UID based Food grain distribution by using Smart-card System

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Abstract - *For every family in India ration card is allocated by the government of India to get to receive subsidized food grains. Essential commodities such as Rice, Wheat, Sugar, Kerosene, etc., are supplied to people as per the eligibility and at fixed by the Government of India. There may be chances of the corruption that the shopkeeper may sell some amount of ration to the customer and make false record for that delivery of ration and sell remaining amount of ration to someone else with extra profit. This paper proposed the model for the food distribution system in India. This system contains the three different databases which will communicate with centralized server. As a result there will be more transparency in the system and corruption will reduce.*

Key Words: **- UID, Smart card, Ration card, Food Distribution, FPS.**

1. INTRODUCTION

In 1997, the government launched the Targeted Public Distribution System (TPDS), with a focus on the poor. TPDS aims to provide subsidized food and fuel to the poor through a network of ration shops. Food grains such as rice and wheat that are provided under TPDS are procured from farmers, allocated to states and delivered to the ration shop where the beneficiary buys his entitlement. The center and states share the responsibilities of identifying the poor, procuring grains and delivering food grains to beneficiaries.

Our system proposed that for every Indian family is issued a Smart card by Government of India. The smart card utilizes the UID (Unique Identity) feature proposed by the Government of India (it will be implemented by November. The UID is basically a number that will be given to each citizen of the country by the UIDAI (Unique Identification Authority of India) in the form of a smart card. Each person will be identifiable by his UID. States allocate the grains to each district and further to each Fair Price Shop (FPS; ration shop) within the first week of the month.

In FPS (Fair Price Shop) will use smart card reader to detect the UID smart card and pass on the UID to the processor. A central processing device which manages the flow of data between the FPS and the administrative server. An internet connection for communication between the processor and the central server. A centralized server with the consolidated database of necessary information and transactional details.

2. Literature Survey

The central and state governments are responsibilities to provide food grains to the Below Poverty Line, and Above Poverty Line poor peoples. The center buys food grains from farmers at a minimum support price (MSP) and sells it to states. It is responsible for transporting the grains to godowns in each state. States bear the responsibility of transporting food grains from these godowns to each fair price shop (ration shop), where the customer buys the food grains at the lower central issue price. Many states further subsidies the price of food grains before selling it to customer.

In India Government of Chhattisgarh has taken initiatives to improve the performance of PDS in the state. The initiatives include both technical and non-technical with the single objective of creating food security without diversion and leakage in a transparent way. As a part of these reforms state has computerized the whole food grain supply chain from procurement to lifting of PDS commodities to FPS with the help of National Informatics Centre. Technology has been effectively used in the system to address some of the prevalent problems in public distribution.

3. Problem Analysis

3.1 Excess allotment to FPS

States Directorate used to give district wise allotments. District food controller used to give the shop-wise allocation manually. There was no check whether the allotments are as per number of cards or not. FPS owner could influence food controller to get higher allotment than was required to distribute to the card holders attached to the shop. Excess allotment means diversion and black-marketing of excess quantity of commodities. Some shops used to get less allotment than was required to cater the ration card holders.

3.2 Delay in communication of allotment details to the end user

In case of allotment given manually by sending a signed paper document from directorate to district, district to block and then CSC(Civil Supplies Corporation's) distribution center it used to take 7 to 15 days (as per survey study) to reach allotment details to the distribution Centre where from commodities go to FPS. This used to result in delayed lifting and thus diversion.

The PDS needs to be restructured and there is a need to explore the possibility of introducing innovative ideas such as smart cards, food credit/debit cards, food stamps and decentralized procurement, to eliminate hunger and make food available to the poor wherever they may be in cost-effective manner.

4. Proposed System

To develop a transparent and secure system it is required to maintain the end users privacy for preserving the end users to disputes and other social issues. Additionally it is needed to find some ways by which the distribution of user's identity can be distinguished by the system and distributor. Therefore in this presented work the security and privacy is investigated in detail. In addition of that for improving the current working of the governmental organization is needed to be digitized and transparent. The transparent and secure system is help to improve the transparency and accountability for the distribution and security management.

The practice address the problem solved methods
As the allotment is calculated by computer as per number of cards linked to the shop there is no chance to get excess or less allotment. District Food Controller intervention has been completely eliminated. Grafts and influences to get excess allotment have been eliminated by automated allotment calculation. The details are instantly available on web and from different modules of the system reducing 15 days delay to hours.

Pre-requisites to replicate the practice
Master table (main Server) of FPSs in the state with type-wise number of cards attached to the shop should be available. The data stored in the table should be authenticated by the District Food Officers. Web-based software for maintaining the FPS details should be available.

Challenges expected/faced
If the details of cards stored in the Database Table then there are no wrong the FPS shall get no wrong allotment to public or customer they do not take tension about Wrong prices and minimum distribution of food. Creation of authenticated FPS table is a real challenge.
FGDS is now required to give a declaration stating sales of the each Distributor per month. The details are entered in

computer. Computer automatically calculates the balance quantities at FPS. The system allows giving delivery of the [allotment – balance] quantity only. It checks building of excess quantities at FPS. The affidavit submission is defined under EC act.

Fake/ duplicate ration cards detections
Software can check creating duplicate ration card on the same BPL survey number. But it can check duplicity to a limited extent only. The created unified database was made public through web and printed media to increase the transparency so that fake/duplicate ration cards could be identified. The printed ration cards were distributed in public gatherings like gram sabhas so that Ghost ration cards could be identified and eliminated.
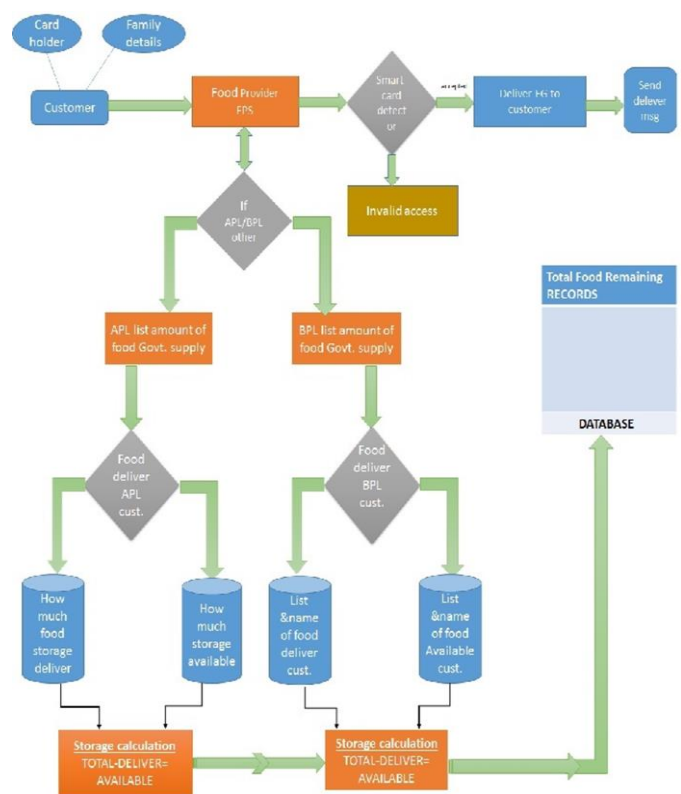
5. Architecture

Fig-1: Software Architecture of PDS

5.1 Software Architecture

Customer Interface with FPS

The first phase of software is to interact with the administrator, like FPS shop user, UID card service provider, firstly gives to authentication i.e. username and password to the administrative system. After the interaction it manage next step of transaction of each smart-card users.

Verify the type of card

The process includes different types of card (i.e. APL/BPL) to check the amount of food-grains provided by government to each type of card holders on his name. Government increases and decreases his prices and amount of food in Kg to per months.

Food Deliver transaction

To the delivery transaction include determining the APL/BPL record of customer to manipulate the how many APL/BPL customers to get the benefits and how many are not taking those benefits of the govt. services.

Storage Manipulation

This is last phase of the database management system in that it calculates the how much food are deliver for each types of card holder and how many foods are available in the Godown warehouse. This is the best features of this application because it maintains the previous records of each customer and next time he will take the last months foods.

Total foods remaining calculations

Final calculation in the database they sort the all deliver and available food records in the database and finally they will send the reports to main servers. Main server manipulates this records for next transaction time on maintain it.

5.2 Database communication layers

This database communicates with different server for authentication and verification process.

In that database also contains details of products available in the FPS. When the stock of products arrives in the FPS the particular amount of data is updated in the database.
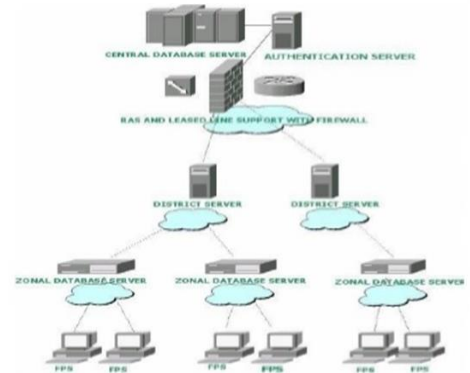

Fig-2: Database Communication Layer

When the stocks get distributed to the customer each time quantity of the product is always reduces from the FPS stocks.

In network communication system client system will communicate to the taluka level server and updates its information and this server also communicate to the main server i.e. District level server which maintain the whole database of each person in that districts.

6. SMART CARD DETECTION

The workings of smart-card systems are propose the Smart Ration Card shop which will have the following features:

a) Firstly we need to smart-card device to identify the right person card.
b) The will have predefined list (database) of dependents of the ration card holder.
c) Will have network connection to give the prior information about the amount of ration to be disbursed.
d) Will display the current rates and amount of ration to be allotted per family with different types of card holder.
e) Will have automatic disbursing mechanism etc.
f) Will monitor & maintain the 'stock taken IN' and the 'current stock' status in Database.

7 CONCLUSIONS

By implementation of this model distribution system will improved the access control. The proposed technique will provide data access architecture to prevent unauthorized access of data. It include different access levels and their communicational data base, additionally able to prevent the data access and distribution using the cryptographic technique. This provides secured ration distribution system which if adopted can practically change the black-marketing associated such a system. To implement it requires less hard work by using of this system we can avoid the error.

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