

## ABSTRACT

This final project using Baker Map algorithm to encrypt digital image, because this algorithm fulfill the requirement that can be categorized as good in term of security and fast in time of encrypting. But, there is one weakness in the previous research that using Baker Map, its avalanche effect still low so it can easily being cracked. The objective of this final project is to improve avalanche effect performance by generating its encryption key using Pseudorandom Number Generator (PRNG).

First step to generate this Baker Map key is by reading its image and iteration number, captured and cropped based on determined size, then those Baker Map key being generated and then being generated again by PRNG. Next step is doing iteration continued by doing Baker Map algorithm that is being regenerated by using PRNG. If all the iteration have finished, then the encryption is finished. If not, then redo the Baker Map algorithm. After encrypting, then continue with decrypting.

After the image finished being encrypted and decrypted by using diffusion based on *Pseudorandom Number Generator*, concluded that there is an improvement of *avalanche effect* performance which about 49% compared Baker Map algorithm which is only 0.0015%.

Key word: *Pseudorandom Number Generator*, *avalanche effect*, Baker Map