



## **A SURVEY ON SMART RATION CARD SYSTEM USING RFID AND BIOMETRICS**

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### **Abstract**

India's Public Distribution System (PDS) is the biggest ration distribution system in the globe. Public distribution system offers a ration card to the citizens and from that card they will be able to buy materials like wheat, kerosene, rice, and oil. State Government gives different ration cards like yellow ration card, rose ration card, and white ration card depending upon the income of the inhabitants. The consumer consumables are supplied to the ration card holders in the first week of every month by ration shop in charge. PDS in India has its own bottlenecks and deficiencies. The ration shop manager unlawfully uses consumer consumables without their knowledge and approval of ration. This is considered as an unlawful act according to the law. The proposed system helps to manage misconduct which is there in ration shop by replacing physical work with an automatic system, based on RFID. The RFID card has an exceptional recognition number and particulars of a consumer. The customer scans the card on RFID reader which is interfaced with microcontroller kept at the ration shop. Once a buyer is authenticated by the means of Biometric, the system shows customer's product and cost. Based on the material chosen by the consumer, the suitable bill will be generated and the consumer gets the material. The proposed RFID and Biometric based automatic ration shop system would bring lucidity and avoid mismanagement.

**Keywords:** Radio Frequency Identification (RFID), RFID Public Distribution System, Biometrics, Smart Ration Card

### **1. Introduction**

Radio frequency identification technology has shifted from opacity into thought applications that aid speed the handling of factory-made merchandise and crucial. In urban areas, lamp oil (fuel) is provided to card holders within the 1st week of each month and therefore the ration search keepers square measure taking keen steps to administer or distribute lamp oil (Fuel) to cardholders a minimum of 3 or four days per week[10]. The Indian ration positive identification is especially used for buying, shopping for capitalized food and fuel as an example fuel. It's a very important subsistence medium for the poor individuals, supply proof of identity and a reference to government databases. Ration distribution technique system has drawbacks like incorrect variety amount of products, subordinate process speed, intensive waiting time, material thievery in ration search.

Ration distribution partition system has drawbacks like

- Incorrect amount of products
- Subordinate process speed
- Giant waiting time
- Material thievery in ration search.

Proposed system replace manual work sculpturer ration search. The projected system replaces the manual add ration search. RFID means that frequency Identification technique is employed to stop the

ration forgery. currently on a daily basis this method is on-line that comes as mercy for the candidates WHO hate standing for apart time in queues for filling the applying request kind and so visit the workplace management once more to grasp the standing [8]. During this every user are having RFID primarily based card that contain user info as well as Bank details. These cards having distinctive numbers. Whenever user needs to shop for some grocery he should show his RFID primarily based card to market keeper. every ration search contain RFID reader that reads RFID card, RFID reader wont to check user valid or not. The life science is utilized in this method. It works for associate degree identification of user. It stores fingerprints of users to info. This new created system can cowl the human efforts and conjointly the slicker is detected in this technique system and therefore the forgery is additionally as removed. Few psychological feature factors of projected system square measure scale back forgery at ration search and get grocery in simple method [6]. Reduction in manual work. Systems are additional clear. No got to change queue for very long time. Automatic generation of message when Bank group action. Frauds get detected simply. Biometric is employed in security, surety, warranty and access management applications to mean measurable physical characteristics of an accurate person which will be much examined on an automatic basis[3]. Proposed system is to cut back forgery from ration retailers and users can get their grocery in simple method. It conjointly intends to cut back manual script work. Within the projected system we'll develop the good card system supported the RFID frequency identification and therefore the life science, during which the user or family head or loved one will fill their knowledge on-line. And conjointly the manual script operating isn't there. once user desires, they want a ration, he/she comes with the good card, then the RFID frequency identification card is swipe and check whether or not the user is valid or peaked. The fingerprints of that user conjointly check audit and therefore the allotted ration is distribute thereto specific user [2].

## **2. Material Thievery in Ration Shops**

Proposed system replace manual work ration search. The projected system replaces the manual add ration search. RFID means that frequencies Identification technique is employed to stop the ration forgery[2]. currently on a daily basis this method is on-line that comes as mercy for the candidates WHO hate standing for apart time in queues for filling the applying request kind and so visit the workplace management once more to grasp the standing. During this every user are having RFID primarily based card that contain user info as well as Bank details. These cards having distinctive numbers. Whenever user needs to shop for some grocery he should show his RFID primarily based card to market keeper. Every ration search contains RFID reader that reads RFID card, RFID reader won't to check user valid or not. The life sciences are utilized in this method. It works for associate degree identification of user. It stores fingerprints of users to info. This new created system can cowl the human efforts and conjointly the slicker is detected in this technique system and therefore the forgery is additionally as removed[1]. Few psychological feature factors of projected system square measure scale back forgery at ration search and get grocery in simple method. There is a substantial reduction in manual work. Systems are very clear. No got to change queue for very long time. Automatic generation of message when Bank group action. Frauds get detected simply. Biometric is employed in security, surety, warranty and access management applications to mean measurable physical characteristics of an accurate person which will be much examined on an automatic basis[5]. Proposed system is to cut back forgery from ration retailers and users can get their grocery in simple method. Conjointly to cut back manual script work. Within the projected system we'll develop the good card system supported the RFID frequencies identification and therefore the life science, during which the user or family head or loved one will fill their knowledge on-line. And conjointly the manual script operating isn't there. once user desires, they want a ration, he/she comes with the good card, then the RFID frequencies identification card is swipe and check whether or not the user is valid or peaked[7]. The fingerprints of that user conjointly check audit and therefore the allotted ration is distribute thereto specific user, changes or alter of conquest and provision of ration is completed mechanically within the govt. database. Within the projected system the cardboard can swap and so

the RFID frequencies identification can scan the tag and then for the valid correct user the finger prints can be provided taken and so check for the valid or the peaked user. If user isn't valid then exit or the user unable to require the ration and if valid then the list of attribute of grocery can show on screen and so the distributor can distribute presentation the grocery and so pay a cash and so exit[4]. Bank details square measure gift on RFID, when swapping the cardboard specific quantity of grocery is subtracted from account and message are sent to user.

### 3. Literature Survey

Using this planned system we will avoid the corruption in apportioning system to an outsized extent by providing transparency at every level. As there's no manual information hold on in books or register, all the information is hold on in info thence it's straightforward for higher authority to cross check the information at any purpose. Therefore implementing this can be very useful to targeted individuals. Cut back the corruption level and may largely blight it from the on top of mentioned system which can aid the country's economy to succeed in new heights. The computerized PDS i.e System of Public Distribution is easy to implement and needs abundant minus exertions compared to the opposite system [9].

### 4. Existing System

In the existing system, works that embrace product distribution, card entry, product consideration, and products delivery area unit done manually by Federal Protective Service (Fair worth Shop) commission agent. The ration distribution system has drawbacks like inaccurate amount of goods, low process speed, giant waiting time, material stealing in ration looks [6].



Fig.1 Existing method of Ration shop Consumable Distribution

### 5. Methodology

To reduce forgery from ration outlets and users can get their grocery in a straightforward manner. Additionally to cut back manual work and within the planned system we'll develop the sensible identity card system supported the biometry, within which the user will fill their knowledge on-line. And additionally the manual operating isn't there. once a user needs a ration, then fingerprints of that user can check for authentication and therefore the allotted ration is distributed to it explicit user, changes of adding and issuance of the ration square measure done mechanically in the government information. Goods/ grains square measure given to the client on the idea of their desires. Within the planned system for the valid user, the fingerprints can take then check the validity or the invalid user. If a user isn't valid then exit or the user ineffective to require the ration and if valid then the list of grocery can show on a screen then the distributor can distribute the grocery then pay a cash then exit Bank details square measure connected to Biometric device once user scan thumb explicit quantity of grocery is subtracted from account and message are going to be sent to the user.

## 6. System Design

Our System design is split into 5 blocks.

1. Ration Shops
2. Identity card generation workplace
3. Taluk level and District level
4. Embedded thumb module
5. Mysql information

The procedure starts with identity card generation workplace wherever the user ought to seem for giving the main points for generating their RFID card. It is beside this he ought to scan his/her thumb, and square measure hold on within the embedded module the most responsibilities of taluk and district level square measure to portion the ration and update the info in MySQL information beside their RFID card. And ultimately at the ration look when scanning people RFID card are going to be ready to grasp allotted quantity of ration. For the acquisition of that ration ought to verify people's identity through thumb scanner. When winning validation client has allowed for taking ration. Higher than system design outline the flow management of the system, this may be enforced on straightforward sensible devices like sensible phones, tablet PCs, etc.

## 7. Proposed System

Proposed system replaces the manual add independent agency. The most objective of the designed system is that the automation of independent agency to produce transparency. The projected automatic independent agency for public distribution system relies on RFID technology and identification technology that replaces standard ration cards. The RFID cards square measure provided rather than standard Ration Cards. Beneficiary's data at the side of the fingerprint impression of the top of the family and one amongst the relations is hold on within the centralized info that is simply updated or accessed by th government authority. A client needs to scan the RFID Card by RFID reader then he/she ought to scan the thumb through a biometric scanner, once winning verification of the client, data is fetched onto the most interface, and storekeeper has to enter a sort of ration in addition as a amount of ration employing a input device. Once delivering correct ration to him/her, the beneficiary is shipped the SMS (Short Message Service) regarding the commodities bought by him.

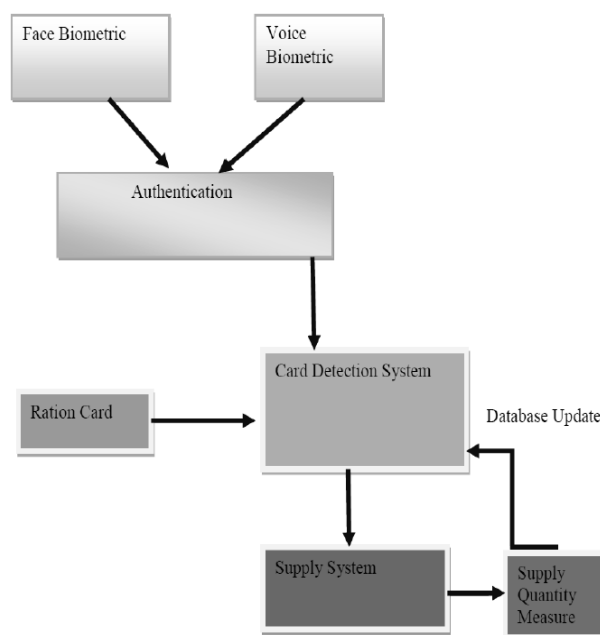


Fig.2. Typical Design of the Proposed System

## 8. Memory Organisation



Fig 3. RFID Card Memory Structure

### Conclusion

This projected system will offer a secure, secure and economical approach of Public Distribution System. By mistreatment this method in ration outlets solves the matter of an excessive amount of manual method publically Distribution System (PDS). This proposed system positively eliminates corruption publically Distribution System of India. This new technology offers answer and this work can build a good modification publically. The proposed system is safer, bound and clear than the traditional existing system. Influence of fraud falsity information entry intake within the ration info is often maintained merely with the employment of this good identity card system. The solely approved person (shop keeper, tradesman) will operate the info. The clients are often mistreatment RFID swapping and thumb detection. It is within the planned it's expected that the projected system are additional clear, reliable than the present identity card system.

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