2D Barcode for Secure Payment System
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Overview

Considering their cost effectiveness and the amount of information they can store, 2D barcodes have gained a lot of commercial use over these past several years. One potential application of the barcoding system is the use of 2D barcodes in a secure payment system, which is proposed in this project.

Using our system, customers can generate QR codes from their mobile application which will be used in the payment process. The QR code contains the payment information which is encrypted. As an added security measure, fingerprint verification is also used in the payment system. During the payment process, the QR code will be scanned by the merchant and the customer will scan his or her fingerprint to verify the identity. If the verification is successful, the content of the QR Code will be decrypted and the merchant will obtain the payment information to complete the transaction.

This will provide a secure and convenient payment system for the customer while also simple and easy to use for the merchant.

Aim and Objectives

- Ensuring a secure and reliable payment system for the customer
- Only the original owner will be able to use it for purchase
- Providing a simple and convenient application for both customers and merchants

Methodology

The system consists of three main modules: customer-side (mobile) application, merchant-side (desktop) application, and database. Their workflows are illustrated in the block diagrams below.

Mobile Application Block Diagram

Customer Login
Pick Payment Method -> Generate Barcode
Ready for Scanning

Desktop Application Block Diagram

QR Code Scan
Fingerprint Verification
Mobile Payment Information
Transaction Completed

Results

Merchant-side (desktop) main form

Customer-side (mobile) main screen

QR code decoding form

Payment information display after verification

QR code generation for payment