Security and confidentiality of data or information at the present time has become an important concern. Advanced methods for secure transmission, storage, and retrieval of digital images are increasingly needed for a number of military, medical, homeland security, and other applications. Various kinds of techniques for increase security data or information already is developed, one common way is by cryptographic techniques. Cryptography is science to maintain the security of the message by changing data or information into a different form, so the message cannot be recognized.

To compensate for increasing computing speeds increases, it takes more than one encryption algorithm to improve security of digital images. One way is by using algorithms to double cryptography do encryption and decryption. Cryptographic algorithm often used today and the proven strength specially the digital image is Algorithm with Chaos system. To improve security at the image then we use Additional algorithms namely Rivers algorithm Shamir Adleman (RSA) which known as the standard of cryptography algorithms.
This research aims to optimize security bitmap image format by combining the two algorithms namely Chaos-based algorithms and RSA algorithm into one application. Experiments conducted show that the proposed algorithm possesses robust security features such as fairly uniform distribution, high sensitivity to both keys and plain images, almost ideal entropy, and the ability to highly de-correlate adjacent pixels in the cipher images. Furthermore, it has a large key space, and transform image to pure text file which greatly increases its security for image encryption applications.

References


Index Terms

Computer Science    Image Processing
Keywords

Chaos, cipher text, bitmap, image encryption, RSA.