Smart City Payment Solution

Copyright Notice

1. **Introduction to conventional payment solutions:**

India is becoming digitized in the financial technology space. With the digital wallets and digital accounts, the payment solutions are facilitating the modes of payments. The modern technological payment systems also take care of the regulatory and compliance aspects, thus revolutionizing the payment. The introduction of blockchain technology also eases the payment solutions. In this use case , we discuss about the different payment solutions using digitized payment for various payments to utilities, bills, purchasing tickets and car parking and in transport system. The transaction happens in a secured way, and instantly.

2. **Blockchain Technology as a solution to Smart Pay -HC Remit:**

Internet of MONEY

Instant Reconciliation

Secure Document Sharing

Auditable and Transparent

Trust free transactions

The blockchain technology addresses lots of issues in designing payment solutions for smart city. The transfer of money takes place digitally, with instant reconciliation. The document sharing is secured between different parties. As the blocks are immutable they are more auditable and maintain transparency across all systems. The transactions are trust free, as there is visibility of transaction across the parties.

The process envisioned will have several steps for remitting through HC Remit. The payment solution typically follows the following steps:

1. **Customer loads his wallet:**

Smartphone

| Customer Logs into his wallet | He selects bank account to Load Wallet | Confirmation message from Bank | Balance reflected on Wallet dashboard |

Feature phone

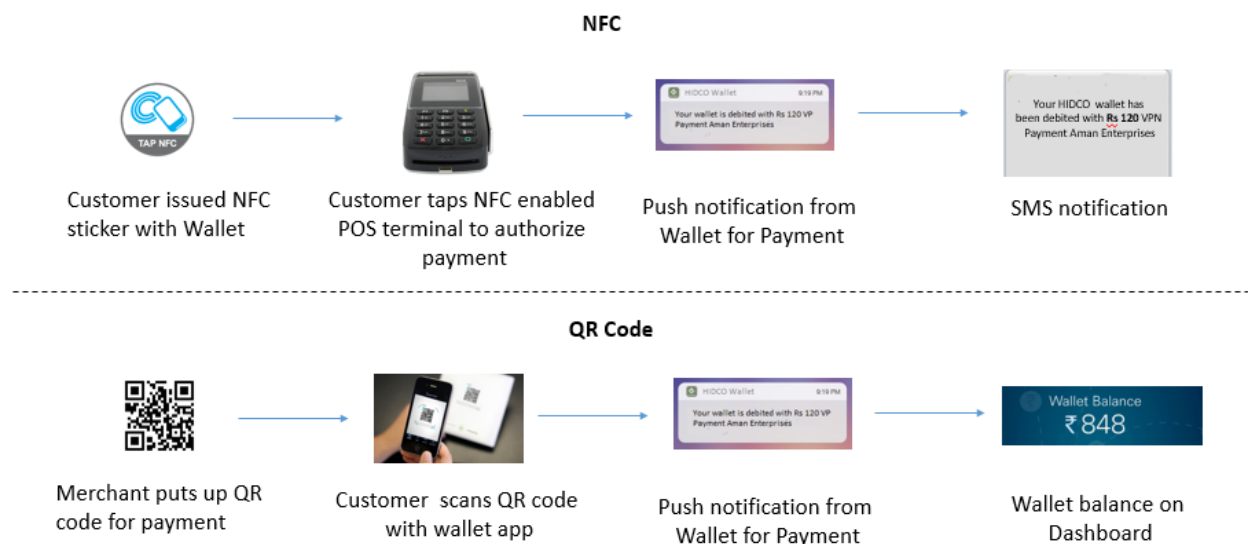| Customer's registered online with account details | Customer's phone number linked for loading | Sends SMS to wallet Load Service number | Wallet SMS confirmation on Balance |
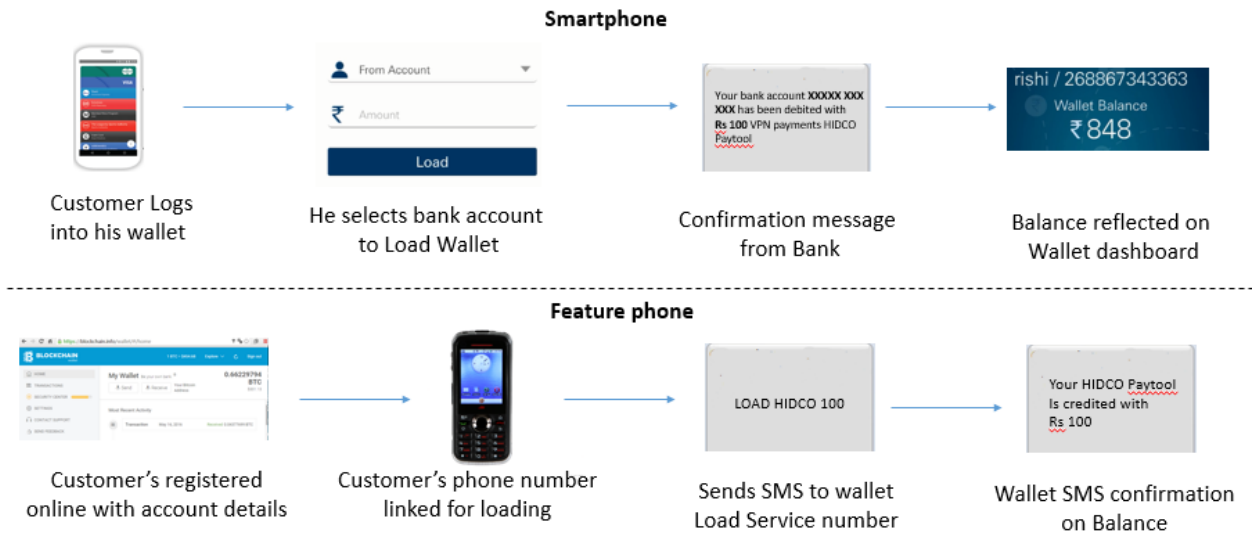
The customer can load his digital wallet account using mobile phone. The balance once loaded is reflected on wallet dashboard or by incoming message.

2. **Customer transacts with Vendor:**

NFC

| Customer issued NFC sticker with Wallet | Customer taps NFC enabled POS terminal to authorize payment | Push notification from Wallet for Payment | SMS notification |

QR Code

| Merchant puts up QR code for payment | Customer scans QR code with wallet app | Push notification from Wallet for Payment | Wallet balance on Dashboard |

Customer transacts with Vendor using NFC sticker with Wallet. Customer taps NFC enabled POs terminal to authorize payment or by QR code using wallet app.
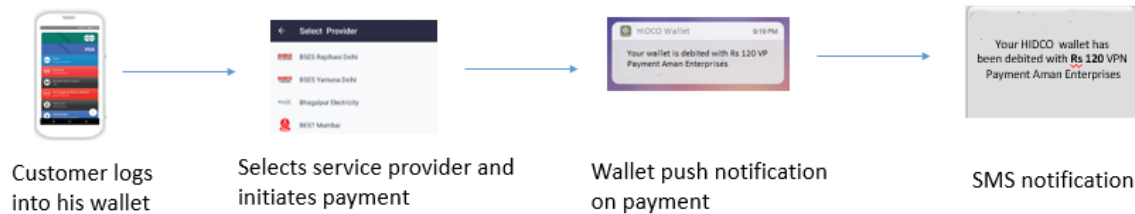
3. Smart Car Parking

Smart Car Parking

| NFC Tag linked to wallet | RFID enabled parking meters/toll plazas | Wallet push notification on payment | SMS notification |

The car parking payment in Smart City happens through the NFC tag linked to wallet with RFID enabled parking meters. The payment happens through Blockchain with SMS notification.
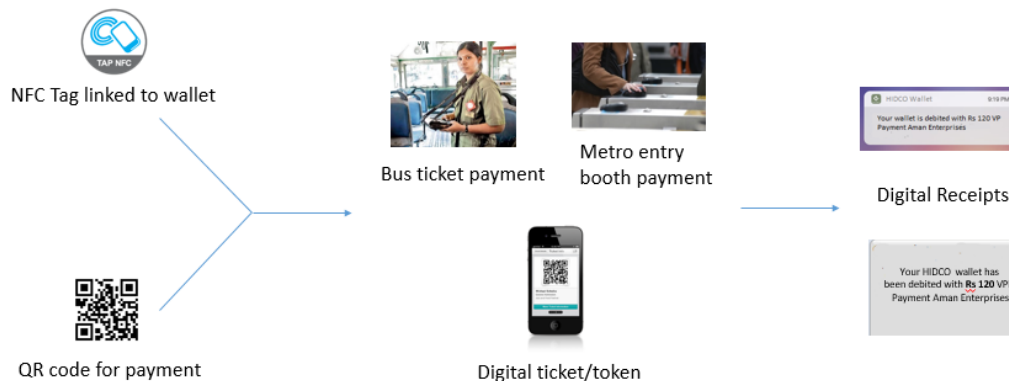
4. Bill Payment

Bill payment

| Customer logs into his wallet | Selects service provider and initiates payment | Wallet push notification on payment | SMS notification |

Bills and utilities payments are made easier using blockchain technology. The customer logs into his wallet, selects the service provider. The payment is made and notification received at customer's end.
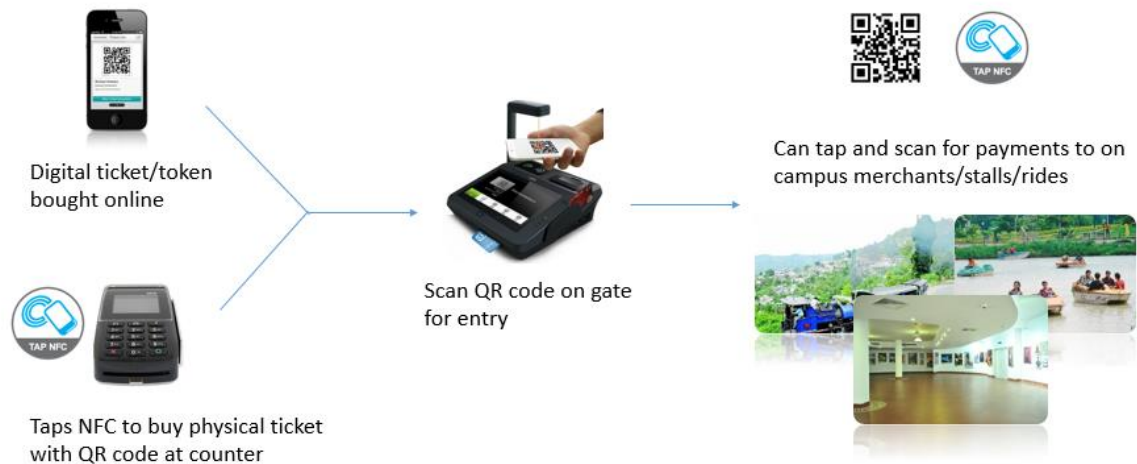
5. Public Transport Payment

Public Transport Payment

NFC Tag linked to wallet

Bus ticket payment

Metro entry booth payment

Digital Receipts

QR code for payment

Digital ticket/token

The payment in car parking happens through NFC Tag linked to wallet or QR code for payment at bus and metro stations generating digital receipts.

6. **Payment for theatres and Parks**

Payment for Theatres and Parks

Digital ticket/token bought online

Taps NFC to buy physical ticket with QR code at counter

Scan QR code on gate for entry

Can tap and scan for payments to on campus merchants/stalls/rides

The payment in Smart city amusement parks are also possible using digital token and QR code for buying tickets.

3. **Summary:**

The block chain technology with addresses the issues in payment domain. The settlement occurs real time and settling the transaction on a real-time basis. It also resolves the issue of visibility of end to end transaction in the form of SMS or wallet balance in Dashboard. The payment is thus facilitated with real time settlement. The payment solution offered resolves the issues of instant payment in a digitized and secured way.