IoT BASED SMART RATON DISTRIBUTION

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ABSTARCT

Public Distribution System is a government patronized chain of shops entrusted with the work of distributing introductory food and on-food goods to the needy sections of the society at veritably cheap prices. It's also an important factor of the strategy for poverty eradication and is intended to serve as a safety net for the poor people whose number is further than 33 Crores and are nutritionally at threat. The current Public Distribution System has several well proved problems similar as lack of transparency, responsibility, poor governance and poor service delivery mechanisms. A large number of poor and indigent members of society are left out and a lot of bogus cards are also issued. This leads to increase in corruption[1]. Our design proposes the extemporized technique of executing smart portion card system. It also depicts the automated interpretation of the Public Distribution System. At the time of perpetration, for identification purpose we're giving unique fingerprint of each client. This will help to keep track of their separate accounts. Guests will also admit SMS announcement of their successful enrolment and stock distributed to them. Therefore, our system will help to produce transparency in deals and will also help to manage responsibility.

INTRODUCTION

Public distribution system (PDS) consists of government, heir as a citizen and government ministry caste and representative of people working as mediator. This system is hierarchic system which is used for distribution of government benefits, which include food grains, to citizens. In 1997, the government launched the Targeted Public Distribution System (TPDS), with a focus on the poor. Major goods distributed include staple food grains, analogous as wheat, rice, sugar, and kerosene, through a network of public distribution shops (also known as fair price shop) established in several countries across the country. Food Corporation of India, a government- held pot, procures and maintains the PDS. Under PDS scheme, each family below the poverty line is eligible for 35 kg of rice or wheat every month, while a ménage above the poverty line is entitled to 15 kg of food grain on a monthly base[3]. Government provides plethora of services for welfare and good of the really need it. But there is a big question mark on the identification of the penurious and the effectiveness of the distribution process, because of issues like lack of translucence, manual and paper- predicated work, abuse or duplication of portion cards, ineffective monitoring of the system. To overcome these issues, we propose a web predicated system for Public Distribution System using fingerprint. We are going to use Information Communication Technology which helps in time operation, halt to lose practices, responsibility etc. guests will also admit an application of their successful registration and stock distributed to them. Thus, furnishing automated interpretation of the system with smart ration and ensure smooth, transparent, timely and citizen friendly deals.

METHODOLOGY

Following are the modules of the automated RDS:

A. Administrator:

The main state government is the administrator who will have unique ID for his account and controls all district level food grain distribution process and fair price shops under each district. Administrator has authority to modify the database or add/remove members from ration card. He/she will give unique barcode number to each food grain distribution officers, fair price shop owners and ration card holder. Also, he/she has authority to update cost or stock records according to previous records[4]. Primarily, He can define the default cost or stock and after transportation had done at first time, he can update food grain cost according previous

delivery status. Administrator will supply food stock according to estimate details related to stock generated by previous distribution of food commodities and new records.

B. Food grain Distribution Office:

Food grain distribution centres of each district distribute food commodities to fair price shops located in particular area in the district. He checks all stock which is supplied from administrator and distribute to fair price shops[5]. After distributing food commodities, he/she send delivery status to administrator.

C. Fair price Shops

Fair price shop owners scan the Fingerprint ration card then he distributes food commodities to family as per estimated records. Fair price shop owners distribute food commodities to family as per estimated records[7]. After distributing food commodities, send delivery status to administrator through customer's account. She/he will update the database.

D. Registration Department

Registration department is for validating and authenticating documents of the customers. Also, registration department is responsible for attending and handling queries of the customers related to data entry or data modification.

FUNCTIONAL SPECIFICATION

A. Admin to Food Grain Distribution Officers:

Administrator will supply food stock to Food grain distribution department according to stock requests received from several districts per month.

B. Food grain distribution officer to FPS owner:

FGDO collect food stock and supervise stock as per given notification then he can distribute all stock to FPS area wise.

C. FPS owner to Customer

FPS owner collect stock from FGDO. Then he can verify with fingerprint and distribute stock to customer as per the allotment. Customer can collect Stock and pay bill[]. And FPS owner notify the admin by confirming payment on administration application as well as customer application.

ASSUMPTIONS

• Before first cycle of transportation, we are going to assume that initial default value of stock and default value for costs well.

• We are assuming the internet connectivity is available at every Fair Price Shop.

EXPERIMENTAL SETUP

Various Technologies used in implementation of the system are as follows

1. Android Studio

Android Studio uses an Apply Changes feature to push code and resource changes to a running application. A code editor assists the developer with writing code and offering code completion, refraction and analysis. Applications built in Android Studio are then compiled into the APK format for submission to the Google Play Store.

2. Fingerprint Sensor

It is used for authentication in our project

IMPLEMENTATION

A. Fingerprint Sensor

Fingerprint authentication or scanning is a form of biometric technology enables users to access online services using images of their fingerprint[8]. The biometric scan commonly relies on mobile and other device native sensing technology, as this has all but eclipsed software, third-party biometric algorithms.

B. Process Work Flow

In automated PDS, customers are provided with a smart ration card having a QR-code for authentication purpose. FPS owner cannot access customer's account without that code as the system accepts only the scanned image of QR-code as an input. After scanning a valid QR- code, system shows the details of that customer and the amount of stock assigned to him. Then FPS owner provides the mentioned amount of stock to him and confirms transaction in the system after taking payment. This confirmation uploads the transaction details to the PDS server and then the transaction is displayed in customer's account along with total and remaining stock in his account. Thus, transaction is completed for one customer and system is ready to accept new fingerprint from next customer.

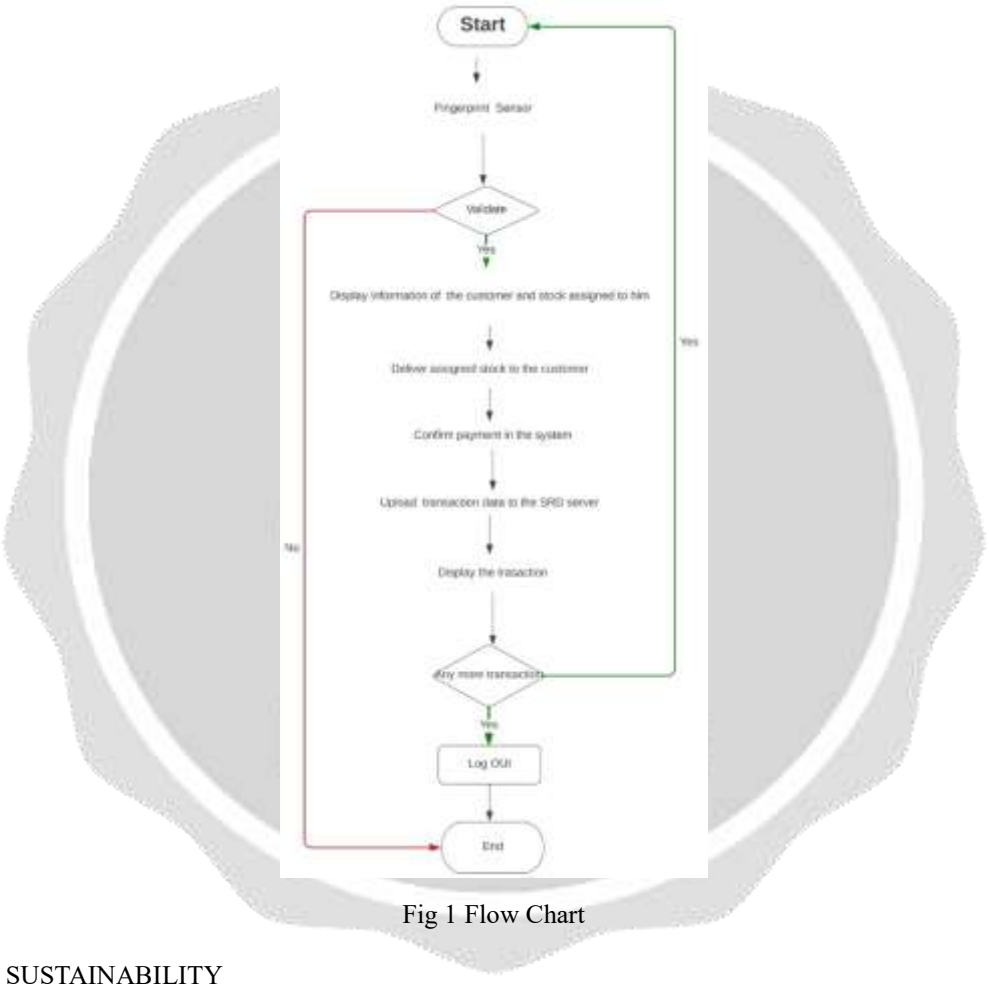

Fig 1 Flow Chart

C. SUSTAINABILITY

Substantial benefits have already accrued in terms of elimination of all transaction related paper work, centralized monitoring, infusion of transparency and efficiency.

EXPERIMENTAL SETUP

Following experimental analysis shoes the efficient and transparent behavior of our developed PDS. The Administrator is able to monitor and analyze village wise sales and distribution of stock using several graphs. Different graphs are produced from data of individual villages and admin can see the graphs simply by selecting a particular village.

A. Distribution of Stocks

Administrator is able to see District wise Distribution of wheat, rice, sugar. shows the graphs of distribution of wheat, rice and sugar separately.

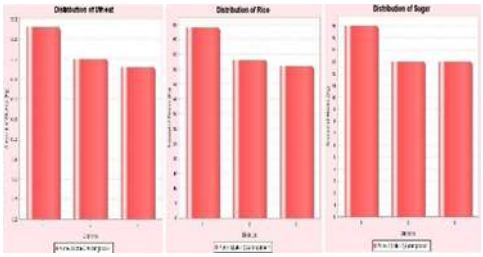

Fig 2. Distribution of stocks

B. Required Stocks

Administrator is able to see total requirement of stock for particar FPS shop[9]. Figure 3 shows a graph of required stock at Lohgoan FPS from Pune district.

Fig 3. Required stock

C. Before Transaction

In which Administrator can see available stock and sold stock before any transaction

1. Available Stocks

Administrator is able to keep track of available stock at particular FPS shop. Figure 4 shows a graph of availability of stock at Lohgoan FPS from Pune district

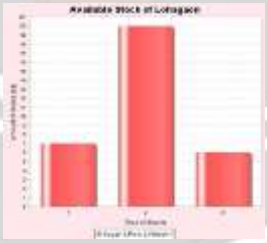

Fig 4. Available stock before

2. Sold Stocks

Administrator is able to keep track of sale of stock at particular FPS shop. Figure 5 shows a graph of total stock distributed among customers at Lohgoan FPS from Pune district.

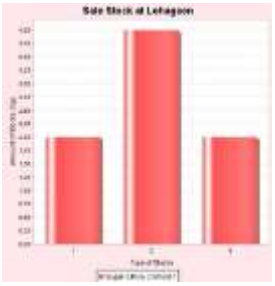

Fig 5. Sold Stocks

D. After Transactions

In which Administrator can see available stock and sold stock after any transaction.

1. Available stocks

Administrator is able to keep track of available stock at particular FPS shop[10]. Figure 6 shows a graph of availability of stock at Lohgoan FPS from Pune district.

Fig 6. Available Stocks After Transaction

2. Sold Stocks

Administrator is able to keep track of sale of stock at particular FPS shop after any transaction takes place. Figure 7 shows a graph of total stock distributed among customers at Lohgoan FPS from Pune district.

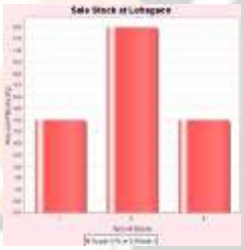

Fig 7. After Sold Stocks

CONCLUSION

IOT based public ration distribution system rationing distribution is one of the widely controversial issues that involve corruption and illegal smuggling of goods. One reason for this to happen is because every job in the ration shop involves manual work and there is no specific technology involved in automating the job. Involvement of manual work calls a lot of irregularities. Though it is designed keeping in mind about the need for industry, it can be extended for other purposes such as commercial & research applications. Due to the probability of high technology usedthis project is fully software controlled with less hardware circuit. The feature makes this system is the base for future systems.

Fig 8. Hardware Kit

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