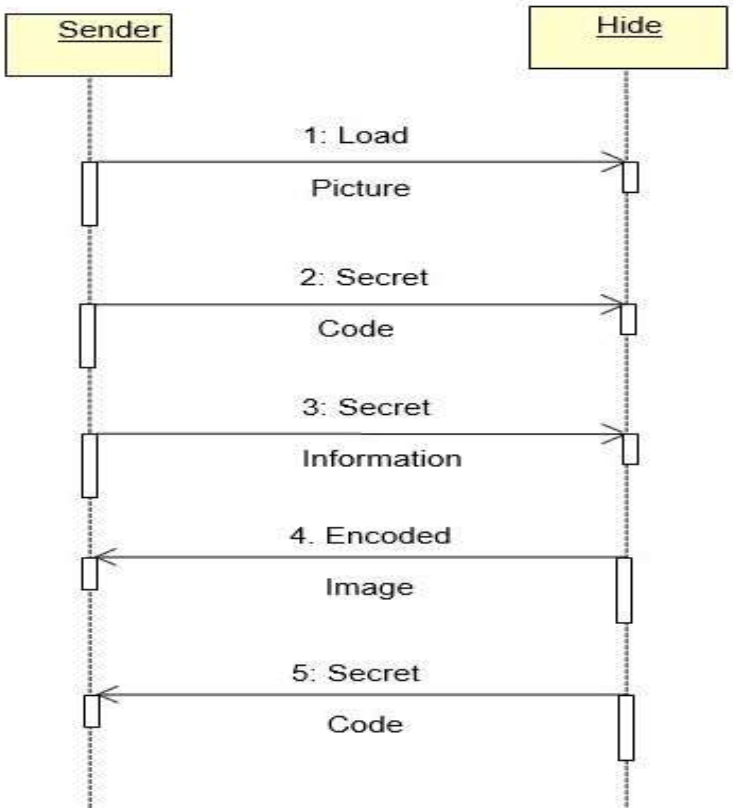

Fig – 1: Sequence Diagram: Sender Side

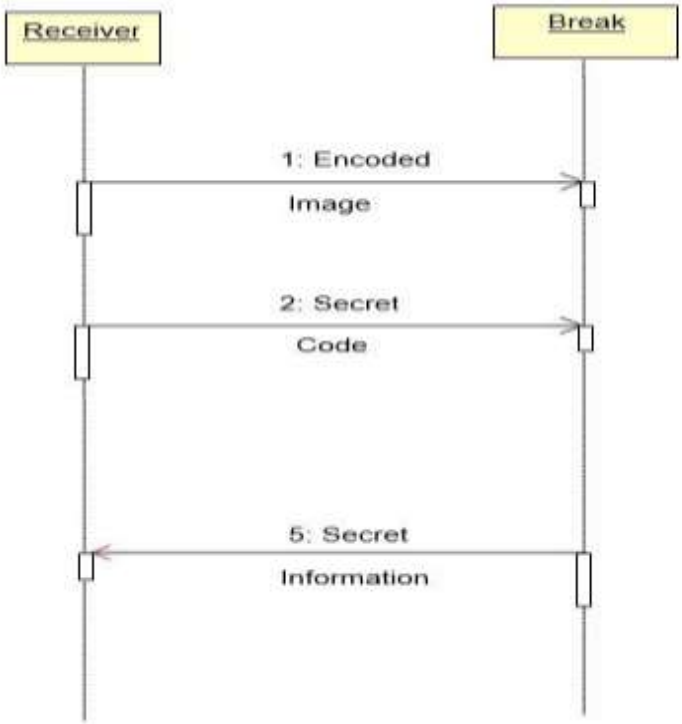

Fig – 2: Sequence Diagram: Receiver Side

8. ACTIVITY DIAGRAM

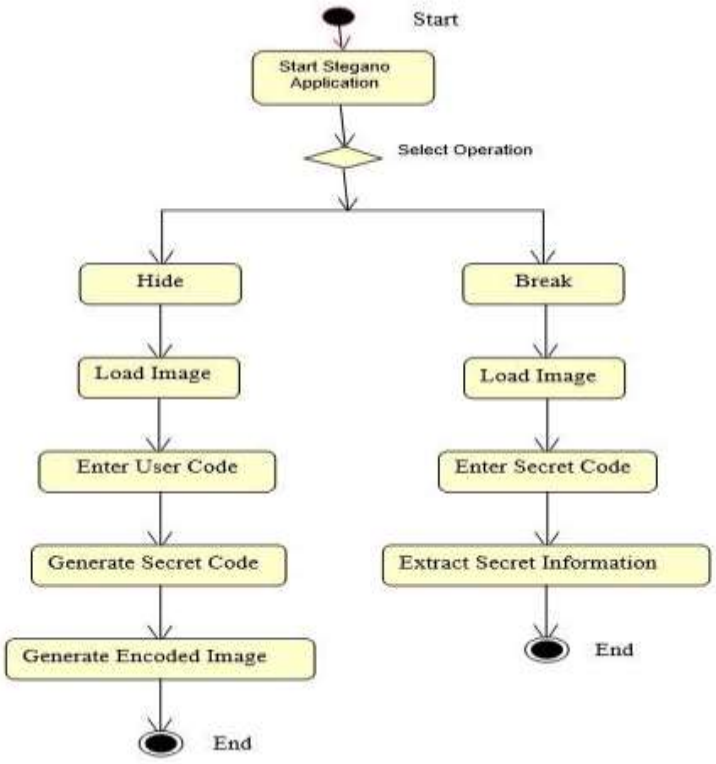

Fig – 3: Activity Diagram

9. FUTURE ENHANCEMENTS

This application can be modified in such a way so that it can include all sorts of image steganography like hiding:

- Text
- Image
- Audio files

We are also putting forward an idea to use this image steganography application in camera firmware in implementing photographer's copyright information. This can also be used in digital watermarking.

10. CONCLUSION

To conclude, Mini Project "Android Image Steganography" which has been developed to physically secure every secret information transmission. All your personal files, data, etc. will be secured inside a multimedia file once the steganography concept is implemented using this security application. The main aim of developing this application is to facilitate secure secret communication without generating un-necessary curiosity. Proper and effective use of steganography can prove to be one of the best solutions for information hiding, confidentiality and authentication.

11. REFERENCES

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