

Smart Ration Card System using RFID and Biometrics

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Abstract: India's Public Distribution System (PDS) is the largest ration distribution system in the world. Public distribution system provides a ration card to peoples and from that card, they will be able to purchase materials like rice, wheat, kerosene, and oil. State Government issues different ration cards like yellow ration card, saffron ration card, and white ration card depending on family annual income. The consumer material is supplied to ration card holders in the first week of every month by ration shopkeeper. Ration distribution system in India is not without its defects. The ration shop owner illegally uses consumer materials without prior knowledge of ration there consumer. The proposed system aids to control malpractices which are present in ration shop by replacing manual work with an automatic system based on RFID. The RFID card has a unique identification number and details of a consumer. The consumer scans the card on RFID reader which is interfaced with microcontroller kept at ration shop. Once a consumer is validated by the mean of Biometric, the system shows customer's product and cost. Based on the material chosen by the consumer, the appropriate bill will be generated and the consumer gets the material. The proposed RFID and Biometric based automatic ration shop system would bring transparency and prevent malpractices.

Keywords: Public Distribution System, Radio Frequency Identification (RFID), Biometrics, Smart Ration Card

I. INTRODUCTION

In villages, the ration is supplied to ration card holders in the first week of every month. The ration shopkeeper has the responsibility to distribute ration to cardholders a minimum of three or four days a week. Ration card is a very necessary document for every citizen in India. Ration card is used to purchase various necessary items like sugar, oil etc. from the ration shops at a cheaper rate, issued by the government.

This ration card also acts as address as well as identity proof. Ration card is needed when you apply for the passport, PAN number, driving license etc. Hence, ration card is a very important document. But, The present ration distribution system has drawbacks like inaccurate quantity of goods, low processing speed, large waiting time, material theft, So if the items are not sold up to the last of the month, then the shopkeeper will sell it to someone else and take the profit into his pocket and put some false reading in the government record diary.

For avoiding this, we move to smart ration card using RFID. Every customer has given an RFID tag which acts as the ration card. This RFID tag contains all the information of the customer. The customer has to show this RFID tag to the RFID reader, which is attached to a microcontroller, which reads the information in the tag and accordingly instructs the shopkeeper to give this much amount of ration to that cardholder. The basic purpose to use RFID is to automatically identify and track the attached electromagnetic tag.

Each ration shop contains a Biometric device which scans thumb impression, this is used to check user valid or not. The biometrics will be used in this system, works for an identification of the user. It stores fingerprints of users to the database. This new produced system will cover the human efforts and also the fraud is detected in that system and the forgery is also removed.

II. PROBLEM STATEMENT

The proposed system will develop smart ration card system to reduce the Forgery at Ration Shop. Each ration shop contains Biometric device for Fingerprint Detection. Reduction in manual work. The system will be more transparent. The customer existence is important because all information about will be stored in the system which retrieved using thumb impression also contains Bank account details of the customer. Automatic generation of a message after Bank transaction. Frauds get detected easily. Biometric is used for unique authorization and access control.

III. EXISTING SYSTEM

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.



IV. METHODOLOGY

To reduce forgery from ration shops and users will get their grocery in an easy way. Also to reduce manual work. In the proposed system we will develop the smart ration card system based on the BIOMETRICS, in which the user can fill their data online.

And also the manual working is not there. When a user wants a ration, then fingerprints of that user will check for authentication and the allocated ration is distributed to that particular user, changes of adding and issuing of the ration are done automatically in the government database. Goods/ grains are given to the customer on the basis of their needs.

In the proposed system for the valid user, the fingerprints will take and then check the validity or the invalid user. If a user is not valid then exit or the user not able to take the ration and if valid then the list of grocery will display on a screen and then the distributor will distribute the grocery and then pay a money and then exit.

Bank details are connected to Biometric device when user scan thumb particular amount of grocery is deducted from account and message will be sent to the user.

V. PRAPOSED SYSTEM

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 distribution system is based on RFID technology and biometric authentication technology that replaces conventional ration cards. The RFID cards are provided instead of conventional Ration Cards. Beneficiary's information along with the fingerprint impression of the head of the family and one of the family members is stored in the centralized database which is only updated or accessed by th government authority. A customer has to scan the RFID Card by using RFID reader and then he/she should scan the thumb through a biometric scanner, after successful verification of the customer, information is fetched onto the main interface, and shopkeeper needs to enter a type of ration as well as a quantity of ration using a keypad. After delivering proper ration to him/her, the beneficiary is sent the SMS (Short Message Service) about the commodities bought by him.

VI. SYSTEM ARCHITECTURE

Our System architecture is divided into five blocks.

1. Ration shop
2. Ration card generation office
3. Taluka level and District level
4. Embedded thumb module
5. Mysql Database

The procedure starts with ration card generation office where the user should appear for giving the details for generating their RFID card. Along with this he should scan his/her thumb, and are stored in the embedded module. The main responsibilities of taluka and district level are to allocate the ration and update the data in MySQL database along with their RFID card. And at last at the ration shop after scanning his/her RFID card will be able to know allocated amount of ration. for the purchase of that ration have to verify his/her identity through thumb scanner. After successful validation customer has allowed for taking ration.

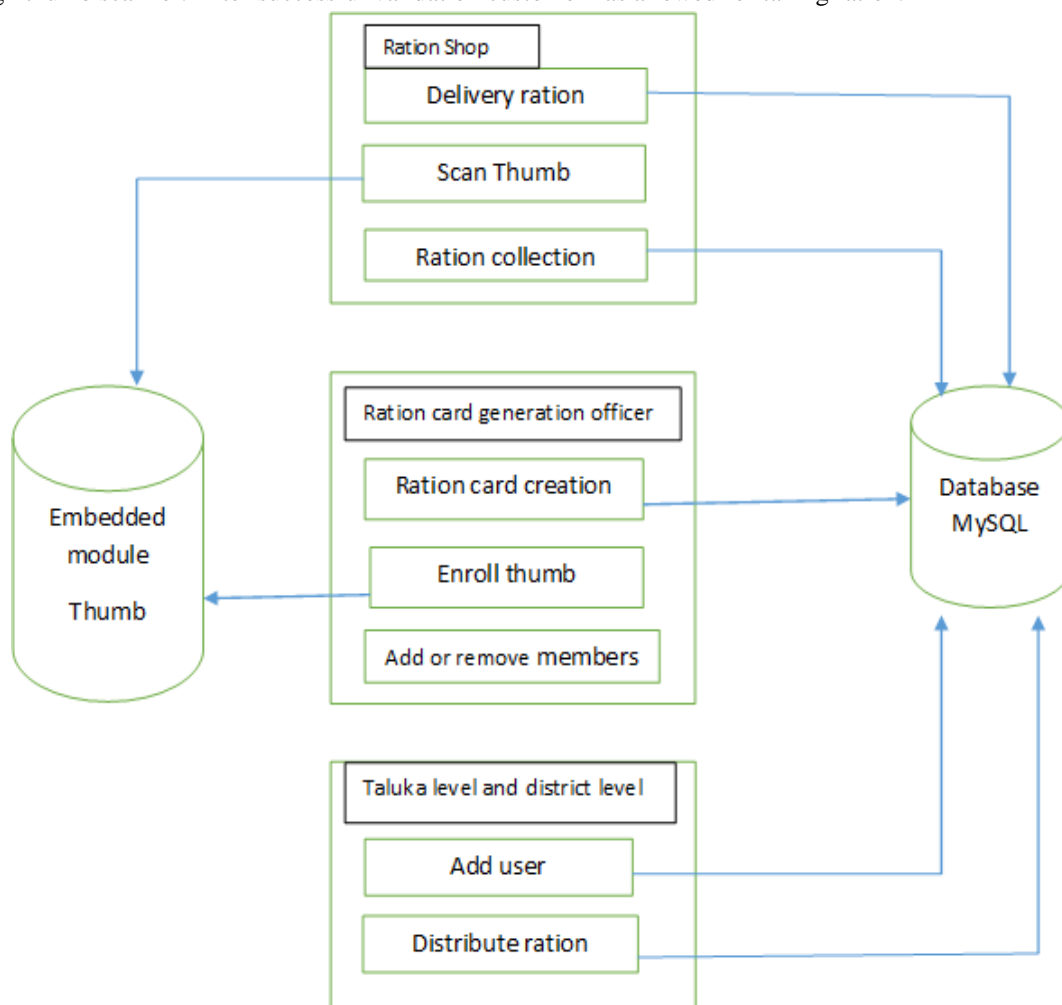


Fig.1. System Architecture

Above system architecture define the flow control of the system, this can be implemented on simple smart devices like smart phones, tablet PCs, etc.

VII. CONCLUSION

This proposed system can provide a safe, secure and efficient way of Public Distribution System. By using this technique in ration shops solves the problem of a too much manual process in Public Distribution System (PDS). This proposed system definitely eliminates corruption in Public Distribution System of India. This new technology gives solution and this work will make a great change in Public



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