Novel Cashless Payment for Rural Areas

Executive Summary

While our society moves towards cashless as a whole, some parts of the community are left behind. These include the people living in rural areas who do not have access to steady internet; and the poor, who do not have smartphones or the money to maintain a minimum bank account balance, let alone move to cashless. In India especially, around 70% of the population resides in rural areas (IAMAI, 2019). Furthermore, 6 out of 10 workers in rural parts of India have lost their jobs due to Covid-19 (APU, 2020). This results in people from these areas depending on family or friends for small monetary donations/loans to purchase their daily necessities from merchants, where the entire transaction is done with cash. Our solution aims to eliminate the need for cash from this transaction, creating a direct bridge between the donor and the merchant. The receiver (person purchasing) needs no bank account or technical knowledge.

Introduction and Overview

The idea is to create a system for the transfer of money directly from donors to merchants, paying on behalf of the receiver. An USSD-based system is to be created to maximize accessibility. An interface is created for the donor that lets him generate unique tokens for each transaction with a specific person. These tokens along with the mobile number of the donor can be used for a one-time transaction that transfers the money directly from the account of the donor to the account of the merchant, albeit using appropriate security measures. This eliminates the need for the buyer to have an account or knowledge of digital transactions.

The following steps describes the high level interactions within our system:

1. In rural areas, a person (receiver) requires money and asks from friends/family (donor), donor gives tokens & mobile no
2. Receiver proceeds to a grocery store, select items to purchase
3. The merchant enter the items and total amount, followed by the mobile number and token provided from receiver
4. If the token is not on the pre-approved list, the system will generate a message for approval to the donor. If approved, the transaction goes to the issuer for completion
5. If the token is pre-approved, no message will be generated and the transaction goes directly to the issuer for completion

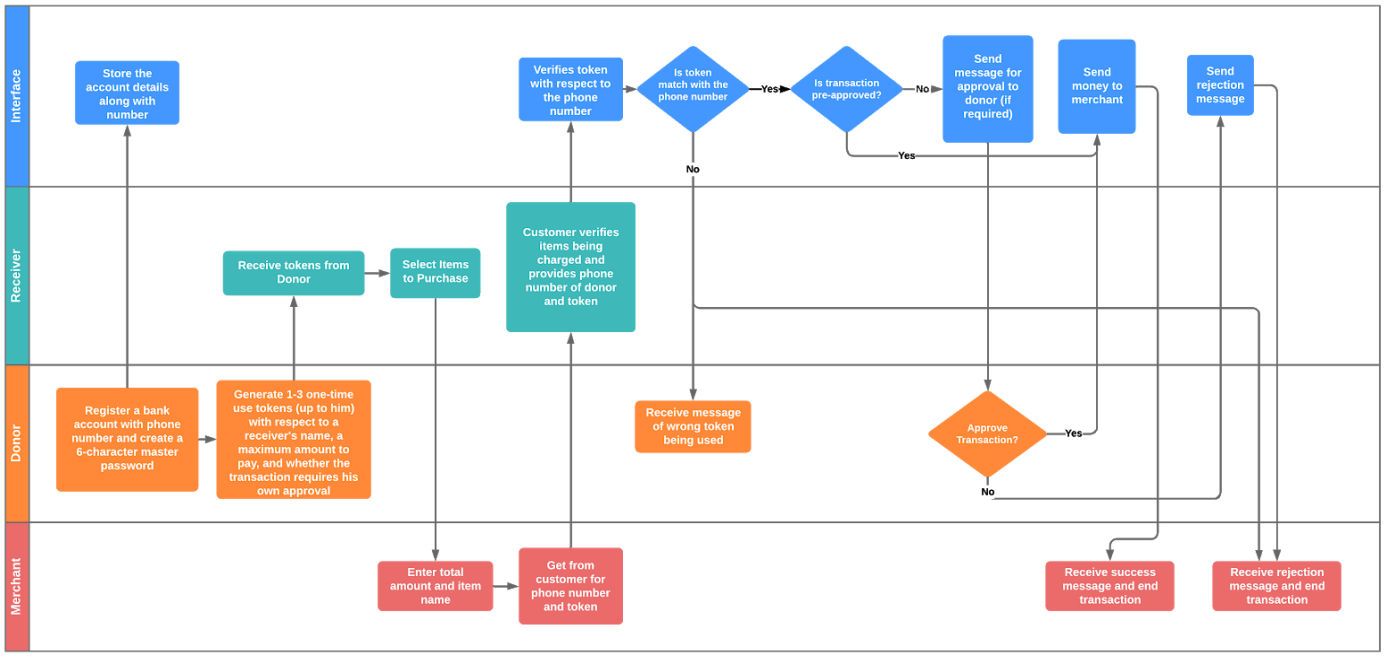

Figure 1. Swim lane diagram that illustrates the flow of our solution

System Features

Donor Interface	Merchant Interface
- Registration of bank account with mobile number - Security Pin generation that acts as donor's authentication - System to generate multiple tokens for a person, creating a cap amount for this person, and a choice on whether the transactions requires to be approved by himself - Approval notification (shows name of client & amount) with options to approve/reject transaction by typing his pin using USSD	- A screen to enter the transaction amount before entering the token provided by client - Interface to enter mobile no. and token of the donor - Interface that verifies approval - Interface that verifies transaction completion - Invoice generation

Advantages of Solution

- Taps into a largely unexplored market in rural areas of India
- Requires nothing (internet, bank account nor knowledge about cashless tech) from the base user, i.e, the purchaser.
- Plays on a largely cash dominated transaction that would be dangerous in times of pandemic such as now
- Is completely transparent from the donor's perspective as he has complete control over the use of his money.

GTM Model

Target Markets

Essential Service Merchants: These include grocery stores, pharmacies, utilities etc. It is very important to get into this market because if these markets do not have an interface to accept the new mode of payment, then the user interface cannot work.

Rural Money Donors: This market has operated primarily on cash and is largely unexploited in terms of new solutions. The resistance to change can be overcome using parameters such as no internet required, easy-to-use interfaces and optimal security.

Partners

For an example in India, NPCI (National Payments Corporation of India) can be a possible partner due to their ownership of the *99# USSD code which provides offline banking and has options such as sending & receiving money, view balance etc. These can be used as the basis of the offline transaction system.

Channels

- **Mobile Interface for Donor**: A mobile interface to be created for registration of bank accounts, easy key generation and pre-approved list generation for the donor.
- **USSD Channel for Donor:** The messages for approval of a transaction will be sent to the donor through this channel. They must have the option to accept or reject the transaction clearly mentioned.
- **Payment Gateway for Merchant:** This is much the same as the gateway for other payment methodologies, except the details entered for the transaction are the mobile number and security pin of the donor. There must be a mechanism to lock in the payment amount before the security pin is entered to prevent fraudulent charges.

Client Segments

- Technologically Illiterate
- People Living Below the Poverty Line
- People Without Access to Steady Internet
- Small Scale Industries For Purchasing Delegation
- Daily Spending of Allowances Among Family Members
- People who just lost their jobs due to Covid-19

Monetization Model and Business Case

Monetization Model

- The largely unexplored market increases Visa's reach and brings new transactions that were previously done in cash.
- The solution helps habitualized cashless transactions in rural areas which shall only result in larger profits in the long run.

Cost Structure

Cost Elements	Capital Investment
- Labour cost for creation of infrastructure (mobile applications and USSD interface) - Server & data storage costs for processing of transactions - Marketing cost to make the reach in rural areas effective	- Does not require substantial investment for the infrastructure as there are no hardware changes/building required. - Main investment is towards integration and marketing so as to reach the wide potential audience for the solution.

Competitor View

UPI is a very up and coming payment method as it offers direct bank to bank transactions. Our solution is advantageous over UPI for the rural demographic as: i) does not require the client to have a bank account, ii) does not require internet

Product Feasibility

- There are existing offline payment options such as *99# thus that part of the solution is feasible
- The direct payment portion of the solution can also be created using the Visa Direct API, hence is feasible
- The security features mimic OTPs and other security measures already in place, hence are not impossible to build

Conclusion

The solution is very effective for rural areas with little internet connectivity. It handles an audience that has been using cash exclusively, so while it offers a large target market, it must be marketing effectively to create a niche.

References

1. APU Azim Premji University. (2020). Covid-19 Livelihoods Survey.
2. IAMAI Indian And Mobile Association of India. (2019). Digital in India.
3. National Payments Corporation of India. (2014). *99# Product Overview.