

Android Based Ration Card System using Biometric

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ABSTRACT

A Ration Card is a document issued under an order or authority of the State Government, as per the Public Distribution System, for the purchase of essential commodities from fair price shops. State Governments issue distinctive Ration Cards to Above Poverty Line, Below Poverty Line and Antyodaya families and conduct periodical review and checking of Ration Cards. A Ration Card is a very useful document for Indian citizens. It helps save money by aiding in the procurement of essential commodities at a subsidized rate. It has also become an important tool of identification now-a-days. You may need to produce a copy of your Ration Card as proof of identification when applying for other documents like Domicile Certificate, for inclusion of your name in the Electoral Rolls, etc. 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 any person does 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 project, proposed an Automatic Ration Materials Distribution Based on fingerprint scanning technology instead of ration cards. To get the materials in ration shops need to scan fingerprint on fingerprint scanner, 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 android application, after receiving materials controller send the information to government office and customer through SMS notification. In this system provides the materials automatically without help of humans.

Keywords— Smart ration card system, Automation of ration shop, web enabled ration shop, Android app, Smart city, digitalization.

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I. INTRODUCTION

This A Ration Card is a document issued under an order or authority of the State Government, as per the Public Distribution System, for the purchase of essential commodities from fair price shops. State Governments issue distinctive Ration Cards to Above Poverty Line, Below Poverty Line and Anthodia families and conduct periodical review and checking of Ration Cards. A Ration Card is a very useful document for Indian citizens. It helps

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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 any person does 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 project, proposed an Automatic Ration Materials Distribution Based on fingerprint scanning technology instead of ration cards. To get the materials in ration shops need to scan fingerprint on fingerprint scanner, 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 android application, 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. This project can be developed under smart city development project by government. So, according to that there is a scope to develop such application for smart users in smart city; which can provide a digital approach to ration card. Rush will be decreased by this smart project in ration shop. It will be more efficient than traditional paper book ration card and E-POS system. This system will reduce corruption in ration field.

II. LITERATURE SURVEY

Public distribution system is an Indian food security system. Major commodities distributed include staple food grains, such as wheat, rice, sugar, and kerosene, through a network of fair price shops established in several states across the country. Food Corporation of India, a government entity, manages the public distribution system. The system is often blamed for its inefficiency and rural-urban bias. It has not been able to fulfil the objective for which it was formed card. Government of India provides various facilities for ration distribution towards poor and needy people. In months, if not buy the materials at the end of the month, they will sale to others without any intimation to the government and customers, so the shopkeepers are misusing of these materials by selling in the market and doing corruption. Public Distribution System is one of the widely controversial issues that involve malpractice.

A. SYSTEM 1:

In India Ration Distribution System mainly helps BPL category people by supplying them food grains, kerosene, LPG, sugar, etc. at relatively cheaper rate. This system works according to different levels of poverty. Ration shopkeepers get ration from government dealers. But in earlier days all this work is done manually. Every family is provided with simple paper book type ration card with colors which decide poverty levels. This ration card included each family member's name, age, gender and relation with family head. After providing material to the customer as specified it get updated in ration book manually by with pen; but it increases human efforts as well as leads

to corruption. The ration card which is currently in use is as below:



Fig.2.1 Traditional Ration Card

B. System 2:

In past few years now new technology is used in market which is improvement over traditional paper ration card is E-POS system. Here initially each user has to register at government database. He has to give all details about his family and also their thumb impressions. After verification by government, user is registered in Smart Ration Card System. This Smart Ration Card System uses any user's family members finger print for verification. User has to press his/her thumb on the finger print scanner which is present at each ration shop(in POS machine). Then finger print is verified with government database and displays an appropriate message on LCD screen that whether user is valid or invalid. If user found authenticate ration get provided to them. After providing ration to valid user, quantity of items is updated at each level- shopkeeper level.



Fig. 2.2 E-POS System

1. SMART RATION CARD (Vikram Singh, Vellanki Aamani , Booreddy Mounika)- 2010

This paper depicts the computerized version of the Public Distribution System (PDS) and its advantages over the

present ration cards. Using this technique or method we can reduce the corruption level and can mostly eradicate it from the above mentioned system which will help the country's economy to reach new heights. The computerized PDS is simple to implement and requires much less hard work when compared to the other system. So implementing this will be really helpful to the people below poverty line.

2. Smart Ration Distribution and Controlling (Kashinath Wakade, Pankaj Chidrawar, Dinesh Aitwade)- 2015

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 and has control over prices of some commodities in the open market. Dealer will not be able to keep fake ration cards with them. System helps to modernize traditional rationing and combat corruption up to a great extent. For better authentication of subscribers, a biometric system can be used.

3. Automatic Ration Distribution System (Swapnil R. Kurkute, Chetan Medhe, Ashwini Kshirsagar, Ashlesha Revgade)- 2016

Ration shop. The ration shop admin will upload the details which has been delivered to the respective user.

5. Smart Ration Card Using RFID, Biometrics and SMS Gateway (Anshu Prasad, Aparna Ghenge, Sonali Zende Prof. Sashikala Mishra Prof. Prashant Gadakhv)- 2017 –

In this paper, proposed a smart ration card using Android technique, biometrics and SMS gateway to prevent the ration forgery. In this system, a Database is used that carries family member details. The user will also have to provide thumb impression on the biometric machine at the ration shop. If the user is found authentic then the quantity of ration to be given to customer according to the total number of family member will be displayed on the display. This smart ration card is free from theft and forgery as the information about the delivered ration will be sent directly to the government and customer through SMS gateway.

C. DRAWBACKS OF EXISTING SYSTEMS:

Existing manual ration distribution system leads to corruption during distribution by distributors. Distributors does not reveal actual rate and thus customers have to pay amount given by distributors. Also they do not give actual quantity assigned for user. So in our paper we have proposed new automatic system which will prevent this.

4. MOBILE APP FOR SMART RATION CARD SYSTEM (Mrs. B. Buvanewari, G. Ramya, R. Shivapriya, K. S. Suganya, N. Suganya) – 2016

The Ration Shop cannot able to meet the requirement of the user due to over population of our country, so the processing speed is low. As a result, there is always crowd of people in the ration shop. Also there is a chance for the illegal usage

of our products in the regular system, i.e. the materials are robbed by making wrong entries in the register without the insight of the ration card holder. Hence, we have developed a smart ration card application for all android mobile users. In this system, each user has a separate.

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III. PROPOSED SYSTEM

The proposed system aids to control the corruption which is taking place in ration shop by replacing manual work with automatic system based on Android technology. We can also add, update and delete the details of the family members information easily. Once consumer is validated by finger print password, the system asks the consumer to select appropriate material and quantity of material through keypad. Based on material chosen by consumer, appropriate circuitry will be activated and consumer gets material.

We have proposed a smart ration card using smart android application, biometrics and SMS gateway to prevent the ration forgery. In this system, a Fingerprint with “Aadhar card” linked is used that carries family members details and The user will also have to provide thumb impression on the biometric at the ration shop. If the user is found authentic then the quantity of ration to be given to customer according to the total number of family member will be displayed on the mobile display; This smart ration card is free from theft and forgery as the information about the delivered ration will be sent directly to the government centralized server and customer through SMS gateway. In this system all the transactions are done by android app.

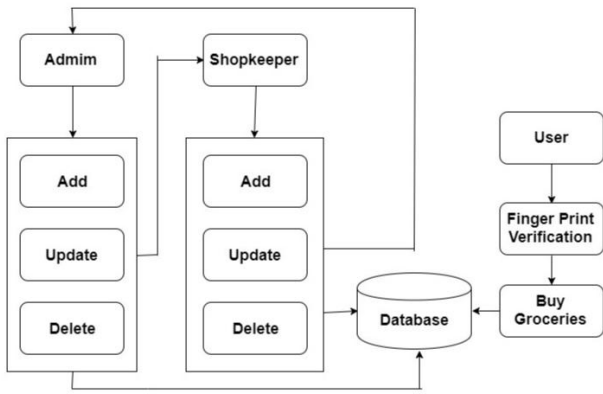


Fig. 3.1 Architecture Diagram

Architecture of system shows there are three portals like Admin login, Shopkeeper login and User login. Shopkeepers have to registered themselves through Admin portal and User have to registered through shopkeeper portal. Registration only considers as successful if all details and documents are verifies by central government administrator and their fingerprints are get stored in database for further use. System provides some rights to Admin and shopkeeper like; Admin can Add, Update, Delete Shopkeeper and Shopkeeper can Add, Update, Delete End user or customer. In user portal user can view all details whenever he want like new skims, recent transactions, amount of ration allocated etc. Instead of that one information portal is provides to guide user whenever he want help in which all information about system is provided. All information is get regularly and instantly updated in centralized database.

created which is unique and stored in database. While buying any ration material user has to go to PDS shop; login to android app with the help of his fingerprint. If his fingerprint ID matches with Id in database then and then only login will be successful otherwise login failure occurs. If user successfully logged in then app will automatically show your allocated material and user need to select required material from this; after selecting material it is required that system will automatically calculate the total amount to pay and show you different options for payment. User can make payment with online payment option by credit / debit cards or by money transfer app like paytm, phone pay etc. otherwise cash payment option is also provided. After successful payment system will notify you about material issued and payment successful by SMS gateway or app notification. Customer get regularly notified with updates like new schemes launched by government, material made available in shop, material allocated, price change etc.

For development of this system we are going to use Android studio for GUI Design, Java kit for source code, Xampp Toolkit for server management, MySQL for managing database and Notepad++. JDK 8 is used to compile java programs. PHP is used to provide connectivity. Biometric authentication is given to avoid any misuse for which we required a fingerprint scanner device.

Hardware Used : For successful implementation of project only required hardware is fingerprint scanner ,Arduino kit ,ESPdevice .

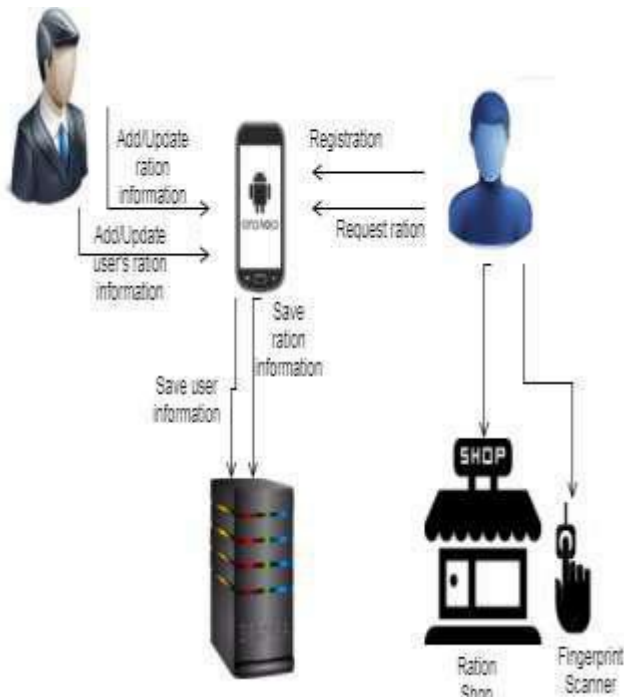
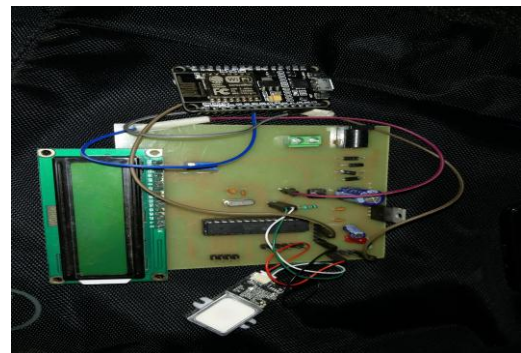


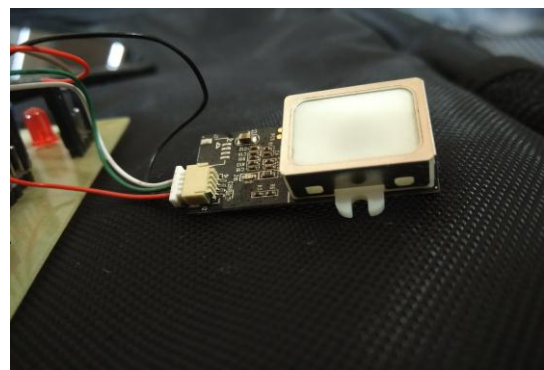
Fig 3.2 System Diagram

B. Working of System:

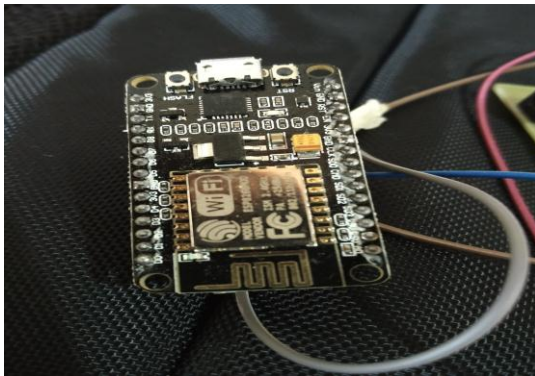
To become a official user of online system user must have to registered themselves with his fingerprint and Aadhar card number. After registering fingerprint, fingerprint ID is



Arduino Kit



Fingerprint Scanner



ESP Device

Input /Output of system

It will take thumb impression as input and provide details of user with monthly allocated ration as output.

Proposed system is aimed at providing corruption free system and ensuring need based allocation. We have proposed an Automatic Ration Materials Distribution Based on fingerprint scanning technology instead of ration cards.

A. USE case View :

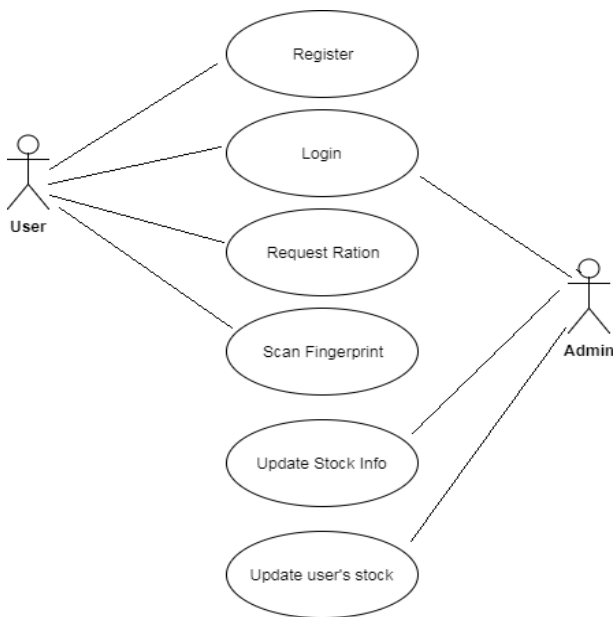


Fig. 3.3 Use case of System

Use case view of system shows User can register, login, Request for ration by scanning his fingerprint. Admin can login and has rights to update stock information and update user stock

B. System Flow

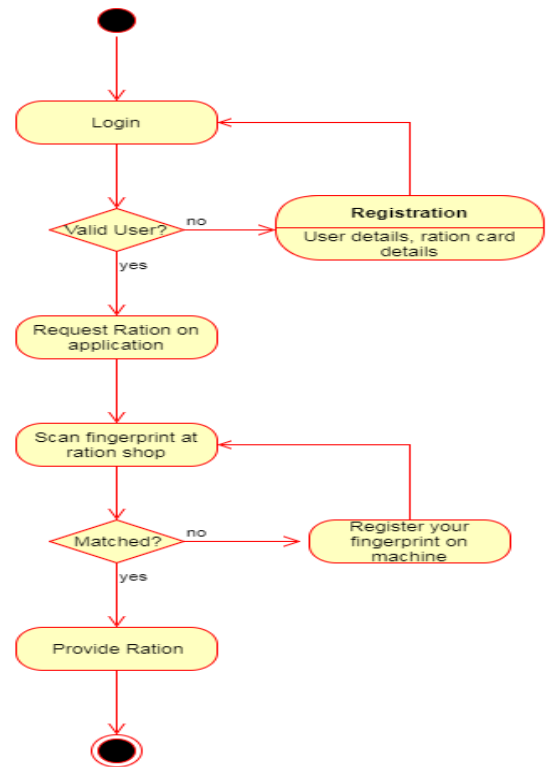


Fig 3.4 Activity diagram

Activity diagram in fig. shows flow of operations. If user found valid then only registration will successful otherwise he need to try again. If fingerprint matches with fingerprint ID stored in database Then only ration will get provided otherwise authentication failure occurs.

IV. COMPARISON OF EXISTING AND PROPOSED SYSTEM

SR NO.	EXISTING SYSTEM-1 (traditional ration book)	EXISTING SYSTEM-2 (POS machine)	PROPOSED SYSTEM (Android ration card)
1	Ration sheets are used.	POS Machine is used	Eliminate use/cost Of Ration sheets.
2	Manual entry in database	Automatic entry in database	Automatic Entry in database
3	Database is not updated	Database need to be updated from central office once in a month	Centralised database get updated instantly (not require to go Office made updating)
4	Slow process	Fast process	Very fast process

Table 4.1 Comparison table

V. CONCLUSION

Smart ration card system is based on android application instead of the orthodox Ration cards. This will help replace manual handling of data with automatic processing. The IoT based Ration card system will provide a way for efficient management and administration of Ration distribution system. This will also help curb corruption to a great extent.

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