



CodeAlchemist

Team Leader- Rahul Kumar

- Rahul Gupta
- Nikhil Garg
- Rishabh Kumar



Problem

Democratization of use of money using online payments have been for a holy grail for many for a while now. Multiple innovations including technologies such as mobile banking, mobile payment using wallet, UPI etc, and biometric based authentication have changed the way consumers interact with their banks and financial institutions and make payments to friends, family and merchants every day. However, most of the existing solutions rely on a core assumption of having a working internet connection on both or either of the customer and merchant mobile devices. This is a problem because, despite nearly 1.18 billion telecom subscribers and over 730 million mobile broadband users in India as of Jan 2021, according to data shared by TRAI (in March 2021), connectivity issues continue to plague large swathes of the country even in relatively developed urban areas. As per RBI, absence of, or erratic, internet connectivity, especially in remote areas, is a major impediment for adoption of digital payments. This is supported by numbers that show that online payments continue to be clustered around places with better connectivity for obvious reasons. Offline payments are transactions that are either processed without a data connection or where the transaction is recorded offline and processed and settled at a different point of time when connectivity becomes available with one or either parties involved in a transaction. As a user you would have also faced similar challenges and unable to make payments at a remote place or somewhere with patchy connectivity. You are expected to build innovative solutions and products as part of this hackathon to solve for offline payments using various technologies at hand.



Solution

To deal with these kind of situations in which either the sender or the receiver or both do not have a stable internet connection, we opt for the other ways in which the user can do payment in a short range distance without any connectivity requirements, i.e., the offline transaction mode.



Solution Approach

By Simpler terms our approach works on three stages.

STAGE-I

The First Stage involves the conversion of the money present in the User's Offline wallet to a virtual coupon. As we are considering the fact that for offline transfer of money the user already stores a few amount of money in the offline wallet (*Offline wallet : A wallet which is created only for an offline transfer and when a stable connection is there, user can directly add money from bank to the offline wallet*). This **Virtual coupon** which is created is some sort of a code which the app generates and none other apps has access to it.



Solution

STAGE-II

The Second Stage includes the transfer of this coupon from user's phone to receiver's phone. This Stage is done through as same as file sharing option which connectivity is either achieved by Bluetooth or WIFI-Direct. Our model is based on WIFI-Direct for the transfer. Once the connection between the two phones is achieved a QR-Code is generated which only has access to the virtual coupon.



Solution Approach

STAGE-III

Once the QR-Code is Scanned by the other ,the amount of the coupon generated is automatically deducted from the sender's one and credited to the receivers end .The history of all the offline transactions is collected internally by the app .



Talking about our App.

The first things that shows up is the login/sign up ones in which the users logins the app by providing the necessary details or if it's new to the app, he/she can register through the Register option which is available below the login one.

Looking forward ,the user can see his balance in the offline wallet along with the option of Pay or Recieve Money.For example if one wants to send some amount he/she can click on the pay button followed by confirming the pin code as a password and now the phone can generate the QR-code, the QR-Code is only generated when both the phones are connected by the WIFI-Direct method.

After the QR-code is scanned by the receiver the virtual coupon is redeem and hence the amount is debited and credited respectively from Sender and Receivers account.



Why Should we go for our Model?

- Easy to Use, Reliable and fast.
- As it works upon the method of QR-Scan, So it can be used where one can't find a Stable Internet Connectivity
- Consists a pin code so that only the user has access to it, minimizing the risks



Optimization

We can avoid the creation of a separate offline wallet and rather can connect it via present phonepe wallet with online functionality. But the major issue with the current online wallet is: we can only send money to the merchant accounts or can only use the money directly for any kind of recharge or bill payments. It does not have the functionality to transfer money to any friend. We cannot transfer money to someone's bank account. A merchant's account is required. If they allow such functionality of their wallet just as paytm does then this model can be further optimized.

How our model satisfy the RBI Guidelines



The Reserve Bank on Thursday permitted small value offline transactions through cards and mobile devices for single payments of up to Rs 200 on pilot basis.

The scheme is aimed at encouraging customers to opt for [digital payments](#) even in those places where the internet connectivity is poor. An announcement to this effect was made by RBI Governor [Shaktikanta Das](#).

Under the pilot scheme, payment system operators (PSO) banks and non-banks may offer [digital payments](#) offline (payments that do not require internet connectivity to take effect), said a notification in this regard.

"The Reserve Bank has been encouraging entities to develop offline payment solutions. It is, therefore, proposed to allow a pilot scheme for small value payments in offline mode with built-in features for safeguarding interest of users, liability protection, etc," the governor said.

From the above Article , It is clear that RBI permitted small value offline transactions through mobile phone. Since our QR based solution is safeguarding interests of users, protecting the liabilities and ensure safe money transfer, it satisfy the criteria of RBI guidelines.