

Chaos based security for online transactions through GUI implementation

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Abstract:-Providing security for online transactions is a major task for the developers. Due to the advanced technology, it became very easy to hack the system or phone. The hackers are tracking online transactions and try to clone the transaction details. Based on the details the hackers can able to access the entire information. Online transaction provides more flexibility for the users, at the same time it also causes loss of information and data. The cryptography techniques such as encryption and decryption are providing a great level of security. Cryptography based security is most suitable for sequential transactions. But now a day's most of the transactions are random so it became very necessary to provide random based security. The data transmit over the internet is a combination of text, images, videos, and clips. So it is essential to provide better security for all aspects. Especially the data should be transmitted insecure manner, though it is random. In this paper, we have implemented the chaos based security for online transactions with the help of GUI.

INTRODUCTION:

The advanced data driven technologies such as big data analytics, fuzzy logic, Marketing, Business Intelligence, Game theory, and social networking are designed to make necessary decisions based on random events. The chaos theory is one of the most deterministic tools to implement random events. The result of the chaos theory is the best fit for Information Technology to provide many levels of security. Chaos based security is also implemented on networking. Now days social networking is one of the popular web communication. Different types of data will be transmitted on social web sites. The data may have structure or unstructured. It is mandatory to create strong security for these types of transactions. This will be achieved with the help of chaos based encryption and decryption security. We have implemented GUI concepts such as bitmaps, pixmaps, bar code readers, and fingerprint scanner and iris systems are implemented to provide better security in the chaos system.

ABOUT CHAOS SECURITY:

Chaos security is a new type of security that can implement on online for random dimensional transactions. The chaos based security is the application of mathematical theory called chaos. It was implemented in cryptography technique. Providing security for the long standing transactions is one of the most advanced features of chaos security. In the year of 1989 Robert Mathews implemented chaos security for long standing concerns [1]. The security implementation is very speed and provides continuous monitoring on the transaction.

Need for Chaotic Security:

Nowadays most of the human beings are using electronic gadgets for online transactions. The electronic services and devices are available, such as PDAs, Mobile phones, Tabs are frequently used. The electronic devices have enhanced the features and supporting multimedia data for exchange the information. GUI based services need more protection. GUI implementations such as digital images, videos, animation, short videos are majorly promoting on the web. GUI based design playing a more significant role. GUI implementations demand more security [2]. GUI based security needs very serious protection. One should implement many techniques to protect the confidential data in the form of GUI. In order to fulfill such privacy and maintaining security is a combination of various applications, such as image encryption, malicious attacks, and unauthorized data accessing. The malicious attacks are very secure with the help of encryption. The encryption, decryption, and cryptography are the most common techniques for implementing security. The traditional implementation techniques are not sufficient for providing security to the multimedia based approach.

About Chaotic Security: Chaos security is the application of chaos theory [3]. The Chaos theory was introduced to provide security while transmitting the data or information. The chaos theory is derived as the nonlinear system with random dynamic specific conditions. These

are exhibit dynamics related to sensitive or initial conditions [4]. The Chaotic security was implemented with a large number of random, deterministic and uncorrelated elements that are generated by modifying the initial values to the existing system.

The Chaotic GUI based security contains 2 parts

- Chaotic Cryptography
- Chaotic Cryptography analysis

The Chaotic Cryptography is the application of the chaos theory; it is a study or methodology used to privately and securely data transmission, with the presence of the 3rd party or adversary [5].

The Chaotic Cryptography analysis includes GUI implementations such as maps, images, voice, pictures data will be secure with the help of cryptographic primitives, these share unique characteristics that symmetrically implement or produce acceptable and outputs related to the functionality [6]. The properties of confusion and diffusion may be implemented to protect the information based on GUI [7].

In this paper we have proposed Chaotic based security for both receiver and sender on online transactions. The following images describe the security methodology at the sender and receiver .

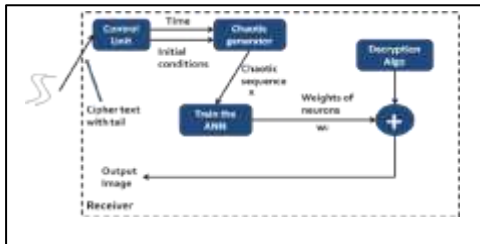


Figure 1: Chatotic security at Receiver

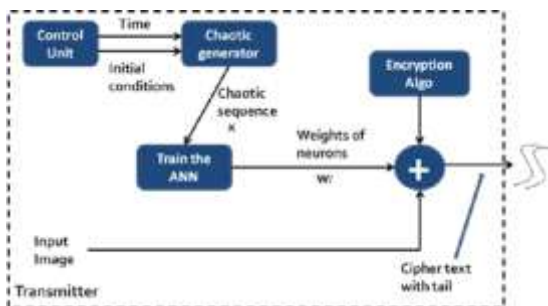


Figure 2: Chaotic Security at Sender

Literature survey:

In the year 1989, Robert Matthew first investigated to implement GUI based security for online transactions [8]. In the year of 1995 GUI maps are implemented for effective chaotic security. In the year 2000 confusion and diffusion maps are implemented with cryptographic primitives. In the year 2002 unique characteristics such as encryption and decryption are implemented for better security.

IMPLEMENTATION OF CHAOTIC BASED SECURITY:

In this paper, we have implemented the Artificial Neural networks techniques for generating encryption and decryption for chaotic security [9]. The target systems are networks so Artificial Neural Networks with the help of random weights will generate maximum secure transmission online. A random set of weights are implemented for generating encryption and decryption based security.

Designing chaotic based Neural Network:

The sequence of segments called chaotic sequence is implemented on the network to convert network into chaotic sequence. It supports t data transmission in the form of a digital signal. The image needs to transmit is converted in to digital signal [10]. The digital signal is denoted with 'S' and the length is denoted by 'L'.

Then $S(L) \rightarrow L-1$.

Algorithm for generating Chaotic based Security for GUI.

1. Set the value of the parameter T.
2. Assign the Initial point position X(0)
3. Implement the chaotic sequence to evaluate the random values X(1), X(2),...,X(T) by X(n+1).
4. Create the blocks B(0), B(1),,B(T-1) from the random values of X(0), X(1), X(2),...,X(T)
5. Apply chaotic sequential of encryption and decryption to ensure the security for random samples.

IMPLEMENTATION OF CHAOTIC ENCRYPTION:

The chaotic security is implemented in 3 steps for GUI

1. Acquire the image.
2. Convert into encrypted format.

3. Decrypt and get the original image.



Figure 3: Original Diana Image



Figure 4: Encrypted Diana Image



Figure 5: Decrypted Diana Image

Conclusion:

In this paper we have implemented GUI security for random blocks. The weights are assigned to the network based on random blocks; the encrypted image was generated based on parameters. The initial parameter is set to 0 and the random blocks are given sequence numbers. The end of the block represents the final parameters

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