# SMART RATION CARD SYSTEM USING RFID, BIOMETRIC AND SMS GATEWAY

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*Abstract*— **In this system, we proposed smart ration card using RFID, Biometric technique and SMS gateway technology. The system should prevent ration forgery. A RFID tag is used to carries family details and customer needs. The distributor sends the SMS of stock availability to customers. Customer should have two options for authentication, first is biometric and second is RFID card scanning. Customer should give the OTP to agent which is send by the distributor while customers registration process. If customer is valid person then the agent supply the commodities to the particular customer.**

*Keywords*— **RFID, Biometric, SMS Gateway**

## I.    INTRODUCTION

### A.   Background –

Ration card is one of the very important documents in India. The ration card is used for purchasing commodities like rice, wheat, fuel, etc. Our proposed system eliminates the drawbacks of existing system by making use of RFID and biometrics techniques. RFID uses electromagnetic field to track and identify objects. Biometric technique will be used to authenticate the customers. The RFID tag will contain all details of customer and his family. This card will be provided to every registered customer. Each ration shop will have RFID reader which can read unique code generated by RFID tag. The distributer sends the SMS to the customer to inform commodities are now available in ration shop. Any user who want ration will have to read/scan their card through the RFID reader. Whenever any user scans the card it will check in the database whether the user is valid or not. When a valid user will scan through the RFID reader, the amount of ration taken by him will be displayed on monitor screen. User should give the OTP to distributor which is available on registered number

for authentication and also deducted from his monthly ration quota. Further, all details will also get updated in admin database at each level. To show transparency in the system, transaction detail will be sent to the customer's registered mobile number via SMS.

### B.   Application in general form in different areas –

Our proposed system eliminates the drawbacks of existing system by making use of RFID and biometrics technique. The distributer sends the SMS to the customer to inform commodities are now available in ration shop. Any user who wants ration will have to verify their card or give thumb impression on biometric machine. Whenever any user verifies the card it will check in the database whether the user is valid or not. When a valid user will verify through the RFID reader, the amount of ration taken by him will be displayed on monitor. User should give the OTP to distributor which is available on registered number for authentication and also deducted from his monthly ration quota. Further, all details will also get updated in admin database at each level. To show transparency in the system, transaction detail will be sent to the customer's registered mobile number via SMS.

## II.    LITERATURE SURVEY

### A.   Existing work –

Ration card is one of the most important documents in India. The ration card is mainly used for purchasing subsidized foodstuffs and fuel and also used in identification process while making passports, PAN card, Aadhar cards and acts as an address proof for citizens of India. In the existing system government provide the details of customer to distributor agent. Agent will supply the commodities to the beneficiary. On the ration shop first beneficiary verify it's biometric for authentication purpose then agent will supply food stock to them, but sometimes there is problem occur during biometric

authentication process such as fingerprint does not match. 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.

*B.* **Proposed work converted to concept –**

We have proposed a smart ration card using Radio frequency identification (RFID) technique, biometrics and SMS gateway to prevent the ration forgery. In this system, a RFID tag is used that carries family member details and the customer needs to show this tag at the ration shop. The distributer sends the SMS to the customer to inform commodities are now available in ration shop. The user will also have to provide thumb impression on the biometric machine and also user should give the OTP to distributor which is send by distributor on registered number of user for authentication. If the user is found authentic then the quantity of ration to be given to customer according to the total number of family member will be displayed on the monitor screen. This smart ration card is free from theft and forgery as the information about the delivered ration will be sent directly to the government/admin and customer through SMS gateway.

## III.   FUNCTIONAL REQUIREMENTS

*A.* **Login module –**

In this module, the system registers customer details that includes their names, addresses, fingerprints, date of birth, age, contact numbers for sending SMS, count of family members and category of the card to which the family belong, with all the data being uploaded in the database.

*B.* **RFID card verification module –**

RFID is a part of Automatic Identification and Data Capture (AIDC) technologies is considered a fast and reliable. RFID based Smart Card verification module consists of two major components, they are interrogator and transponder. The interrogator means RFID Reader is needed to broadcast the signals through its antenna and the transponder means tag will be activated after it receives the signals from the interrogator.

*C.* **Biometric Verification Module –**

The fingerprint scanning system has two processing steps. First, it enrolls the fingerprint, where it gets an image of the thumb, and finally performs matching, later it determines if the pattern of ridges and valleys in the image are matched with the pattern of ridges and valleys in pre-scanned images.

*D.* **Purchase Module –**

Once authenticated, the beneficiary has to select the list of commodity he/she wants to purchase. The system will display the total quantity of the commodities along with the information regarding previous transaction made by beneficiary. Once after user confirm the commodities, payment is done and beneficiaries are given a receipt in form of a SMS. A user is permitted to take only those subsidies on products apportioned to him/her by government according to the available database inventory.

*E.* **Alert Module –**

A SMS gateway serves the purpose of sending bulk messages to its users. Here in this project it plays a important role for intimating the beneficiary about the recent transaction made by user by sending the message on user's registered number.

*F.* **Stock Module –**

The stock department will send the stock to the respective distribution centers and also automatically update the stocks of the distribution center in the database. In this stock module the system maintains the details of incoming stock, distribution and remaining stock.
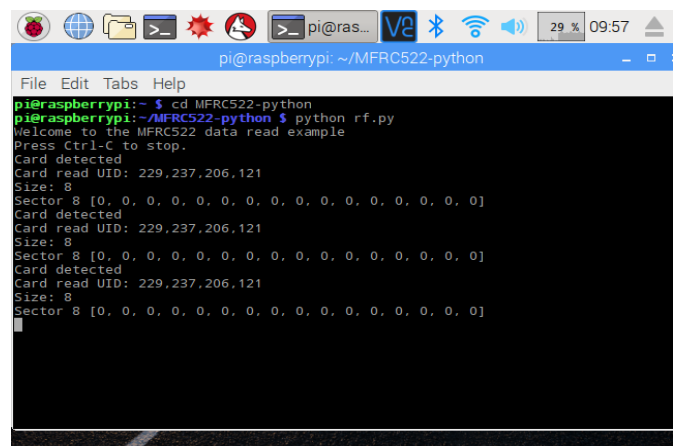
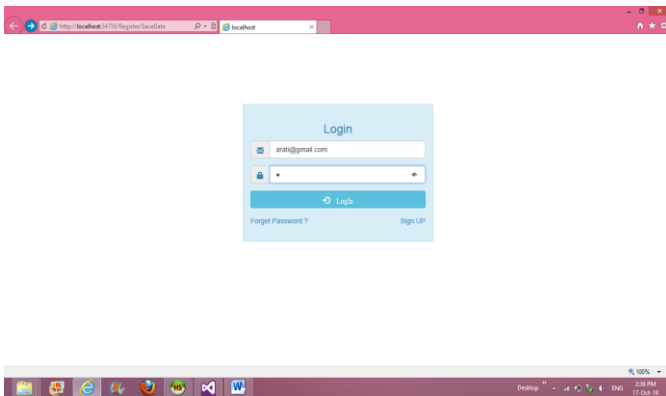## IV.   EXPERIMENT AND RESULT
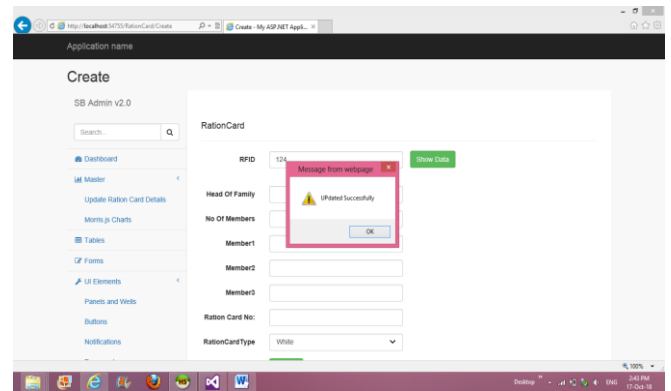


Fig. 1.   Card read UID number

Fig. 2.    Sign In
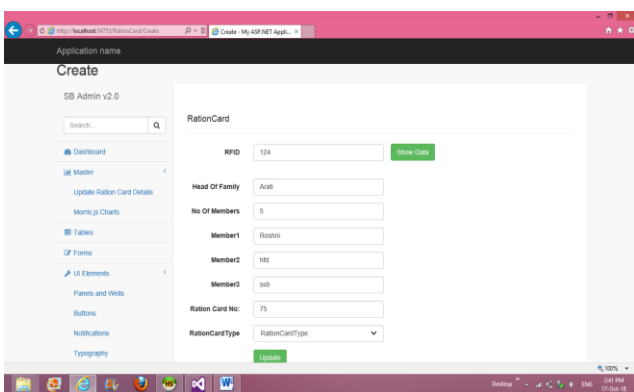


Fig 5.  Update Data



Fig. 3.    Data Display

## IV.CONCLUSION

Data accuracy is maintained. Provide high security. Execute all components properly. Automatic report generation. Efficient result generation.

## V. REFERENCE

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Fig. 4.  Update Ration card form