Details

Team: ENIGMA
Problem Statement: Elastic Run
Title: Money collection system for local sellers
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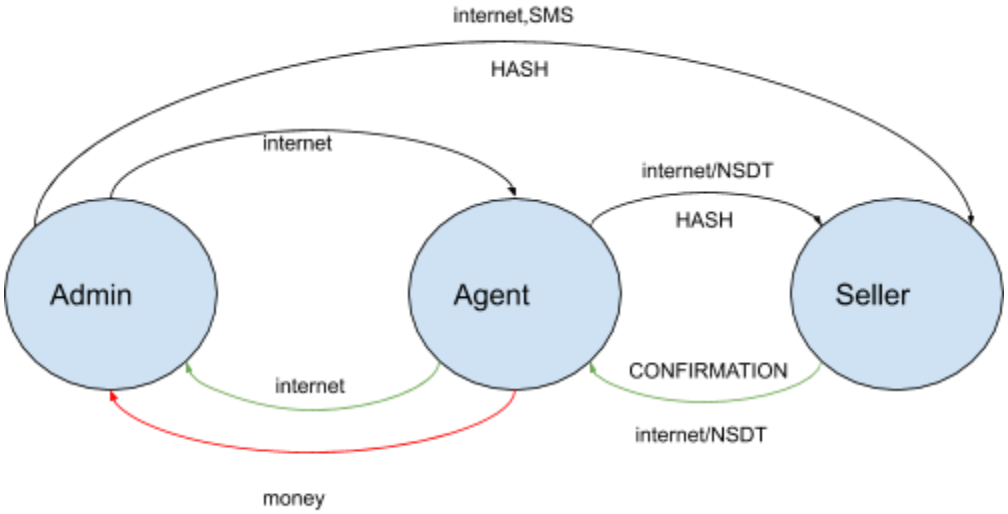
Summary

This document serves as the implementation plan of a system that enables field force to do daily cash collection based on invoice or an e- challan amount and provides a foolproof solution to ensure no under collection or incorrect representation by cash collection associate or payee by using NSDT and OTP mechanisms.
There are 3 types of persons associated with this process, namely administrator or wholesale seller, a money collection agent and a seller who is receiving the products through a local supplier from the wholesale seller. The money collection agent could be a local supplier as well.

Tools Used

Android Studio
Java
Flutter
XML
JSON
Sublime
Photoshop
CoralDraw

Technical Architecture



The admin or the wholesale supplier has access to an app that lists all the invoices that are to be paid by the sellers. He/she assigns the agents to collect the money through the app. Admin also sends an SMS to the seller with a cryptographic hash, generated from data including agent name, seller name and amount to be paid as per the invoice. Admin is assumed to have internet connectivity most of the time.
The agent has another app, which communicates with the admin app to receive the target. The agent goes to the seller and receives money either electronically through NSDT (near sound data transfer) which doesn't require internet connectivity always, or the seller hand cash to the agent, either as the full amount or as a partial amount. In the case of NSDT, the hash from the agent is also sent and is compared against the cryptographic hash received by the seller from the admin. If they match, the transaction is accepted, or else, it is rejected. This transaction data is stored in firebase DB for syncing with main database as soon as internet connectivity is restored.

Feasibility

The features mentioned in the app can be implemented practically. We are not planning to implement the regular online paying of the invoice amount by the seller when the money collection agent is not around and the internet is available, as it is a simple functionality which is an already solved problem by many companies and APIs for that are found commonly. The offline verification method listed in our solution could create problems in the scenario where more than one person is allowed to collect money and the seller login to another device before either collection agent or seller connect at least once to the internet. This could be easily solved by limiting the accounts in which the seller can log in to 1, and making sure that the internet is at least available during the login process.