



# INTERNATIONAL JOURNAL OF PURE AND APPLIED RESEARCH IN ENGINEERING AND TECHNOLOGY

A PATH FOR HORIZING YOUR INNOVATIVE WORK

## AUTO RATIONING SYSTEM

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Accepted Date: 15/03/2016; Published Date: 01/05/2016

**Abstract-** Public distribution system i.e. rationing distribution is one of the widely controversial issues that involves corruption and illegal smuggling of goods. All these happen because every job in the ration shop involves manual work and there are no specific high-tech technologies to automate the job. Because of involvement of manual work there are lots of illegal activity occurs. The illegal activities are like, wrong entry in register of shop about the amount of products that given to the people, sometimes there are chance of distribution of low quality goods than actual provided by government for poor people; people do not have idea about how much quantity of goods provided by government to them etc. In this paper we propose the concept about to replace manual work in public distribution system by automated system which will be installing at the ration shop. In this automated system we replace the convectional ration card by user thumb, the user database already stored in the system which also including their "AADHAR" number and other information. In This system we interface thumb module to the microcontroller (AT89C52) and PC via MAX232. Government should have control over all transaction happen at ration shop, to involve government in the process we connected the system which is at ration shop to the government database via GSM module and MAX232.

**Keywords:-** At Commands, Gsm Module, Thumb Module, Microcontroller.



PAPER-QR CODE

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Access Online On:

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How to Cite This Article:

A. V. Kalaskar, IJPRET, 2016; Volume 4 (9): 545-552

## INTRODUCTION

India's Public Distribution System (PDS) with a network of 4.78Lakh[3] Fair Price Shops (FPS) is perhaps the largest retail system in the world. Major problems due to this system are the inefficiency in the targeting of beneficiaries and the resulting leakage of subsidies. The TPDS system today supports over 40crore Indians below the poverty line with monthly supply of subsidized food grains. The Government of India is providing a unique ration card to each family which getting ration. In that system various products like Rice, sugar and kerosene are distributed using conventional ration shop system. Some of the limitations of conventional ration shop system are Due to the manual measurements in the conventional system, the user can not able to get the accurate quantity of material. And also there is a chance for the illegal usage of our products in the conventional system. i.e. the materials are robbed by making wrong entries in the register without the knowledge of the ration card holder. Due to that large amount of money given by government gets wasted. The Ration shops cannot able to meet the requirements of the user due to the over population of our country. So the processing speed is low As a result, there is always crowd of people in the ration shop. Due to the human operations the working hours of the ration shops get restricted, so that the user cannot able to get the material at any time i.e. 24 \* 7 bases.

To overcome those problems, we are going for the Automation of ration shop. In this project we designed the hardware for two commodities namely Sugar and Kerosene. These two commodities are stored in reservoir tanks and they are measured and supplied to the user as and when required. The user has to enter the required product and quantity using a computer. Auto Rationing Dispensing System presented here is an advanced system useful for the automatic & more efficient way of ration distribution. This project is designed to minimize the manual intervention in the process of ration distribution, so that more transparency & efficiency can be maintained.

## REVIEW OF LITERATURE

"Automatic Rationing System Using Embedded System Technology" [2013]: In this research paper, the proposed concept is to replace the manual work in public distribution system. The ration distribution system is automated by using PLC, which is similar to the ATM. This automated ration system replaces the conventional ration card system by smart card. In addition, the finger print detector is placed in the machine in order to check the correct user access. If the user is correct user, the next process takes place and the input can be given in the touch screen. As soon as the input is given, the products are obtained from the automated ration shop and the amount is taken from the bank account of the particular person. The embedded controller is pre-programmed 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. S.Sukhumar, K.Gopinathan, S.Kalpanadevi, P.Naveenkumar, N.Suthanthira Vanitha,

"SMART RATION CARD" [2013]:This paper proposes the improvised technique of implementing smart ration card. The main objectives of smart ration card are providing

food grains and other essential items to vulnerable sections of the society at reasonable (subsidized) prices and to eradicate inefficiency in the targeting of beneficiaries and the resulting leakage of subsidies which is the main disadvantage of the present PDS (Public Distribution System). These objectives can be achieved by creating a unique database of residents in India and will put together the best technologies and processes for this purpose. This will lead to a database without duplicate entries and ghost cards which will help to avoid illegal and bogus claims and fraud in distribution of ration. Vikram Singh, Vellanki Aamani, Booreddy Mounika.

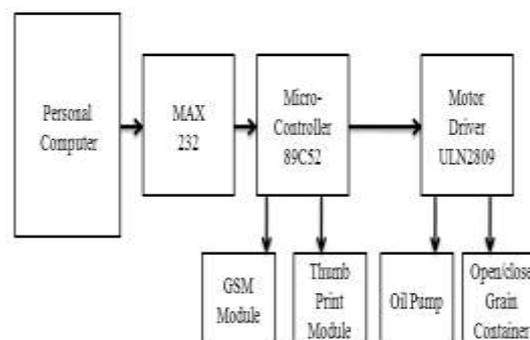
“Automation of Ration Shop Using Plc” [2013]: Automatic Ration Dispensing System presented here is an advanced system useful for the automatic & more efficient way of ration distribution. This project is designed to minimize the manual intervention in the process of ration distribution, so that more transparency & efficiency can be maintained our project focuses on design and implementation of Automation of Ration Shop. In recent scenario, all the public and private sectors go for automation in their process. Civil Supplies Corporation is the major public sector which manages and distributes the essential commodities to all the citizens. In that system various products like Rice, sugar and kerosene are distributed using conventional ration shop system. Some of the limitations of conventional ration shop system are Due to the manual measurements in the conventional system, the user can not able to get the accurate quantity of material. And also there is a chance for the illegal usage of our products in the conventional system i.e. the materials are robbed by making wrong entries in the register without the knowledge of the ration card holder. Due to that large amount of money given by government gets wasted. The Ration shops cannot able to meet the requirements of the user due to the over population of our country. So the processing speed is low As a result, there is always crowd of people in the ration shop. Dhanoj Mohan, Rathikarani, Gopakumar.

“Multi-Modality Biometric Assisted Smart Card Based Ration Distribution System” [2014]: Every Indian family is issued a Ration Card by Government of India and the families are entitled to receive subsidized food grains against the card. Quantity of different grains like rice, wheat is fixed for every month for the families depending upon their income. However many families do not claim their quota of ration and yet few families manages to acquire card of other families. This has lead to anarchy and black marketing of the subsidized product. As a solution to aforementioned problem this paper proposes a transparent and highly scalable Ration Distribution (Food Distribution) system with biometric authentication with face and fingerprint Biometric for Ration Card Holder. Every time ration is collected by the family is logged into the smart card. The data logging system is connected with cloud to maintain a centralized inventory across the nation. Biometric data of one member of the family 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 per product acquired by the card holder is also tracked. This architecture replaces the conventional paper ration book with RFID based smart card. Yogesh Kumar Sharma, Dr K B ShivaKumar, Srinidhi G Aand Dr Manoj Kumar.

“Automatic Rationing for Public Distribution System (PDS) using RFID and GSM Module to Prevent Irregularities” [2013]: Public distribution system i.e. rationing distribution is one of the widely controversial issues that involves corruption and illegal smuggling of goods. One reason of this to happen is because every job in the ration shop involves manual work and there is no specific technology involved in automating the job. Involvement of manual work calls lots of irregularities. These irregularities or illegal activities are for example - wrong entries in stock register of shop containing wrong stock information of the products that is supplied to the public, sometimes there are chance of distribution of low quality/graded products than the actual products provided by the Government for supplying to the public, also the information regarding the actual available stock quantity in a ration shop that is provided by the Government to the public. In this paper we propose the concept of replacing manual work/job in public distribution system (rationing distribution system in India) by automated system which can be installed at the ration shop with ease. In this automated system we replace the conventional ration card by smart card 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 MAX232 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 Govt.) 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 as there will be a direct communication between people and Government through this. Rajesh C. Pingle and P. B. Borole.

So these are the review of the authors, with the help of this data I am going to propose a system which will automate the manual work with the automated rationing system. In this paper three components are playing important role those are Microcontroller AT89C52, GSM Module and Thumb Module.

## BLOCK DIAGRAM



**Fig: 1. System Block Diagram**

1. Thumb Module: It includes two parts: fingerprint enrollment and fingerprint matching (the matching can be 1:1 or 1:N). When enrolling, user needs to enter the finger two times. The system will process the two time finger images, generate a template of the finger based on processing results and store the template. When matching, user enters

the finger through optical sensor and system will generate a template of the finger and compare it with templates of the finger library. For 1:1 matching system will compare the live finger with specific template designated in the Module; for 1:N matching, or searching, system will search the whole finger library for the matching finger. In both circumstances, system will return the matching result, success or failure.

2. GSM Module: It is a device which serves a connection to exchange information/data between auto rationing system, user and the central database provided by the Government.
3. MAX 232: The MAX232 Device is a dual driver/receiver that includes a capacitive voltage generator to supply TIA/EIA-232-F voltage levels from a single 5V supply. As it is a voltage level matcher as microcontroller required less voltage as compare to the PC for that purpose the MAX232 is used.
4. Microcontroller: The AT89C52 is a low-power, high-performance CMOS 8-bit microcomputer with 8K bytes of Flash programmable and erasable read only memory. The device is manufactured using Atmel's high-density nonvolatile memory technology and is compatible with the industry-standard 80C51 and 80C52 instruction set and pin out. Here we are using the microcontroller 89C52 for interface the whole system with the PC.
5. Motor Driver ULN2803: The ULN2803A device is a high-voltage, high-current Darlington Transistor array. The Device consists of Eight NPN Darlington Pairs that feature high-voltage Outputs with common-cathode clamp diodes for switching inductive loads. For interface the microcontroller with the solenoid valve of gain and kerosene container for that uln2803 is required.
6. PC: The personal computer is used for the data storage purpose as well as it used to provide the GUI for operating the whole system.

### 3. WORKING PRINCIPLE

The proposed system aids to control malpractices which are present in ration shop by replacing manual work with automatic system based on kerosene are distributed using conventional ration shop system. Some of the limitations of conventional ration shop system are Due to the manual measurements in the conventional system, the user can not able to get the accurate quantity of material.

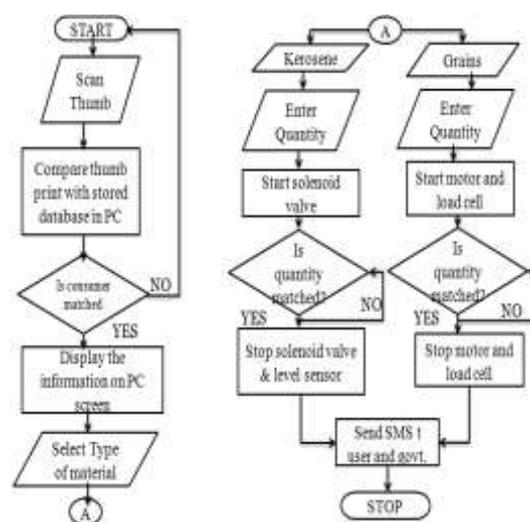
To overcome the problems in current system, we are going for the Automation of ration shop. In this project we designed the hardware for two commodities namely Sugar and Kerosene. These two commodities are stored in reservoir tanks and they are measured and supplied to the user as and when required. The user has to enter the required product and quantity using a computer. Auto Rationing Dispensing System presented here is an advanced system useful for the automatic & more efficient way of ration distribution. This project is designed to minimize the manual intervention in the process of ration distribution, so that more transparency & efficiency can be maintained.

Thumb Module and GSM. Every consumer is having their unique thumb print, so by pressing their thumb on the thumb module the ration can be obtained, the thumb module is interfaced with microcontroller kept at ration shop.

Once consumer is validated by their unique thumb print, the system will display the information regarding that user then consumer has to select appropriate material and quantity of material through PC. Based on material chosen by consumer, appropriate circuitry will be activated and consumer gets material. GSM interfaced with microcontroller sends information in the form of SMS to related people and to the government. The proposed Thumb module based automatic ration shop system would bring transparency in public distribution system and become helpful prevent malpractices.

Thumb module based automatic ration shop is novel approach in public distribution system (PDS) useful for more efficient, accurate, and automated technique of ration distribution. Public distribution system also called rationing distribution system is one of the widely controversial issues that involve malpractices. The present ration distribution system has drawbacks like inaccurate quantity of goods, low processing speed, large waiting time, material theft in ration shop. The proposed system replaces the manual work in ration shop. The main objective of the designed system is the automation of ration shop to provide transparency.

#### 4. ALGORITHM



**Fig: 2. System Flowchart**

Algorithm of proposed system is:

1. At the time of ration distribution at ration shop, first thumb print of consumer is verified.
2. Verify the User ID with the database provided by the Government authority which is stored in the PC database.
3. Select type of material and quantity required through PC after verification is successful.
4. Activate the motor or solenoid valve based on type of material chosen.
5. Proper quantity is checked by the load cell or level indicator.
6. Motor or solenoid is disabled after collecting proper quantity of material.
7. SMS is send to the user as well as PDS authority using GSM module.
8. PC screen displayed current stock in the ration shop.

## 7. ADVANTAGES

This new design concept has following advantages:

- The system will help to reduce the manipulation in current system thus help to minimize the corruption.
- Fully automated system which reduces human efforts.
- As there is no human intervention so the system handles data properly.
- Authentication processes when taking in put allows only the authorized person to take ration hence invalid person are not allowed to take ration.
- Food grains will be directly supplied from the FCI. Thus, no involvement of middlemen removes adulteration or inferior stock and black marketing practices.
- Hi Tech Security from theft and other malpractices. Cost effective method.
- Transparent transactions and operations.
- Time saving approach.
- It will not cause any losses to Government.
- Better Quality of supply
- Better service reliability

## 8. CONCLUSION

This paper is for a proposed system which automates the process of ration distribution by the government. Efforts have been made to design this system which will overcome all the drawbacks present in traditional i.e. current public distribution system. This presented system possesses many strong features like accuracy, authentication, convenience, minimum human interference etc. By automating the entire process, the Government can have access towards the process and will also provide a great change towards PDS outlook. The three step user authentication and also Hi-tech security from theft and other malpractices makes it more reliable. The design contains elements that are affordable for actual implementation. Corruption can be eradicated.

Indian economy can be boosted to new heights. In this system, the power is in system's hand rather than any human being so that the occurrence of fraud can be removed easily. The proposed rationing system is devoid of the requirement of Govt. appointed ration shop owner, maintenance of receipts and ration card and also the possibility of hoarding. People can take the ration goods easily and securely by using this mechanized system.

## 9. FUTURE SCOPE

1. We implement this system in regional language so can people become more familiar with this system.
2. Villages having the electricity problem so by connecting solar panel to this system the electricity issue can be eliminated.
3. We can also give the employment to the educated people who don't have job they can place as an operator for this system.

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