

Design and Implementation of Ration Distribution System to Stop The Corruption Using AVR

Ms. Chaudhari Rita Ravindra
Electronics and Telecommunication
Govt. College of Engineering,
Jalgaon, India.
e-mail: ritachaudhari1993@gmail.com

Prof. M. R. Dhotre
Electronics and Telecommunication
Govt. College of Engineering,
Jalgaon, India.

Abstract — Public distribution system is one kind of widely controversial offices that involves corruption and prohibited smuggling of goods. All this happens because every job in the ration shop involves manual work and there are no exact hitech technologies to automate the job. This concerns the illegal entry in the registers of the shop about the amount of goods given to the consumers. Huge amount of Govt. money get wasted due to corruption in the conventional Ration Distribution System. The proposed concept is to replace the manual work in public distribution system. The ration distribution system is automated by using embedded system technology, which is similar to the ATM. This automated ration system replaces the conventional ration card system by smart card. In addition, the finger print smart card is placed in the machine in order to check the correct user access. If the user is correct user, the next process takes place. As soon as the input is given, the products are obtained from the automated ration shop and the amount is taken from account of the particular person. The embedded controller is preprogrammed in such a way to perform the similar operations. In this automated ration shop government have control over all transaction that occurs in ration shop. In order to involve government in the process, the proposed ration shop system is connected to the government database via GSM modules, which further sends the up-to-date information to the government and the consumer. For the efficient operation and economic constraints of the system, the power supply unit is fully made alternate to solar power.

Keywords-Corruption; Ration Distribution System; Finger print module; GSM; RFID Reader ;

I. INTRODUCTION

The ration distribution system is one of the largest government's economic policies in India. Its main motto is to provide food grains (sugar, wheat, rice, kerosene etc.) to the people at affordable rates. The network of the ration shops is spread all over in India to provide food security to the people. This distribution of ration is controlled and monitored by central government, along with the state government. But it has so many limitations. Most of the ration shopkeepers keep fake ration cards with them. Due to fake ration cards, the dealer receives the extra ration from higher authority and he sales it into the open market. The dealer may not provide a sufficient amount of food grains to consumers. Most of the time people are not aware of the availability of ration in ration shop. The dealer may sale ration at higher rates than recommended by the government or he may do wrong entries in register. In this way, in the current situation we are facing problem of corruption in public distribution system. There is no such effective system through which government gets acknowledgement of consumption of food grains by people. Ration distribution an initiative by the Government of India under Ministry of Consumer Affairs, Food and Public Distribution intend for the distribution of commodities to destitute at fair price. In the projected system we use RFID Technology. One of its parts, a RFID tags hold a unique ID is issued to all the BPL card bearers. Here RFID tag (Smart Card) and the biometrics serves the purpose of authentication. Information and the fingerprint impression of the head of the family and one of the family members are cached in the

centralized database whose access is only legitimized for a government authority. The first of the two authentication steps needs the beneficiary to swipe the Smart Card against RFID Reader installed at the FPS and the second step towards an authentication is that he/she should scan the fingerprint of his/her thumb against biometric. On matching his/her fingerprint with the id stored in the device, an appropriate fingerprint id interface with database to checks for valid beneficiary's information. Once authenticated, updated information is obtained by automated ration system concerning the existing subsidies for the beneficiary onto the main interface. A beneficiary is permitted to take only those subsidies on products apportioned to him/her by government according to the available database inventory. After every transaction made by the beneficiary, centralized database is immediately updated and he/she will be sent a SMS (Short Message Service) specifying the quantity of commodity bought by him/her. With implementation of the projected system prime issues like bribery, uneven distribution and other difficulties faced by beneficiary can be terminated. Public distribution system (PDS) is one of the important provisioning systems in our Indian country. This PDS is recognized by the Government of India subordinate Ministry of Consumer Affairs, Food, and Public Distribution. This scheme was launched in India on June 1997. The fair price shops are mainly used to distribute the goods with low cost or free of cost. It is a concern of India's public distribution System implanted by Government of India, which distributes rations at a subsidized price to the poor. In India approximately 500000

fair price shops are available. Here the Major commodities distributed include essential food grains, so much as wheat, rice, sugar, and kerosene, through a network of public distribution shops constituted in several states across the country. The central and state governments joint the responsibility of regulating the PDS. While the central government is obligated for procurement, storage, conveyance, and majority allocation of food grains, state governments holds the province for distributing the aforesaid to the consumers through the ingrained network of Fair Price Shops (FPSs). State, governments are also responsible for functional obligation, including allotment and identity of families below the poverty line, misuse of ration cards, superintendence and monitoring the functioning of FPSs. The Indian ration card is the authority of the Indian peoples.

II. LITERATURE SURVEY

The most of the people having a ration card to buy the materials from the ration shops. When get the material from the ratio shop, first need to submit the ration card and they will put the sign in the ratio card depends on the materials. Then they will issue the materials through weighting system with help of human. There is chance to sell the material to unauthorized person without intimation to owner.

Mr. Abhijeet Chingave et.al. [1], this project proposes a transparent and highly scalable Ration Distribution system with authentication for Ration Card Holder. Every time ration is collected by the family is logged into the RFID (smart) card. Family information of the user is also logged in the card. Every time before ration collection, the authorized person needs to go through the verification phase. Once verification is done, quantity that he collects is also logged into the system. Therefore not only false and dummy card ration collection is avoided but at the same time a proper log of quantity par product acquired by the card holder is also tracked. This architecture replaces the conventional paper ration book with RFID based smart card.

Bharati Chilad et.al. [2],The proposed system replaces the manual work in FPS. The prime 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 tags are issued to a beneficiary instead of conventional Ration Cards. Beneficiary's information along with the finger print 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 the government authority. Beneficiaries have to scan the RFID Smart Card against RFID reader after which he/she should scan the fingerprint

of his/her thumb against biometric, and then an appropriate fingerprint id checks for valid beneficiary's information in the database, after 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.

Kashinath Wakade et.al. [3], this paper implements a simple PDA device (personal data assistant) with RFID tag used as an e-ration card in place of a conventional ration card. This PDA device is similar to the ticketing machine used by bus conductor or bank pigmy agent and the e - ration card is similar to swipe card. The Subscriber has to use this card instead of a traditional ration card to get ration from the dealer.

M.S.Manivannan et.al. [4], the project proposes an approach to automate all the above said manual jobs and the whole thing from data entry to weighing to hammering is prepared by machines and the people have no hand in that. This provides high reliability and there brings a sense of truthfulness to the people. Further, as all the data allocation is prepared by the computer and it can keep track of all the data and the entire process of data maintenance is taken care of by the PC and hence no possibility of mistakes and practically no manual work. Here instead of a Ration card, a Smart Ration card will be used for the purpose of authorizing and subsequently the person's finger print will be matched for authentication. After that the consumer to select the materials and then dispense the materials based on ARM controller. After dispensing the materials the government head office receives the delivery Report from the PC with the help of GSM.

S.Valarmathy et.al. [5], 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.

A. N. Madur, Sham Nayse [6] Automation in Rationing System using Arm 7, this system is based on radio frequency identification of customer. Here each customer is provided with RFID cards. In this system, by

using RFID and by entering the password we can access. First user is authenticated, then system shows the balance of person. User have to enter the amount of Kg he want to withdraw. System checks his account. If the user will have sufficient balance to withdraw the current amount, system will open the valve. Through valve grain will come and it will get weighted by weight sensor. Once the count reached the entered amount controller automatically shut down the valve and update the account of the customer. The updated account information is send to the customer's mobile using GSM module. In this system the data base customers can be made with their account details, password etc.

Rajesh C. Pingle, P. B. Borole [6] Automatic Rationing for Public Distribution System (PDS) using RFID and GSM Module to Prevent Irregularities, In this automated system conventional ration card is replaced by smartcard in which all the details about users are provided including their AADHAR (social security) number which is used for user authentication. This prompted us to interface smart card reader (RFID Based) to the microcontroller (AT89C51) and PC via RS232 to develop such a system. Using such a system, Government would have all required control/monitoring over the transactions at ration shop. To involve government in the process we proposed connecting the system at ration shop to a central database (provided by government.)Via GSM module(SIM900D) and RS232. Hence it is possible to prevent the corruption and irregularities at ration shop. This would bring the transparency in public distribution system and there will be a direct communication between people and Government through this.

S. Valarmathy, R. Ramani [7] Automatic Ration Material Distributions Based on GSM and RFID Technologyl, proposed to use RFID and GSM technology based Ration cards by showing the RFID tag into the RFID reader. Then the controller checks the customer codes and details of amounts in the card. After verification, these systems show the amount details. The customer need to entered the required materials by using the keyboard, after receiving the materials controller send the information to government office and customer through GSM technology. In this system microcontroller is used for executing the process.

K. Balakarthik ,[8] Cloud-Based Ration Card System using RFID and GSM Technology, Presents an efficient method for the user to buy the products in the ration shop by just flashing the card at the RFID reader at the ration store. The user authentication is done by sending a random password text to the user mobile which has to be entered in a keypad. The purchase is validated by the employee only after the details are entered in a windows

application which stores the user's personal and purchase information. Here the user can check their purchase details in a dedicated website.

Dhanojmohan, Rathikarani, Gopukumar[10], proposed Automation in ration shop using PLC proposed a methodology for ration shop automation using embedded PLC. Further the updating to the government database about the stock available and the customer details were not carried out.

III. EXISTING SYSTEM

The most of the people having a ration card to buy the materials from the ration shops. When get the material from the ratio shop, first need to submit the ration card and they will put the sign in the ratio card depends on the materials. Then they will issue the materials through weighting system with help of human. 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.

The present PDS works in a multiple level where the responsibilities are shared between center and state. The task of procuring or buying food grains such as wheat and rice at minimal cost is the responsibilities of center Allocation of the grains to each state in carried out by center. While the state government are responsible for the identification of household eligible to avail the facilities. The process runs as follows, the grains are transported by the center to every state's central depot, after which the allocated food grains are delivered to respective FPS through state government. Finally FPS being the end point sells the entitled commodities to beneficiaries.

In the existing system, tasks like product distribution, Ration Card entry, product weighing and delivery of the product are carried out manually by FPS agent. However a present system has diverse drawbacks involved, developing irregularities in the system. Some of the irregularities include replacing actual products dispensed by the government with meager quality products and supplying the same for the beneficiaries, diverting food grains to open market to make profit, false entries in the stock registers that FPS agent needs to maintain and false announcement of deceit in food grains.

IV. PROPOSED SYSTEM

In this project, the proposed concept is to replace the manual work in public distribution system. The ration distribution system is automated by using embedded system technology, which is similar to the ATM. This automated ration system replaces the conventional ration card system by smart card. In addition, the finger print smart card is placed in the machine in order to check the correct user access. If the user is correct user, the next process takes place. As soon as the input is

given, the products are obtained from the automated ration shop and the amount is taken from account of the particular person. The embedded controller is preprogrammed in such a way to perform the similar operations. In this automated ration shop government have control over all transaction that occurs in ration shop. In order to involve government in the process, the proposed ration shop system is connected to the government database via GSM modules, which further sends the up-to-date information to the government and the consumer. For the efficient operation and economic constraints of the system, the power supply unit is fully made alternate to solar power.

V. SYSTEM ARCHITECTURE

This ration distribution system mostly performed to reduce the corruption and reduce the wastage of time. Because in our system the goods are distributed automatically without any manpower. Fig. 1 explains the basic module of automatic materials distribution and stock maintenance based on smart ration card technology. This system consists of the AVR Microcontroller, smart card, motor driver, LCD and GSM. The

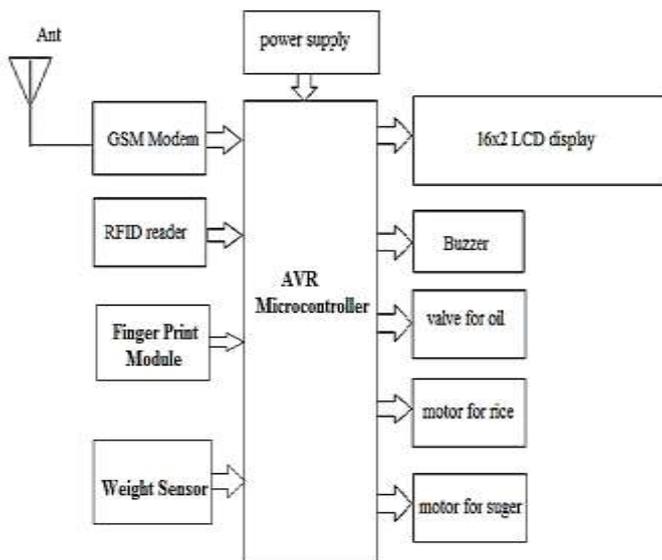


Figure 1 Block Diagram of the System

proposed system expresses sharing of grains as well as liquids. The block diagram of an Automatic Ration Materials Distribution Based on GSM and RFID Technology is shown in Figure 3.1 This system consists of various parts such as RFID, Finger print module, GSM, microcontroller, motor driver, solenoid control circuits and AVR microcontroller

A. Working of System

In this proposed system when the ration of the peoples is send by govt. Then system will get activated in the ration shops, the particular user gets SMS on his mobile number about the ration send at PDS shops. Every user is provided by the smart card, the user have to come with smart card at the PDS shop. First he will scan the smart card by rfid scanner then the thumb impression will be verified. If the user is get validate

the ration distribution system gets activated, on LCD display step by step the ration names is appears according to that the user will conduct his ration. At the end, user gets an acknowledgement through SMS regarding ration.

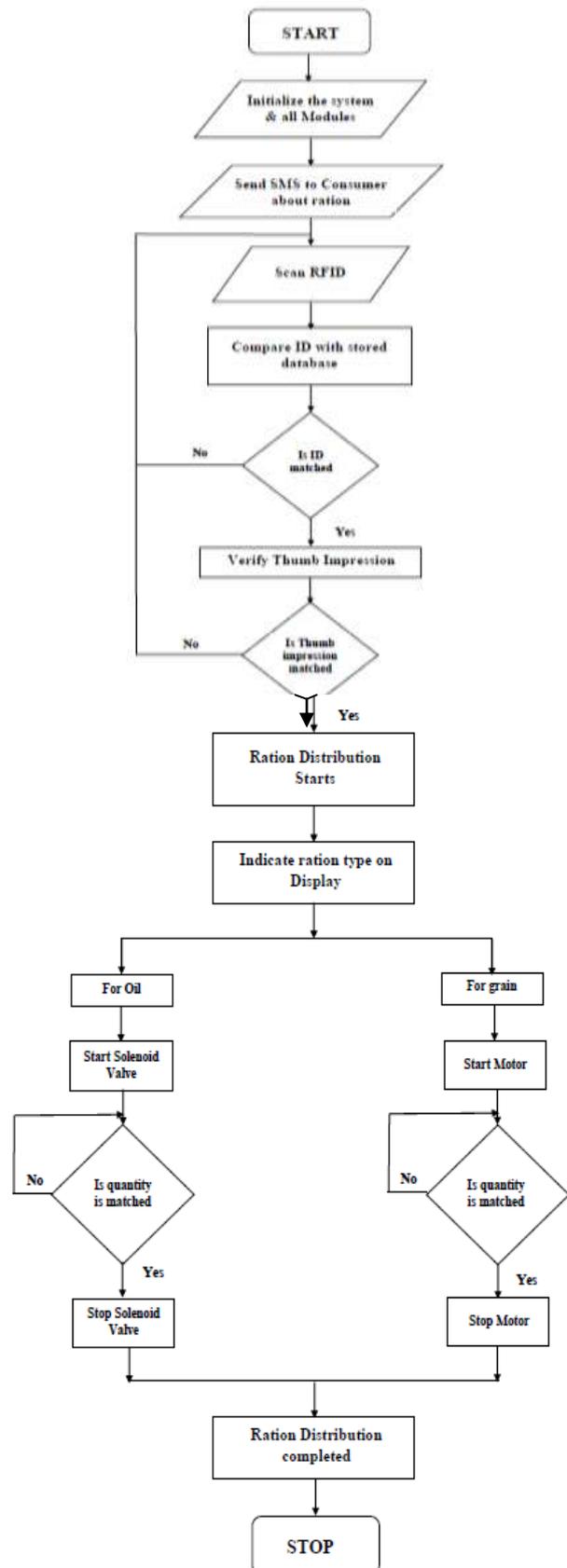


Figure 2 Flow Chart of System Working

VI. CONCLUSIONS

B. Advantages

- Corruption in the Government and market sector can be prevented if this system becomes automated.
- Increased adulteration in consumables can be prevented.
- Cost effective approach.
- Time saving approach.
- This system helps to maintain the data properly

B. Conclusions

In ration shop several drawbacks are there like material robbery, corruption, malpractices, long waiting time to collect materials, low processing speed. To overcome above problems the mechanized rationing scheme is needed. Here the automatic ration shop concerned smart card and controller for distributing the materials. At this time ration card is changed by smart card and send the stock details to government head office using GSM module. Here all the works are done automatically without any manpower. So this proposed system used to avoid the corruption, goods theft, forgery and also they reduce the user's waiting time. This system also suggested maintaining the stock details properly and updating the details easily. They provide a secure, safe and efficient way of fair price shops.

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