Abstract

In Indonesia, convensional KTP (Kartu Tanda Penduduk)/ID Card usage was using a photo dan a signature as a KTP ownership identification. And today, in Indonesia already using e-KTP (e-ID Card) where the fingerprint of the e-KTP owner was stored in the e-KTP. However,e-KTP usage was percieved expensive and not flexible, because needs a smartcard and a specific reader. Therefore, offered an idea to replace a smartcard for e-KTP with a QR Code. Because of the KTP ownership could be represented by a fingerprint, then created a system that could insert a fingerprint to QR Code which contain someone's identity .

QR Code is a 2 dimensional barcode that frequently used nowadays. QR Code frequently used because it's easy to read and have a large capacity compared to the other barcode. In this final project, proposed use a QR Code as a smartcard substitution. To maintain ID Card data validity, a watermark was inserted and randomized using Blum Blum Shub to a QR Code and the watermark inserts to QR Code's datacodeword.

Based on testing that have done, obtained a average result 99.96% of watermark could successfully extracted. Also, with a small watermark size, QR Code could stand to cropping image attack.

Keywords: *QR Code, watermark, Blum Blum Shub, watermarking, Reed Solomon*