

IOT Based Smart Ration Distribution

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ABSTRACT

Now a day ration card is very important for every home and used for various field such as family members details, to get gas connection, it act as address proof for various purposes etc. All the people having a ration card to buy the various materials (sugar, rice, oil, kerosene, etc) from the ration shops. But in this system having two draw backs, first one is weight of the material may be inaccurate due to human mistakes and secondly, if not buy the materials at the end of the month, they will sale to others without any intimation to the government and customers. In this paper, proposed an Automatic Ration Materials Distribution Based on GSM (Global System for Mobile) and RFID (Radio Frequency Identification) technology instead of ration cards. To get the materials in ration shops need to show the RFID tag into the RFID reader, then controller check the customer codes and details of amounts in the card. After verification, these systems show the amount details. Then customer need to enter they required materials by using keyboard, after receiving materials controller send the information to government office and customer through GSM technology. In this system provides the materials automatically without help of humans.

Keywords: Microcontroller, GSM, RFID, Motor, Solenoid Control Circuits, Mechanical Part

I. INTRODUCTION

The ration distribution system is established by the Government of India under Ministry of Consumer Affairs, Food, and Public Distribution to distribute grocery items to poor people at fair price. The existing conventional ration card system has numerous problems. These problems ranges from the basic issues of renewing the ration card every year by pasting excess leaves which has to be done manually by the employees to the malpractices done by FPS dealers like diverting food grains to open market to make profits. There is another problem of irregularity in opening shops and false announcements of deficit in food grains. By using this system, the major problems like bribery, irregular distribution and other difficulties faced by

the poor people are eliminated. Illegal activities in the FPS can be greatly reduced by this method. The distribution process is automated using centralized server and so the government facilities reach people properly. The corruption and bribery is the major problem in FPS which can be avoided using this system. The computerized database maintained avoids wrong entry of the product by the officials and provides authenticated transportation and distribution.

Challenges

Analysis of TPDS has revealed several gaps in implementation. These challenges certain to the inaccurate identification of households and a leaking Delivery system.

Expert studies have shown that PDS suffers from nearly 61% error of exclusion and 25% inclusion of beneficiaries, i.e. the misclassification of the poor as non-poor and vice versa. Another challenge is the leakage of food grains during transportation to the FPS and from the FPS itself into the open market

Applications

The ration items will be effectively delivered to the valid ration card holders who are below poverty line.

The main advantage here is that the beneficiaries get their rightful entitlement in terms of quantity. What's meant for them cannot be diverted to the open market because of maintaining the database correctly. A common practice adopted by commission agents who run FPS is that they charge people more than the mandated rates, and they often under-weigh the commodities. But Using this technique, they cannot do so because each and every item will be having its Own code and the price will be generated from that code and hence no overcharge can be Done The government services are reached to poor people effectively and also the corruption In PDS and FPS can be reduced or avoided to a great extent

Objectives:

The objective of the project is to automate the task of distribution of items efficiently. The Project is aimed to stop corruption and discrepancies created in distribution shops. Here the System must perform the following.

- ✓ Validate the ration smart card of the beneficiaries.
- ✓ Validate the right beneficiaries.
- ✓ Avoiding irregularities in distribution of grains.
- ✓ SMS notifications on the mobiles of the beneficiaries.
- ✓ Stock maintenance in the distribution centre.

II. LITERATURE SURVEY

A Centralized Web Enabled Ration Distribution and Corruption Controlling System is the project that will allow a smooth and easy ration distribution. The paper explains the concept of ration distribution and controlling. This system enabled the distribution of food equally among poor people. The commodities are stored in storage tank, when goods are inserted in the FPS, then that quantity of goods is updated in web server. That website can be accessed by the collector whenever he requires the ration from respective ration shop. A Government of India initiative process in which a fixed amount of ration is provided monthly to the people by the PDS stores. The increased corruption in the market sector can be prevented if the system becomes automated, increase in adulteration can be prevented as well, the hoarding done by the officials and labourers of government.

Public distribution system (PDS) is an Indian system food security established by the Government of India under Ministry of Consumer Affairs, Food, and Public Distribution and Managed jointly with state governments in India, it distributes subsidized food and non-food Items to India are poor. Major commodities distributed include staple food grains, such as wheat, rice, salt, and cooking oil, through a network of public distribution shops (also known as ration shops) established in several states across the country. Food Corporation of India, a government owned corporation, procures and maintains the PDS

Existing System

Public distribution system also called ration distribution system is one of the widely controversial issues that involve malpractices. In the existing system, works which include Product distribution, ration card entry, product weighing, and product delivery are done manually by FPS (Fair Price Shop) commission agent. The present ration distribution system has drawbacks like inaccurate quantity of

goods, low processing speed, large waiting time, material theft in ration shop

III. PROPOSED SYSTEM

The proposed system replaces the manual work in FPS. The main objective of the designed System is the automation of FPS to provide transparency. The proposed automatic FPS for public Cards. Successful verification of the beneficiary, information is fetched onto the main interface, and beneficiary needs to enter type of commodity as well as quantity of commodity using keypad. After delivering proper commodity to him/her, the beneficiary is sent the SMS (Short Message Service) about the commodities bought by him.

Module Description:

Modules used in this project are as follows: Login module, RFID verification module, Biometric verification module, Purchase and Alert module.

Login Module

In this module, the system takes beneficiaries details like their name, address, fingerprint, date of birth, age, contact number for sending SMS alerts, count of family members and category of the card to which the family belongs to. All the information is stored in the database.

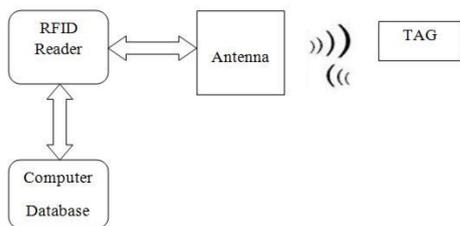


Figure 1

RFID card verification Module

RFID is a part of Automatic Identification and Data Capture (AIDC) technologies and is fast and reliable means of identifying objects. RFID based Smart Card verification module consists of two main components, they are interrogator and transponder. The

interrogator (RFID Reader) is used to broadcast the signals through its antenna and the transponder (tag) that will be activated after it receives the signals from the interrogator. In this project a transponder is the Smart Card.

The person should scan the RFID card on the scanning system placed at FPS counter.

The RFID reader sends a broadcast signal to detect the RFID tag (Smart Card).

Data stored within an RFID tag's microchip is read.

The tag's antenna receives electromagnetic energy from an RFID reader's antenna.

Using the power harvested from the reader's electromagnetic field, the tag sends radio waves back to the reader.

The reader picks up the tag's radio waves and interprets the frequencies as meaningful data.

This data is then matched with the database and then beneficiary's information is displayed on the screen.

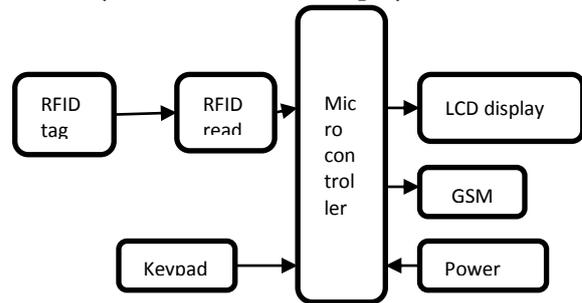


Figure 2. Block diagram

IV. ARCHITECTURE DESIGN

Architectural design consists of six components such as beneficiary, RFID reader, biometric verification, monitor and database. The beneficiaries arrive at the fair price shop with a smart card entitled to him. The beneficiaries have to be validated, which includes two way authentications. First step includes swiping the smart card over RFID reader. The second way of authentication is Biometric authentication which includes scanning of thumb.

The beneficiaries are validated on checking the fingerprint ID and Smart Card ID from the database.

His/her fingerprint ID or smart card ID is used to fetch information on to the main interface.

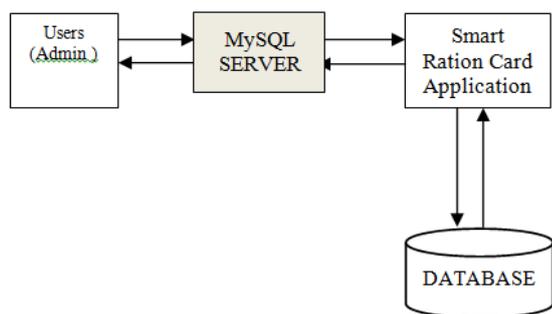


Figure 3. Architecture Diagram

V.CONCLUSION & FUTURE SCOPE

CONCLUSION

In this way, we are developing a system for smart and automatic ration distribution. Proposed system can provide safe, secure way for ration material distribution. Using this proposed modern system we can have better management of the ration distribution system. Govt. can have indirect check on the availability of the ration to the beneficiary. It is transparent.

FUTURE SCOPE

For better understanding, an interface and website can be made available in different languages (regional languages).

For the ease of use, an application can be built for the same.

Kiosk can be developed for the beneficiaries to check the commodities available.

Automatic weighing system can be implemented at the FPS.

V. REFERENCES

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