Public Ration Distribution System for Smart City

Mahek Riyaz Memon
NDMVP's KBTCOE Nashik
Savitribai Phule Pune University, Pune, India

Shivani Rajendra Bhadane
NDMVP's KBTCOE Nashik
Savitribai Phule Pune University, Pune, India

Pooja Shivaji Hengde
NDMVP's KBTCOE Nashik
Savitribai Phule Pune University,Pune,India

Komal Rajesh Bafana
NDMVP's KBTCOE Nashik
Savitribai Phule Pune University,Pune,India

Abstract:- Public ration distribution system is one of the extensively problematic issues that involves corruption and unlawful disambiguation of good. One reason of this happen because in ration shop involves physical work and there is no particular technology involved in computerized the job. Particularly manual work calls a lot of inconsistent. Every Indian family is issued a ration card by Government of India and every family are granted to receive their food grains according the card. Every month the quota for food grains depends on their family income. As many families do not claim their quota of ration so shopkeeper sells the food grain at higher prices in outside market. So solution to this we are implementing system with biometric authentication with fingerprint biometrics for ration card holder. Biometrics data of all members of the family is also logged in card. We are providing voice recognition for illiterate people to avoid corruption and also provide a SMS for the people when ration is available in ration shop.

Keywords:- *Biometric, Authentication, Voice Recognition, Corruption, SMS.*

I. INTRODUCTION

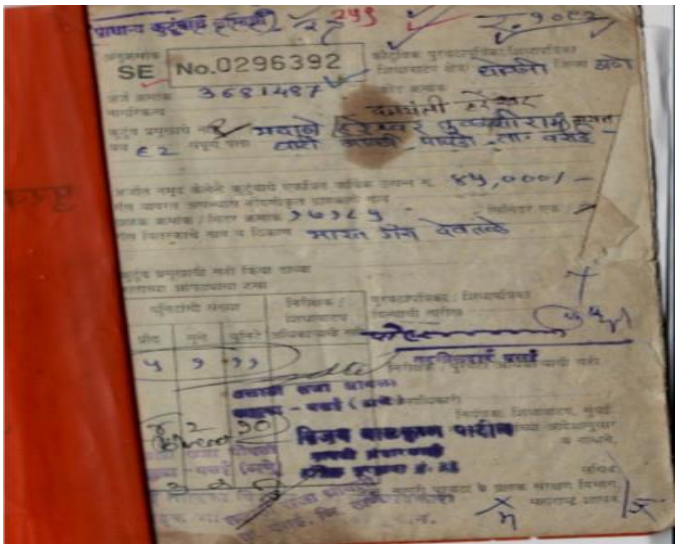
Government of India provides various facilities for ration and distribution towards to poor people but such facilities do not reach and up to needy and poor people due to corruption present in the chain of ration distribution all people must have valid a ration card to buy the any materials from the ration shop this material has to be taken from the shopkeeper at one time in month. If any consumer does not need to buy some material then there is no monitoring of such unused material. So the shopkeepers are doing misuse of this material buy selling in the market with market less and doing the corruption.

The ration card is mainly used for purchasing subsidized foodstuffs and fuel. It also provides connection with government database. The present ration card distribution system has many drawbacks such as inaccurate quantity of goods, manual work, low processing speed, large waiting time, and redundant data. Many times shopkeepers also indulge in forgery by providing ration under false names, in the names of ineligible people, dead people, and duplicate names from other areas. Shopkeepers also tend to show fake quantities of goods available in shop to higher authority person. Hence there is a need to improve our current corrupt ration distribution system.

Our proposed system eliminates the drawbacks of existing system by making use of voice recognition and biometrics technique. Biometric technique will be used to authenticate the users as biometric details are unique for each person, even of identical twins. Biometrics refers to metrics related to human characteristics. Biometrics authentication (or realistic authentication) is used in computer science as a form of identification and access control. It is also used to identify individuals in groups that are under surveillance. Voice recognition is the ability of machine or program to receive and interpret to understand and carry out. When user gives fingerprint on biometric then automatically the voice recognition is get started as well as from database check user is valid or not and then whatever ration is assign to that user is display on screen. According to that user take its ration. Further, all details will also get updated in government database at each level. To show transparency in the system, transaction detail will be sent to the customer's registered mobile number via SMS. Also maintain the month wise history on taluka level, district level and shopkeeper side.

II. RELATED WORK

Corruption is a major issue in today's fast growing world. That's why there are many researchers had contributed and come up with a different solution in order to avoid corruption. Ration distribution system in India mainly helps BPL category people by supplying them with food grains, kerosene, LPG, sugar, etc. at relatively cheaper rate. This system works in different levels. Registered shopkeepers get ration from government dealers. At different levels quantity information and other transaction details are maintained separately. All this work is done manually. Every family is provided with a ration card which is in simple paper diary format. This ration card includes each family member's name, age, gender and relation with family head. The ration card which is currently in use is as below



Author	Paper Title	Year	Technology	Limitations
Balekar Swati	Online Ration CardSystem by using RFID and Biometrics	2016	Every user is allocated with theRFID card andwhile collecting the ration it justshows card to ration shopkeeper that card is legal	1.More expensive 2.Every time need to carry the card
Mohit Agarwal, Manish Sharma	Smart Ration Identity Card based radio frequency identification and biometrics	Dec. 2015	Using biometrics it is providing the authentication to members of family and they can give the thumb and get the ration allocated to their family	Only used for authenticati on and as well as corruption is avoided
S.Sukumai ,K.Gopinat han,S.Kalp ana,P.Nave enkumar	IJIR in Electrical, Electronic Engineering "Automatic Rationing System using Embedded System Technology"	2014	In these proposed system,the ration distribution system is a automated by using PLC,which is a similar to the ATM.	When thumb is given then automaticall y the balance is reduced from the bank account.
S.Santosh	ICCPCT "Design and Development of Security module with In-built Neural Network methodologie s an advance technique on fingerprint recognition".	2014	Fuzzy logic neural network ANN biometric.	It is not applicable to non-consistent people.
S.Valamat h,R. Ramani	IJ Intelligent System and Application" Automatic ration material distribution based on GSM and RFID technology".	2013	RFID and GSM	To get the material in the ration shop need to show RFID tag into the RFID Reader.

Table 1. Literature Survey

III. PROPOSED ARCHITECTURE

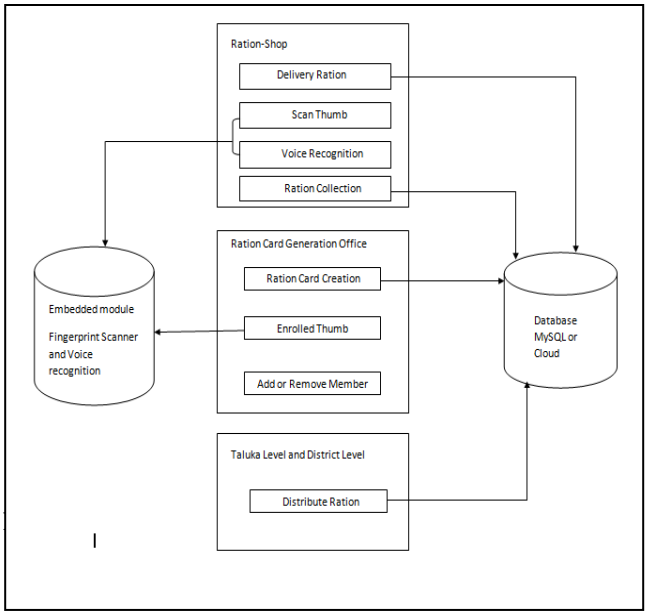


Fig 1:- Architectural Diagram of our System

In Architectural diagram consist of five components such as,
1. Ration shop
2. Ration Card Generation Office
3. Taluka and District Level
4. Embedded Module
5. Database

In ration shop delivery of ration, scan fingerprint, voice recognition and ration collection activity involved. When user gives their fingerprint on biometric then how much ration is allocated to their family is display then voice recognition is activated and they take their ration according to assign for their family by government. Ration card generation officer have the permission of ration card creation, enroll thumb, add and remove members of family activity are performed. In Taluka and District Level the state and district wise allocation of food. In embedded module fingerprint scanner and voice recognition [3] are connected with arduino. In database stored the all details of user and updates every time when they take the ration.

IV. MATHEMATICAL MODEL

S: -{I, P, R, and O} Let, S: Set of Input, Output, and Process

Input: -{I1, I2,I3}

I1=Thumb scanner

I2=Voice input

I3=Input data added by admin

Process: - {P1, P2, P3, P4, P5,P6,P7,P8}

P1=Match thumbs

P2=Speech Recognition

P3=Register new ration card

P4=Edit user

P5=Allocate ration

P6=Bill generation

P7=Send Message

P8=Maintain history

Output: -{O1, O2,O3}

O1=Update database

O2=Ration detail send on the user mobile

O3=Manage history

Venn diagram:

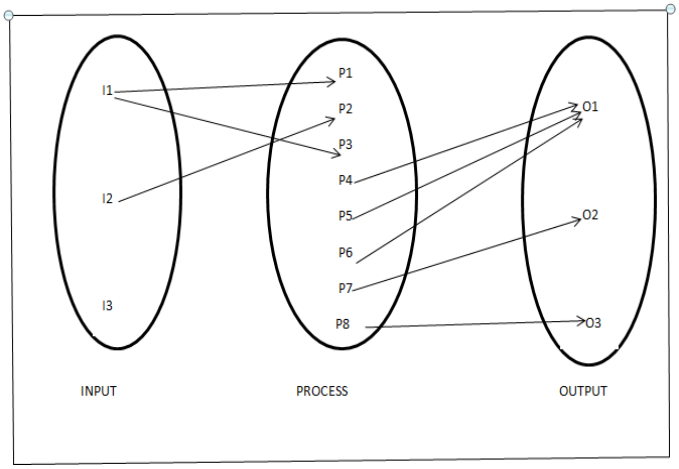


Fig 2:- Functional Diagram

V. ALGORITHM

A. SHA Algorithm

It is used to keep data secure. Hashing function is one of the most commonly used encryption method. Hash is special mathematical function that performs one way encryption. Its input process data is 512bit block.

SHA works with any input message that is less than 2^64 bits in length. The output of SHA is a message digest,which is 160 bits in length.

It having 2 features:-

1.Obtain the original message, given its message digest.
2. Find two messages producing the same message digest.

B. Algorithm Steps

Step 1: Append Padding Bit

Message is "padded" with a 1 and as many 0's as necessary to bring the message length to 64 bits fewer than an even multiple of 512.

Step 2: Append Length

64 bits are appended to the end of the padded message. These bits hold the binary format of 64 bits indicating the length of the original message.

Step 3: Prepare Processing Functions

The input message is divided into blocks, each of its 512 bits. These blocks become the input to the message digest processing logic.

Step 4: Initialize Chaining Variable

Five chaining variable A through E are initialized.

A = 0x67452301
B = 0xEFCDAB89
C = 0x98BADCFE
D = 0x10325476
E = 0xC3D2E1F0

Step 5: Process blocks

[a]Copy the chaining variable A-E into a-e.
[b]Divide the current 512 bit block into 16 bit block. Each consisting of 32 bits.
[c]SHA has four rounds, each round consisting of 20 steps.
[d]In this step logical operation of a single SHA iteration looks:
abcde=(e+ProcessP+s^5(a)+W[t]+K[t],a,s^30(b),c,d

Where,

abcde =The register made up of 5 variable a, b, c, d, e
Process P =The logical operation

S^t =Circular-left shift of 32-bits sub-blocks by t bits
W[t] =32 bit derived from the current 32 bit sub block
K[t] =One of 5 additive constants.

id	full_name	password	email	type	tahsil_name	parent	dateofBirth	address
1	demo	zdT4dAlQRf5uZnADjLvQX6ydSAI=	demo@gmail.com	DA	Pune	NULL	NULL	NULL
2	TA	AKa6Idpw8+eBlVnxDqaIuGPmF8Q=	ta@gmail.com	TA	Haveli	1	2017-04-14	pune
7	rcro	bZWJQLk7Vk9Dg/9QJ8c3/486uc=	rcro@gmail.com	RCRO	pune	2	2017-04-18	pune
8	rs	A6rgw2nyav34RNggv0Gx3jRK9s=	rs@gmail.com	RS	ration shop	2	2017-04-13	pune
9	demo	fEqNCco3Yq9h5ZUgID3CZJT4Bs=	demo1@gmail.com	TA	null	1	2017-04-14	pune
10	demo	fEqNCco3Yq9h5ZUgID3CZJT4Bs=	demo11@gmail.com	TA	Pune	1	2017-04-12	Pune
11	Sumit Patil	xj2jntEwkCOfcCwjblb9vnfpmwM=	sumit@gmail.com	TA	Dhule	1	1985-07-26	Nakane Road Dhule
12	Maya patil	E+UZGb372VGrr4YX4PfN44lv/Zc=	maya@gmail.com	RS	Sakri	11	2007-10-27	Sakri shevali
13	shivani bhadane	kEdSrZxK5BhsS0XMhxRfeBhhwI=	s@gmail.com	TA	malegaon	1	1998-08-25	malegaon
14	komal	IaTtCgz2B+d+k792BOK7GtB3V8U=	k@gmail.com	RS	dindori	13	2004-09-27	dindori
15	da_Nashik	zdT4dAlQRf5uZnADjLvQX6ydSAI=	danashik@gmail.com	DA	Nashik	NULL	2000-07-08	Nashik
16	komalDindori	ml4vi4D5CN16w73YeX4twIDUl34=	kd@gmail.com	TA	Dindori	15	12-08-1996	Dindori
17	komalRationShop	rP6v9uWAbvWDyspIy97+owB4wE=	krs@gmail.com	RS	Nashik	16	12-07-1996	Nashik
18	userkomal	JLrYvvfti87fFD99QoN/rpM1GBc=	uk@gmail.com	RCRO	nashik	16	12-09-1888	Nashik

Fig 3:- Password Encryption

C. Working flow of our system:-

- Registration of District Admin.
- Login to District Admin to register Taluka Admin, distribute ration, Allocation of ration according Taluka, list ration card, collection of payment.
- Login to Taluka Admin for registration of Ration card Registration Office(RCRO) and Ration Shop(RS), distribute ration to shops, see ration stock, list ration card.
- After all this RCRO created by Taluka Admin they register new ration card, list ration cards, edit ration card, add/remove family member.
- After registration of RCRO the user gives their thumb for authentication using biometrics and stored in database.
- Login the ration shopkeeper to distribute ration to user.
- Then user verifies ration card Id and thumb id, if both matches it proceed to take the allocated ration.
- It displays all the information like ration card Id, Card type, and assigned ration.
- Then users speak whatever ration they want through voice recognition and that will update in database.
- After this load will calculated by load sensor and it also updated in database.
- If both data is matched it proceed further process.
- According to their ration bill will be generated and through SMS total payment receipt will send to user register mobile number.

VI. EXPERIMENTAL SETUP

The experimental setup for the proposed system will consist of a database, biometrics, voice recognition, load sensor and system at ration shop with installed proposed system application. A different platform and technology, which are used for building this proposed system, are as follows:

- Operating system: Windows
- Language: Core Java.
- Database: MYSQL.
- Mobile Phone.

VII. OUTCOMES

- To help public to get there ration easily
- To provide voice recognition for illiterate people
- Also provide biometrics for authentication
- SMS notification on mobile
- Stock maintenance in distribution center
- Food security while generating the bill

VIII. CONCLUSION

Using this proposed system we can have better management of Ration distribution system. Government can have indirect check on availability of the ration to the beneficial .It is transparent and has control over prizes of some commodities in open market. Dealers will be not able to keep fake ration card with them. Our system will help to modernize the traditional ration distribution and also compact the corruption.

IX. ACKNOWLEDGMENT

We express are heartily gratitude towards Dr. V. S. Pawar, Head of Computer Engineering and Prof. P. V. Shinde, project guide for guiding us to understand the work conceptually and also for her constant encouragement to complete this Project work on "Public Ration Distribution System for Smart City" and we also express our thanks to ma'am for providing necessary information and providing the resources. With the deep sense of gratitude we thank our Principal Dr. K. S. Holkar and Management of the NDMVP Samaj for providing all necessary facilities and their constant encouragement and support.

REFERENCES

[1]. Jinali Goradiaa, Sarthak Doshiba , "Automated Ration Distribution System" Student at University of

Texas,Dallas,7825,McCallum Blvd, C00516,Dallas, TX 75252, USA.bTechnology Analyst, J.P.Morgan Chase, 128/6, Laud Bhuvan, Road no-24A, Jain Society, Sion west,Mumbai-400022, India.

[2]. Balekar Swati D, Kulkarni Rituja R, "Online Ration Card System by using RFID and Biometrics", International Journal of AdvancedResearch in Computer Science and Software Engineering, 2015.

[3]. M. Agarwal, M. Sharma, B.Singh, Shantanu, "Smart Ration Card Using RFID and GSM Technique", International Journal of ComputerApplication(IJAC), 2014.

[4]. S. Valarmathy , R. Ramani "Automated Ration Material Distributions Based on GSM and RFID Technology" I.J. Intelligent System and Applications,2013,11,47-54.

[5]. S.Sukhumar, K.Gopinatan, S.Kalpanadevi, P.Navinkumar, N.Suthanthira vanitha,"Automatic Rationning System using Embedded System Technology", International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering vol.1,Issue 8,November 2013.

[6]. Basanta Kumara*, Brajraj Mohantyba]"Public distribution system in rural India : Implications for food safety and consumer protection" Utkal University, Bhubaneswar, IndianXavier Institute of Management, Bhubaneswar, India.

[7]. Anshu Prasad1, Aparna Ghenge2, Sonali Zende3 Prof. Sashikala Mishra4 Prof. Prashant Gadakh5 "Smart Ration Card Using RFID,Biometrics and SMS Gateway" Department of Computer Engineering International Institute of Information Technology SavitribaiPhule Pune UniversityPune, Maharashtra.