Faculty of Electrical Engineering & Computer Science
Master Degree Course Electronics Engineering, MSc EE

HOCHSCHULE BREMEN
UNIVERSITY OF APPLIED SCIENCES

Master 2012

Pradeep Aryal

Storage of Personal Data in Identity Cards using Two Dimensional Barcode

ABSTRACT - Masterthesis

There are several technologies for storing data in a personal card. It includes Laser Cards, two dimensional (2D) barcodes and Smart Cards. Among these technologies, 2D barcodes are found to be the most suitable for data storage due to economic reasons. Several 2D barcodes available until this date were compared during my work. Among different 2D barcodes, Quick Response Code (QR Code) is best suited due to several advantages over other 2D barcodes. It includes as high encoding of data, small print out size, readable from any direction, dirt and damage resistant, open 2D barcode, Structure append feature and Error Correction Capacity. The standard QR Code provides of 2.8 Kilo Byte (KB) as maximum capacity. However, the storage capacity has to be 5 KB. This capacity is required for storing all types of personal data in Identity (ID) Cards. Also, the size has to be reduced to 1 square Inch This leads to the development of new QR code. This paper proposes a new QR code, while preserving all the features of standard QR code. The use of color modules, instead of black and white modules increases data capacity by number of times. It meets our demand for increasing data capacity from 2.8 KB to 5 KB.