

## ABSTRACT

*In today's global era of a data security is a matter that should be prioritized in the exchange of data, particularly in the digital data such as images and text. Because it may be in the picture and the text contained personal information or confidential information which should not be until known by a third party. One of the many data exchange is performed using mobile devices based on Android.*

*Encryption is a process that changes a code of conduct that could be understood to be a code that can not be understood (unreadable). The purpose of encryption is that image files can be sent to the recipient without being able to be seen by others, and can only be seen if you've done the decryption process with keywords that have been previously agreed upon by the sender and the recipient. There are algorithms that are password-key and symmetric-key there is asymmetric. This cipher algorithm scheme will be called symmetric if for key-encryption or decryption process any overall data use the same key. While schema password algorithm called asymmetric key-if using a different key for encryption and decryption. One example of symmetric-key encryption algorithm is a stream cipher.*

*In the implementation of encryption and decryption of the image files and text on this android utilizing RC4 stream cipher method, experiments that have been conducted indicate that the image is encrypted on the sender can go back to normal at the receiver after the decryption process, the average time the encryption process that is 1,027 seconds while the average time is 1,035 seconds decryption process. Of statistical test image with the original encrypted image obtained average value of NPCR is 99.16% while the average value is 34.67% UACI. For delivery distance between the sender and the receiver depends on the signal quality of each provider. Obtained from the calculation of time to do a brute force attack on this application is for  $3.28 \times 10^{248}$  years.*

*Keywords: Encryption, Decryption, Key-symmetric, Stream Cipher RC4*