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Armour for Nebulous Data using Secret Writing

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Abstract: We need security in our day to day life as it became a wide necessity. Most prioritized among all kinds of security is data security. Our system consists of different types of data i, e text, video, audio is vulnerable to different types of attacks. We use different methods due to various security reasons. As we are using cloud platform nowadays to access the content globally. Our data became vulnerable to different threats. If the intruder attained our credentials the data inside the cloud is easily accessed and even the cloud service provider as the same accessibility as of us. Here we propose a two level security to the text data using cryptography and steganography. The data is first encrypted and that encrypted data is converted into stego object. Now that stego object can be stored into a cloud. The results of this security system intensified the security to the text data and it is easy to be used anywhere.

Keywords: Intruder, Cryptography, Steganography, Stego object, text data.

I. INTRODUCTION

The main challenge in resource sharing on a network is its security. When there is connectivity between two devices sharing some resources, data security plays a crucial role. Cloud computing is a trending technology which is connected with Distributed computing, utility computing and grid computing. According to new survey and analysis data security plays an important role in today’s world. Data security and privacy is most important in field life like industry, business, government, universities etc. The Constraints faced by the user regarding data security can be managing the data of mobile devices as the data storage became one of the major problem in a smart device like mobile. So user opt to cloud platform which may lead to data misuse. The challenges which we face in security are protecting loss of data, data threats and malicious attack from intruders. There have been many techniques invented to secure the data, we propose an enhanced security using two techniques. The techniques which we are going to use in this proposed system are Cryptography and Image Steganography. User can encrypt using one such algorithm which efficiently encrypts and decrypts the data in cryptography, Where as steganography is used to conceal the data in an image. Now in our proposed system, we are going to combine these two techniques and the output of this system is stored into a cloud. This results an enhanced security for the text data which is stored or shared over a cloud.

II. PROPOSED SYSTEM

We propose an android application which provides an user interface to secure text data on to the cloud using cryptography and image steganography. The user writes the text data which is original data is passed to encryption module. In this encryption module the original text data is encrypted and output data of this module is in the encrypted form.

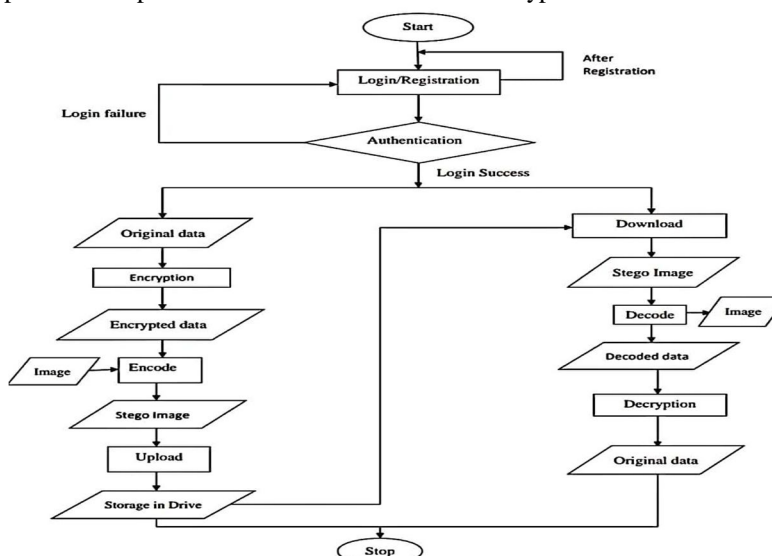
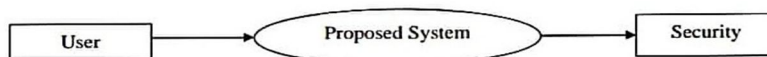


Fig 1 Flowchart of Proposed system

First we have to register to the Android application through registration module. Later user can access the services of the application by logging into it. Once after the login, user can start his/her process of securing the text data. The flow of data is as follows :

- A. Original text data is taken as a input to the Encryption module and encrypted data is generated as output.
- B. This encrypted data is taken as input to the Encode module along with image. Thus, both image and the encrypted data is encoded together to form Stego image.
- C. This Stego image is uploaded to his/her cloud storage.
- D. Same Stego image is further downloaded and all the above modules are used to obtain original data.

Level 0 DFD :



Level 1 DFD :

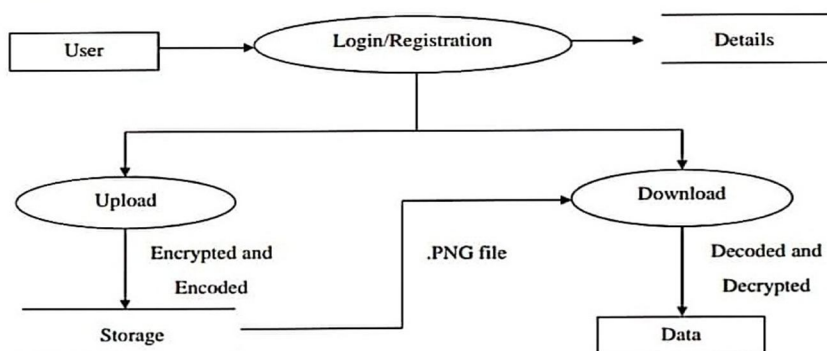


Fig 2 Data Flow Diagram of Proposed system

AES performs all its computations purely on bytes. Hence, AES treats plaintext block of 128 bits as 16 bytes. These 16 bytes are arranged in four rows and four columns for processing as a matrix –

AES has variable number of rounds and depends on the length of the key. AES uses 14 rounds for 256-bit keys, 12 rounds for 192-bit keys and 10 rounds for 128-bit keys. Original AES key consists of many 128 bit round key, in which these keys are used in each round on the operation.

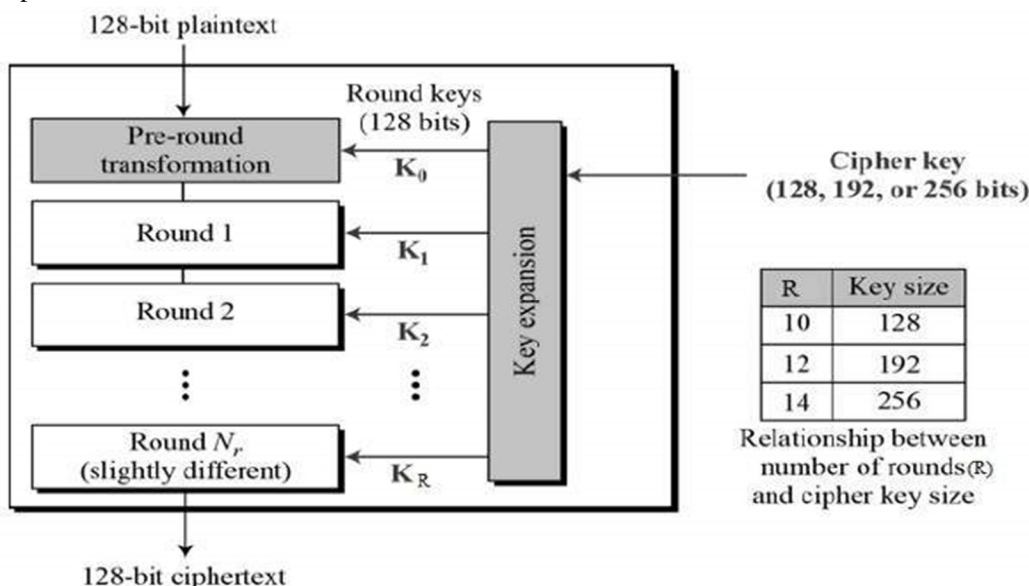


Fig 3 AES Structure

This encrypted data along with .png image is passed to steganography module. Here the encrypted data is concealed in an image. For this LSB Algorithm is used as follows:

- 1) *Step 1:* Receives the encrypted text file from the cryptography module and convert it into bit pattern.
- 2) *Step 2:* Each pixel in the image is converted into bit pattern.
- 3) *Step 3:* Check which LSB to replace by RC4 algorithm.
- 4) *Step 4:* Replaces the LSB bit from text with LSB bit from pixels in the image.

Now this Stego object generated by this steganography module is uploaded in a cloud storage. The user can download this data whenever it is required.

After downloading the data will be in the form of stego object. Now the user passes the stego object to steganography module, there the user decode the data and separate the text from an image. Now this decoded data is sent to cryptography module for decryption. After the decryption, the output what user attain is original data.

III. RESULTS

The proposed system results in development of a platform to ensure security in cloud computing. The 'ARMOUR FOR NABULOUS DATA USING SECRET WRITING' provides two level security to the text data and enables to make sure the security of data. The techniques we used are cryptography and image steganography where we can evaluate and verify data. Thus two level security mechanism to the text data is attained. This project gave an idea to develop an application which is useful to the society.

IV. CONCLUSIONS

The present era of information technology is mostly is based on online service or web service. Our system deals with security problem in cloud storage and how the text data's security threat can be prevented. We integrate AES algorithm with LSB algorithm to provide more security to the text data.

During the steganography process we get encoded image which looks similar to the original image. If we analyze image binary code we can see the differences which cannot be seen when we look both the images. This approach will help to build two level security for the text data in the cloud.

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