A Synopsis on

Color Code Substitution based Advance Mailing Technique

Submitted in partial fulfillment of the requirements
of the degree of

Bachelor of Engineering

in

Information Technology

by

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CERTIFICATE

This is to certify that the project Synopsis entitled ***"Color Code Substitution Based Advance Mailing Technique"*** Submitted by ***"Chinmay Karangutkar (16204032)" "Ameya Murkute (16204028)" "Ankita Gound (16204013)" "Prapti Nevrekar (16204014)"*** for the partial fulfillment of the requirement for award of a degree ***Bachelor of Engineering*** in ***Information Technology***to the University of Mumbai,is a bonafide work carried out during academic year 2018-2019

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Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

Lately, exponential growth of technology in every aspect of life is observed. Improvement of technology provides facilities to both users and hackers/intruders too. Advancement in technology that encourages hackers/intruders activities result in lack of security to users confidential data. The most common and popular techniques for data hiding that have been in use since long time are cryptography and steganography. Thus these email systems are also used on very large scale , many official docs are been getting transferred via email systems, so this systems and servers should also be secured from all intruders and hackers as there is confidential data getting transferred via network, so it can be protected in most advanced and secured way ie: with help of triple encryption and steganography.

Introduction

Nowadays there are many hackers present who can easily crack any system using advance hacking techniques.Hackers can cost a lot of damage for the communication systems because the hacker can be able steal data which in under process of communication. Thus inorder to deal such situations ie to provide security to communication channel with help of triple encryption ie color code based substitution with stegnography.The steganography is one of among old sciences as the cryptography.Security is the main concern regarding data transfer. Integrity of the data is an important factor for both the sender as well as the receiver. In todays times, many techniques are used to ensure the same, one of those techniques is cryptography.The scope of applications for steganography allowing the hiding of any data file inside the color images typically used in the networks.Nowadays there are many hackers present who can easily crack any system using advance hacking techniques.Hackers can cost a lot of damage for the communication systems because the hacker can be able steal data which in under process of communication.In case of man in the middle attacks the hacker can spectate the overall activities carried out through the communication channel.

Objectives

The main objective of our project is to provide security to the communication medium used by email server which includes many sub-objectives :

1. To pass unnoticed text information in Image format.
2. To pass unnoticed image information into stegnographed image .
3. To provide a easy to access system for the user.
4. To provide a support for multiple languages
5. To surpass the attacks led by any attacker while communication is been in process.
6. To make this system poratble on all OS Platforms.

Literature Review

An Improved approach for LSB based Based Image Steganography using AES Algorithm [1]

Published in: Oct 2017 , 5th International Conference on Electrical Engineering-Boundries (ICEE-B).

Introduction: In the modern literature, the aim of steganography is to hide a secret data in a medium file so that an intruder who controls communication cannot identify the real data due to stegnographed image.

Advantage: The picture quality of cover-image is hardly affected hiding capacity is good, and it is very simple in implementation.

Disadvantage: Robustness is less the hidden data is subject to alternation due image manipulation.

Algorithm: AES Algorithm,LZ77 Algorithm,Huffman Coding ,Deflation Algorithm.

Technique: Pseudo-Random LSB Encoding Technique , Distortion Technique.

Advance Encryption Technique using Color-Code Based Substitution [2]

Published in : JUNE 2017

Introduction: Color code substitution will be used in the project for encryption and decryption of the data using the algorithm play color cipher.

Advantages: To increase the security of the data and making it more
robust, asymmetric encryption technique is used on the data for multiple language.

Disadvantages: The block size of encrypted image is fixed.

Algorithm: PCC Algorithm, RSA Algorithm.

Technique: Symetric and Asymetric Technique.

AES Cryptography in Color Image Steganography By Genetic Algorithms [3]

Published on: Oct 2015 .

Intoduction: This work incorporates the AES cryptography algorithm, to improve the hidden data security in two methodologies for steganography:the genetic algorithm and path relinking.

Advantages: Once a picture is transformed into mathematical representation it can be shuffled anyway you like until you have the right key to decrypt it.

Dis-Advantages: If the size of the original file is already known or estimated then that could be a potential threat to the excess of the memory that it would show in its properties.

Algorithm:Genetic algorithm, path relinking info security.

Technique: AES Cryptography, LSB Substitution.

Problem Definition

- To solve the current lack of highly encrypted mail service using triple encryption using steganography and multi language support for highly important or secretive communication
- Man-in-the-Middle attack has became a biggest threat to mailing systems , here the attacker can steal the data and can also alter it when its been carried through communication medium.
- In AMT we are going to use color-code substitution which will be hard for the attacker to identify the data from the color blocks.
- Thus with the help of Color-code substitutions all the problems faced by traditional system will be secured

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Proposed System Architecture/Working

IT has architecture of text transmission and image transmission.

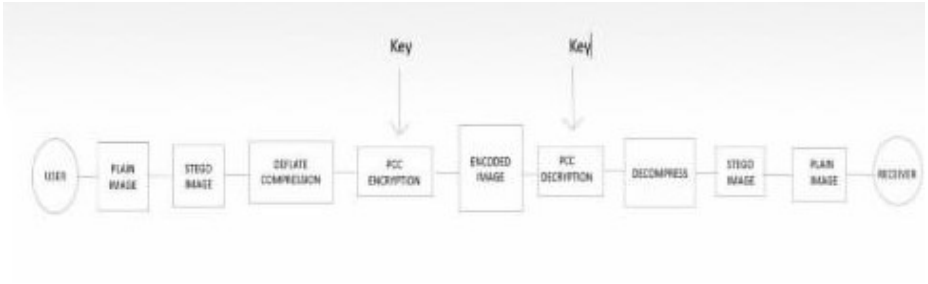

Figure 1: AMT for Image Transmission

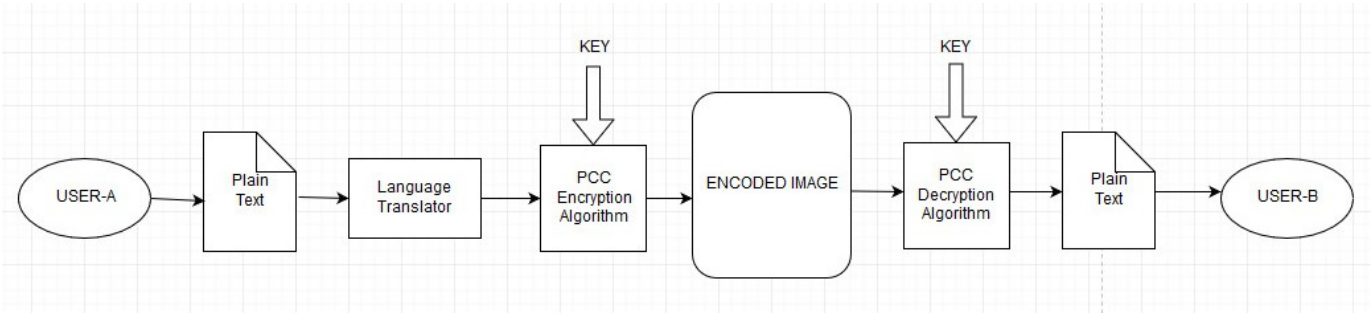

Figure 2: AMT for Text Transmission

Summary

- Steganography is a really intresting subject and outside of the mainstream cryptography and system administration that most of us deal with.
- Steganography can be used for the hidden communication.
- This steganography type provide for the purpose to how to use any type of image format to hide any data inside.
- Even it can be supported by all languages because of the support of google translator.

References

[1] Sofyane ladgam chikouche " An Improved approach for LSB based Based Image Steganography using AES Algorithm" Published in: 2017 5th International Conference on Electrical Engineering - Boumerdes (ICEE-B).

[2] "Advance Encryption Technique using Color Code Based Substitution" Published in : International Journal of Computer Applications (0975 8887) The National Conference on Role of Engineers in National Building .

[3] Aura Conci and team"AES Cryptography in Color Image Steganography By Genetic Algorithms" 2015 IEEE/ACS 12th International Conference of Computer Systems and Applications (AICCSA).

[4] Devyani Patil, Vishakha Nayak, Akshaya Sanghavi, Aparna Bannore. Cryptography based on Color Substitution published in IJCA(0975-8887) volume 91- No.16,April 2014. .

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[6] Prasanna Raghaw Mishra, Indivar Gupta and Navneet Gaba. Cryptanalysis of Multilanguage Encryption Technique; published in IJCA(1275-8847) volume 87- No.12,April 2012. .

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1 Publication

Paper entitled **"An Improved Approach for LSB-Based Image Steganography using AES Algorithm"** is presented at **" International Conference on Electrical Engineering - Boumerdes (ICEE-B)."** by **"Sofyane ladgam chikouche".**

Paper entitled **"Advance Encryption Technique using Color Code Based Substitution). "** is presented in **" International Journal of Computer Applications (0975 8887)."** at **"The National Conference on Role of Engineers in National Building ".**

Paper entitled **"AES Cryptography in Color Image Steganography By Genetic Algorithms"** is presented at **" 2015 IEEE/ACS 12th International Conference of Computer Systems and Applications (AICCSA)"** by **"Aura Conci "**.