# AUTOMATIC RATION VENDING MACHINE USING RFID SENSOR

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*Abstract:* In recent years, the automatic ration vending machine using RFID has become increasingly popular in many countries. The machine uses RFID to automatically identify and vend ration to the user. This paper presents the creation and execution of an automatic ration vending machine using RFID. The machine is designed to work with any type of ration and can be used in a variety of settings such as schools, hospitals, and office buildings. The machine is easy to use and can be operated by anyone. The machine is also very reliable and has a high degree of accuracy. The consumer must first hit the number of his or her own card before tagging the card. He may withdraw a certain amount of ration if the number that was pressed and the card information match. The consumer cannot withdraw the ration if he is still an illegal user on that card if the pressed number and the card data do not match. Thus, avoiding the illegal withdrawal of the ration from an unauthorized person. This study examines automated ration dispensing devices. The main goal of the automated ration wending machine is to prevent the massive financial waste that occurs with traditional ration distribution systems. In this approach, an RFID tag is utilized as an electronic ration in place of a card traditional ration card. To purchase ration from the dealer, the consumer must use his unique card in place of the regular ration card. The present system for Ration shops has many disadvantages. They have low processing speed. They have less man power, so the filling and the packing of products takes a lot of time. And some of the ration dealers weigh the products less compared to what was requested by the customer. This paper aims in providing an automatic filling machine which fills all the products requested by the customer, simultaneously, thus reducing the time consumed per customer. This machine works on the feedback of loadcell, which provides high weight accuracy, thus eliminating the risk for the customers getting cheated.

*Keywords* -RFID Sensor, Servo Motor, LCD Display.

# I. INTRODUCTION

By digitizing India's largest network that is widely accessed by the people, the standard of the ration shops will be elevated and it will also create a gateway that allows for future development in the country. Now people are habituated to use internet and mobile, so let us make positive use of this habit for needy people. Under the Minimum Common Program of Government of India, the poor families in the State were provided 10 kg of food grains at half the rate 1st June, 1997. Later, the quantum was raised to 20 kg of food grains. Now the quantum for BPL and APL beneficiaries has been enhanced to 35 kg and fixed 15 Kg. National Food Security Act, 2013 (NFSA) came into force from 1st February, 2014 in the State. As per the Act, beneficiaries are grouped into two groups. i.e. 1) Antyodaya 2) Priority House Hold. Antyodaya group beneficiaries are entitled to get 35 kg of food grains per card per month and PHH beneficiaries are entitled to get 5 Kg of food grains per person per month. This whole process is done manually due to which malpractices are involved in larger amount, due to which poor are suffered and also the g o v e r n m e n t. This corruption and illegal practices can be abandoned by terminating the classic method which involves customer to tell the person handling the ration shop outlet, the amount of the commodity he/she needs and the type too. The person working then measures the commodity and gives it to the customer. In our version of the system, we have developed an IOT based Embedded system where the consumer has to insert his Aadhaar card (Note: If Aadhaar card is linked with ration card) or Ration Card into machine and input the amount he/she requires and the system made will automatically collect that much amount in a container. It is a new concept which takes into account the various social, economic and general aspects relating to technical as well as day to day disciplines.



**Ration Cards**

One of India's key public sectors is the ration distribution system. It oversees and distributes the essential goods to all the citizens of India mainly people below the penury line and a few reserved categories such as military and police as well. Based on their ration card type such as Above Poverty Line or Below Poverty Line or Antyodaya Anna Yojana, food products will be given. Our proposed system eliminates the disadvantages of existing systems by using RFID and GSM modules. RFID uses an EM field to detect and

identify objects. Authentication is done by pin or password. All the details of the beneficiary and his family will be uploaded into the RFID tag. This card will be given to every registered consumer which can be used as a smart ration card. Each ration distribution shop will have an RFID reader which can read 12- bit hex code generated by an RFID tag. Any user who needs ration will have to flash their card through the scanner. Whenever any beneficiary flashes the card, it will check in the database whether the beneficiary is valid or not. When a valid beneficiary will flash his card through the RFID scanner, the quantity of ration taken by him/her will be displayed on LCD display and also the deducted system. The customer's registered cell phone number will get message.

## LITERATURE SURVEY

- **IOT BASED INTELLIGENT PUBLIC RATION DISTRIBUTION: Vaisakh A.K, Ganesh K.V, Sooraj Suresh, Linoy Vincent, Thobias P T, in year 2019.** Intelligent Public Ration Distribution System (IPRDS) is similar to an Automated Vending Machine which allows customers to complete purchases and transactions of basic ration commodities with ease. The customer identification, distribution of commodities, billing and data update etc.

- **A SURVEY ON SMART RATION CARD SYSTEM: Sadaf Pathan, Divya Borkar, Nikhil Chavan, Prasad Gaikwad in year 2019**. In this framework smart cards will be given rather than current apportion cards. Client's database is put away which is given by Government. The Smart Card must be examined by the client to demonstrate the points of interest of things assigned by government, and afterward it checks client subtle elements with putting away information to convey material in shop.

- **REAL TIME AUTOMATIC RATION MATERIAL DISTRUBUTION SYSTEM: Pranjal Padwal, Ms. Shubhangi Borkar, in year 2021.** 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.

## PROBLEM STATEMENT

- As there are many ration shops and the customers coming to buy from ration shops are normally believed to be below poverty line and illiterate, the customer are fooled to a large extent.
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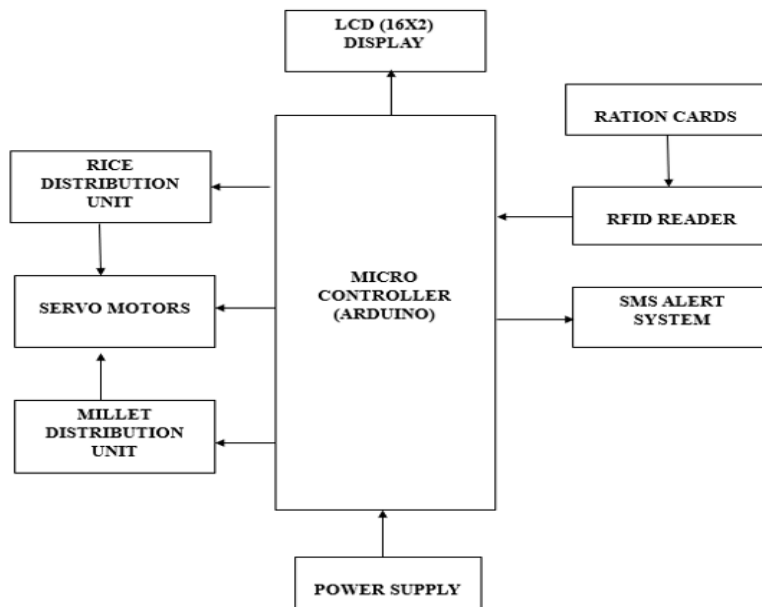
**Distribution at ration shop**

## OBJECTIVES

- To Dispense Ration materials using modern technology

- Digitally maintaining the stocks and avoiding human intervention in updating transactions and maintaining records.

## METHODOLOGY



## DESCRIPTION

The vending machine are used for dispensing ration products comprising of plurality of the store the groceries plurality of material flow control and a user control unit characterized in that, said product vending machine comprises at least a weighing. Weighing machines are mounted on a platform below each delivery valves Control unit comprises of a biometric identification, RFID reader, Display unit, Data Input device and a Microcontroller. Each of the container are provided with load Sensing. And load Sensing are connected with the microcontroller. Weighing is connected with microcontroller. The data from the microcontroller is transferred to the cloud sever through wireless transmission.

Method of working of the delivery quantity cross checking mechanism comprising the steps of: Power supply -12 V dc input is given , INPUT-Ration card number card ,RFID Reader -The RFID Reader will read the RFID ration card number ,Microcontroller -It is the heart of our project where it is the main processor ,the

input is taken through the RFID reader and acuate the program which is upload to it ,Rice Distribution Unit – The Rice Distribution unit is given signal from microcontroller ( in kg ) ,Millet distribution Unit - The Millet Distribution unit is given signal from microcontroller ( in kg ), Servo Motor -The Servo motor is given input from the microcontroller to given desired input , SMS Alert System – Through the Microcontroller and GSM module the SMS alert was send to the costumer mobile.

## ADVANTAGES

- Useful in providing transparency to both government and customer.
- Reduce paper work.
- User friendly.
- Reduce corruption.
- Access to authorized person only.
- Active contribution step towards Digital India.

## APPLICATIONS

- It is concerned on automation of process involved in ration shops which are the part of public distribution sectors (PDS).
- It can be implemented in all the ration shops to help people not be cheated.
- This new technology gives solution and this research work will make a great change in PDS.
- Provides benefit to the government by sending current stock information.

## CONCLUSION

We can have a better management of the ration distribution system. Government can have indirect check on the availability of the ration to the beneficiary. It is a transparent and has control over prices of from commodities in the open market, dealer will not be able to keep fake ration card with them system helps to modernize traditional rationing and corruption up to great extent.

## REFERENCES

[1] Avinash N J, Krishnaraj Rao N S, Rama Moorthy H, Ashwin Shenoy M, Chetan R, Sowmya Bhat, "Android App and RFID Based Smart Ration Distribution System", 2021 IEEE International Conference on Mobile Networks and Wireless Communications (ICMNWC), pp.1-5, 2021.

[2] Shashank Shetty, Sanket Salvi, "A Smart Biometric-Based Public Distribution System with Chatbot and Cloud Platform Support", Sustainable Communication Networks and Application, vol.55, pp.123, 2021.

[3] A. K. Vaisakh, K. V. Ganesh, S. Suresh, L. Vincent, P. T. Thobias and I. P. Nair, "IoT Based Intelligent Public Ration Distribution", International Conference on Communication and Electronics Systems (ICCES), 2019.

[4] Neha Ingale, Payal Paigude, Sneha, Prof.Rupali.M. Dalvi ― Smart Ration Card and Automatic Ration Material Distribution System Using IOT International Journal for Research in Applied Science & Engineering Technology, Vol. 6, Issue 3, pp- 21352137, March 2018.