

**RESEARCH ARTICLE****Automated Ration Distribution System**

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**ABSTRACT**

Nowadays, corruption is found at every levels in hierarchy of society, from politics to even a normal government offices, its shows how any random individual, government employee or related person is corrupted or involved directly or indirectly .The root cause behind this corruption is manual work that is paper work, recording of data, information, records in form of hardcopy, which in turn gives rise to irregularities with audits of data, records misplacement of data etc. This is the normal scenario in today's life. Thus, such an scenario is commonly seen on an Public Distribution Booth or shop, where in ration card holder are audited manually by a distributor therefore, no Transparency is seen, which leads to irregularities, stocking of grocery material, forgery etc. Thus, in order to prevent this issue an automated system has become a necessity. In this paper, an automated system for the ration distribution is proposed which is implemented to avoid smuggling, stocking of grocery material The proposed work describes an integrated automated RFID and GSM based paperless system that converts physical form of manual filling of data into ration book, by providing controlled access to the users, through means of radio frequency identification (RFID). User's rather human entities are based on their role, tasks and their position. Therefore, the resultant automated system provides improvement in terms of controlled access at particular ration shop, making distribution process free from false record auditing and performing stock distribution in fastest way that enhances the overall performance and efficiency in the workflow.

**Keywords:** RFID, GSM, RFID Tag

**INTRODUCTION**

In today's Indian society, most of the people are having a ration card to buy the materials from the ration shops. When they go to get the material from the ratio shop, first they need to submit the ration card and they will put the sign on their ration card depends on the materials. But this system is having two draw backs, first one is weight of the material may be inaccurate due to human mistakes and secondly, if not bought the materials within the stipulated duration, the distributor may sale to others without any intimation to the government and customers. By understanding importance and scope of requirement, need to develop an 'Automated Ration Distribution System became necessity, which is automated system for ration card user and authentication and distribution through means of electronic application and to automate distribution process. This system introduces an Automatic Ration Materials Distribution Based on GSM and RFID Technology to avoid the drawbacks. RFID acts as a digitized medium of

interaction for ration card holder and distributor. GSM used to communicate the information between the two people or more than two persons to update the information depends on the requirements. This system consist of a smart ration card using Radio Frequency Identification (RFID) technique to prevent the ration forgery as there are chances that the shopkeeper may sell the material to someone else and take the profit and put some false amount in their records. In this system, a RFID tag is used that carries the family member details and the customer needs to show this tag to the RFID reader. The microcontroller connected to the reader will checks for the user authentication. If the user is found authentic then the quantity of ration to be given to the customer according to the total number of family members will be displayed on display device. This smart ration card is free from theft as the information about the delivered ration information will be sent to valid user's cell phone without manual feeding using Global system for Mobile

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Communication (GSM) technique.

## CONCEPT

Overall system act as a standalone gadget where customer smart card which is a passive tag would be read by RFID reader, therefore RFID reader would check for customer Adhaar enrollment i.e. Adhaar number if it finds the match it would show details of customer i.e. which scheme is allotted to the consumer, depending on scheme allotted further distributor should provide allotted grocery as in food grains, kerosene etc. After dispatch of allotted material GSM 900A modem works wherein message notification of dispatched material would be sent on user's registered mobile number.

## LITERATURE SURVEY

Existing system involved corruption and stocking of stock, to tackle this problems K.Balakarathik <sup>[1]</sup> proposed the "Cloud Based Ration Card System using RFID and GSM Technology" provides prevention from manual process and its irregularities. The user authentication is done by sending a random password text to the user mobile which has to be entered in a keypad. The current PDS involves corruption and illegal smuggling of goods because of manual work.

S.Valarmathyet.al. <sup>[2]</sup> Proposed the "Automatic Ration Material Distributions Based on GSM and". Here each customer is provided with RFID cards. In this system, first user is authenticated, and then system shows the balance of person .In this system, user have to authenticate his identity, further check for available allotted grain and withdraw through valve. The updated account information is send to the customer's mobile using GSM.

Rajesh C.Pingle et.al. <sup>[3]</sup>Suggested the "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 number which is used for user authentication. To involve government in the process proposed connecting the system at ration shop to a central database (provided by government.) via GSM and RS232. Hence it is possible to prevent the corruption and irregularities at ration shop.

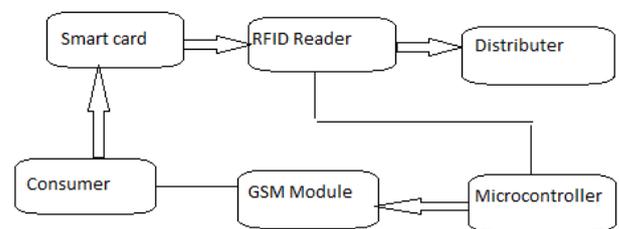
S.Sukhumar et. Al <sup>[4]</sup>. Proposed the "Automatic Rationing System Using Embedded System Technology", the existing PDS system causes congestion at ration shop due to manual work so

in this the ration distribution system is automated by using PLC. This automated ration system replaces the conventional ration card system by smart card. 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 consumers.

## PROPOSED SYSTEM

It has been observed that the process of manual ration distribution is carried out across almost all educational institutions. The process is not only time consuming but also sometimes inefficient resulting in the false distributing of allotted stock material for ration card user. Manual entering of entries of stock provided, distributing allotted material and further processing of such information consumes more time and irregularities. The existing system is actually paper based and it has several downsides like of stocking of grocery, time consumption, corruption etc. The current system does not provide proper information regarding users allotted stock and what is been actually provided, thus no proper mechanism for distribution.

In order to overcome limitations of existing system, the proposed system have proposed automated public distribution mechanism system. Our proposed system helps to prevent stocking and smuggling of the product by the provider which brings transparency between public and government authority and helps to avoid unwanted transaction on both public and distributor side.



The block diagram of an Automatic Ration Materials Distribution Based on GSM and RFID Technology is shown in the Fig. 1. This system consists of various parts such as RFID Reader, LCD, and GSM. RFID reader acts as inputs to system and is used for displaying ration stock and related activities.

## PROPOSED FRAMEWORK

This system can be further sub-divided into two parts:

1. The smart card reader - interfacing with microcontroller: The RFID based smart-card reader is connected to microcontroller
2. GSM module - Here the GSM module is used to send SMS to consumer. This sends SMS which is required for user authentication as for other details.
3. RFID reader – When a consumer swipes the smart card and provides the password to the system, it is a smart card reader which detects and reads the RFID Tag and forwards the details to the interfaced microcontroller module for further processing.

### IMPLEMENTATION

The proposed system is implemented which works in three phases i.e. RFID card user, RFID and GSM mechanism, distributor. This paper outlines the characteristics and features of proposed system.

#### A. Features of Proposed System

- This system is initially fed with ration carder user details
- Income, Scheme allotted.
- Adhaar number
- Passive tagged RFID card is provided to each ration card user
- Each Card is integrated with individual's Adhaar number
- Details of users as in Adhaar number is cross checked for verifying user's identification.
- Allotted amount of grocery stock to be provided is shown.

#### B. Notification

It creates separate notification program in our proposed system. Using GSM900A sim system send SMS to to the registered user mobile number

#### C. Access Control

In a system, a Role-based Access Control is implemented where each user has rights to access features of a system as per their level.

In current system, human interaction are categorized at two levels-

1. Shop Distributor ( Level 1 )
  2. RFID card user (Level 2)
1. User Level 1 – Ration distributor

Level 1 user is the distributor. Access rights given to level 1 user is:

- Login is provided for distributor
- View status of RFID card user for entered date
- After dispatch of allotted stock SMS notification is sent to registered user mobile number.

2. Level 2 user – Registered RFID card user. Different access rights given to level 2 b users are:

- Access the system with RFID card
- View Adhaar number details
- View distribution scheme allotted.

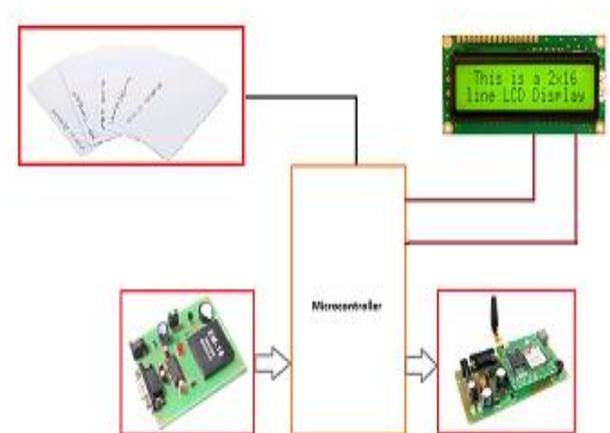
### Hardware

1. Controller
2. RFID EM-18
3. GSM modem 900A
4. 16x2 LCD
5. The proposed system Unit
6. Serial Communication

### Software

1. KEIL IDE:
2. Flash Magic

### Block diagram:



### APPLICATION

This system can be placed individually on each ration distribution shop. This system can provide safe, secure, efficient & corruption free public distribution system. This system is beneficial to the government. The concept of this system can be used in College, institutions to provide stationary which avoids illegal distribution. Further this mechanism can also be used in banks to restrict no. of cash transactions. If one person is having four bank accounts then he can withdraw cash

from each account but this can create a problem to the other people. But if particular person register with a unique id that is Adhaar card number and only once it can be used then The proposed system can put limitation on the number of cash transaction in various banks by one person. The system can be used at the places where the automated employee identification is required.

**System working**

1. For validation purpose first the distributor start the system by entering password.



2. After validation of password system will start.



3. Now consumer shows his Smart card to RFID reader then RFID reader will accept unique ID of consumer.



4. After authentication performed system will proceed further and consumer will be able to see menu which consist of foods and schemes and message notification would be sent to registered mobile number.



**CONCLUSION & FUTURE SCOPE**

This system would create the transparency in public distribution system as the work becomes automatic. With help of this it is possible to make public distribution system efficient and free from irregularities. In this paper, overall standalone application of actual system is explained wherein it would avoid irregularities on both sides i.e. distributor as users who aren't registered but still get grocery through false use of other users ration card. This system would enable transparency between distributor and consumer and even users may be able to see allotted material without any further hassles that are faced at any typical ration distributor shop. Hence whole manual working at shop would be automated using this system as explained. With the use of this system it is possible to make distribution with efficiency and free from irregularities.

As an future enhancement to this system can make use of database with a government to approve the collaboration so that it can be implemented with integration to Government database which may provide stock audit at centric level.

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