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An Implementation of Smart Ration Card distribution System For Poor And Needy Person

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ABSTRACT

Food is distributed to the needy by the Rationing Distribution System, also known as the Public Distribution System. The automatic rationing system presented here is a more effective and automated system for public distribution of rations to all citizens of the countrythroughrationshops.In the traditional scheme, smuggling and criminal activities such as product theft, incorrect entries, and so on are possible without the knowledge of the ration card holder. By replacing the traditional PDS system with a smart PDS system, we can solve all of the problems.

Keywords: Public Distribution System, smuggling, Automatic rationing.

I. INTRODUCTION

In India, the public distribution system is a food security system with a network of approximately 5 lakh people.FairPrice stores are the world's biggest shopping system. The key issue with this scheme is that grains are stolen from vital resources without their knowledge. The conventional public distribution system now provides subsidised food grains to over 45 million Indian BPLs on amonthly basis. The food grains are not delivered to the intended recipients. The E-Ration card can be used to solve this problem. The E-ration card scheme is based on radio frequency recognition, as seen here. Each customer receives an RFID card. Customers swipe their cards at the register. The consumer is first authenticated, after which the balance sum is shown. The sum to be withdrawnmustbemanuallyinsertedinto the PDS device using the keypad. The systems will check the balance and, if it is sufficient, the valve will open automatically, allowing grain to exit through the solenoid valve. A weight sensor will be used to weigh it. The solenoid valve was automaticallyshut

down once the count reached the enterednumber.After that, the customer's account should be updated. The E-Ration Card has several advantages, including more reliable and consistent product delivery to customers.

II. LITERATUREREVIEW

The paper "A Smart Public Ration Distribution System" discusses automation in India's ration distribution system. We used a four-digit password- based security system and a near-field RFID card for individual ration card identification. The project's primary goal is to develop a more secure and interactive approach to publicdistribution system automation (PDS). The Indian government provides subsidised food through the public distribution system, but there are still numerous issues such as corruption, ration hijacking, and false ration delivery. The developed solution was able to address these issues.[1]

"Smart Ration Distribution System" is a term used to describe a system that distributes rations The current rationing system has flaws such as incorrect product quantities, slow processing speeds, long wait times, and material theftinrationshops.Inaproportionshop, the proposed framework replaces manual labour. The plannedframework's main goal is to automate the ration shop in order to provide clarity. Ordinaryration shops based on the public distribution framework will be replaced by the proposed automatic ration shop.Aadhar cards are given instead of traditional rationcards.Smart card-based automatic rationing is a novel approach in the public distribution system (PDS) that is beneficial for a more productive, precise, and automated proportion conveyance strategy. [2]

"Smart ration distribution system" is a term used to describe a system that distributesrationsByreplacingtraditional ration cards with RFID tags, this proposed project based on Radio Frequency Identification (RFID) technology aims to reduce fraud. The microcontroller stores the database of customers provided by the government authority. The customer must scan the RFID tag to the RFID reader, and the microcontroller will check the customer's details against the microcontroller's database to allow for material (ration) dispensation. After successful verification, the customer must enter the material type and quantity using the keypad. The microcontroller uses GSM technology to send information to both the customer and the PDS authorities after proper material dispensation to the customer.[3]

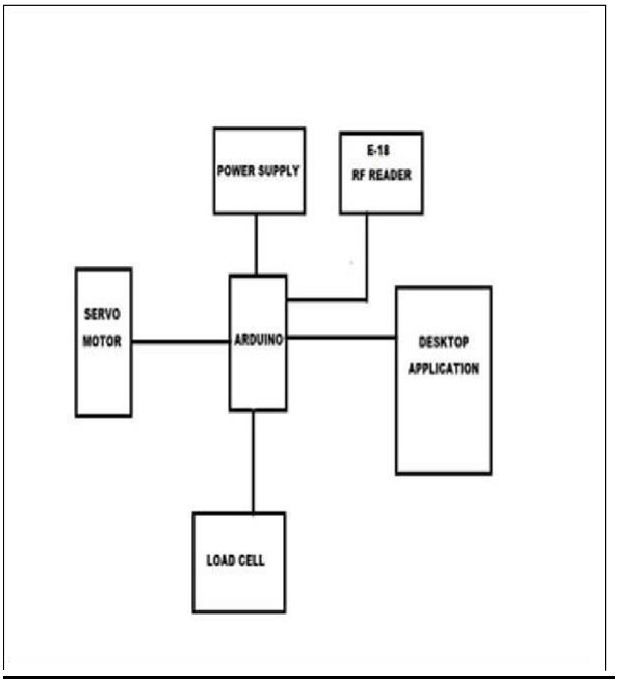
"Smart rationing system" is a term used to describe a system that allocates resources intelligently In the proposed system, consumers must first register withtheGOVT.Afterthat,theuseridand passwordwillbesenttotheconsumervia SMS. The consumer will then go to the ration shop and scan his or her aadhar card using a camera. After that, the venture's goal is to secure and safe access to ration cards in a smartway,

which is extremely secure and scratch- resistant. After that, the user id and passwordwillbesenttotheconsumervia SMS. The customer will receive a confirmation text message via gsm, and thedatabasewillbeupdatedinrealtime. [4]

III. PROPOSED SYSTEM

Ration cards are now very important for every home and are used for a variety of purposes such as family information, obtaining a gasoline connection, serving as deal with evidence for various functions, and so on. Everyone needs a ration card to purchase various items (sugar, rice, oil, kerosene, and so on) from ration shops. The disadvantage of this RFID generation is the need for externalmemoryinthegarage,aswellas the complexity of referring to orexporting information from external memory chips. We're showcasing a new machine with clever card technology to overcome the drawbacks of the existing RFIDera.

The clever card resembles an RFID tag, with the exception that it does not make physical contact with the reader module. Inner reminiscence is contained within the smart card reader. As a result, it's simple to keep track of additional information for corresponding family members, as well as receive SMS alerts whenever an unauthorised person tries to use the card.



The block diagram of an RFID-based automatic ration materials distribution system. RFID, microcontroller, motor driver, solenoid control circuits, and keyboard are all part of this system. The proposed system demonstrates grain (wheat/rice) distribution as a solid consumer material. RFID reader, ultrasonic sensor, load cell, and keypad serve as system inputs, while an LCD displays ration stock and related activities.Themicrocontrolleroutputsare used to drive motor and solenoidvalve.

Basic Steps

- In this system, we are providingRFID card to each user individually. Registration is the first step that user needs to follow in order totake

advantage of ration distribution facility. At ration shop user will scan the RFID based smart card in presence of admin.

- RFID reader is used to read the card. Here, we are using authentication model to authenticate the valid RFID smartcard.Ifthecardisvalid,system will automatically generate the OTP and will send it to user by using mobilenumber.

- Once the user is authenticated, related data will be fetched from database. Then the details of particular user can be seen on the respective PC. User can go through all his historical transactions along with ration allocated to with prices recommended by government of India.

- User needs to give quantity of ration he/she wants to withdraw as an input to system. User will select the particular quantity he required and then the exact amount of grains will be given to the user through the system.

- User will collect the grains successfully by paying the amount which is required topurchase.

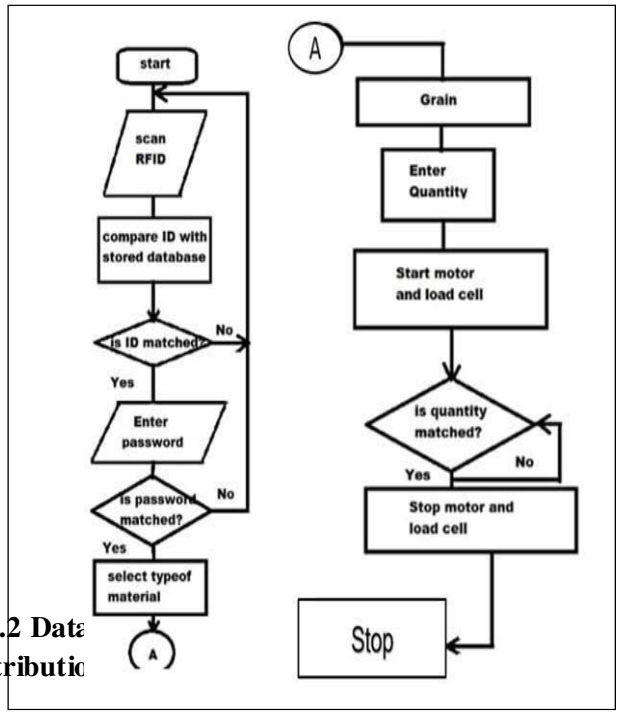


Fig.2 Data distributio

The traditional Ration Distribution system has flaws such as the weight of the material being inaccurate due to human error, a lack of speed, a long wait time to get goods at the ration shop, and goods theft in the ration shop. The automatic ration shop played a critical role in overcoming the aforementioned issues. To distribute kerosene or grain material, the automatic ration shop used RFID. RFID has taken the place of the ration card. Because the work is automated, the proposed system creates transparency in the public distribution system. Ration materials (sugar, rice, oil, kerosene, and so on) are distributed without the assistance of humans in this system. It is possible to make money with the help of this system.

After receiving the goods, controller sends the information to government office and custom.

Tools used

1. **ARDUINOUNO**

The Arduino Uno is an open-source microcontroller board designed by Arduino.cc and based on the Microchip ATmega328P microcontroller. The board has a number of digital and analogue input/output pins that can be used to connect to expansion boards and other circuits.

2. **LoadSensor**

A force transducer, specifically a load cell, is a type of transducer. It converts a force like tension, compression, pressure, or torque into a measurable and standardised electrical signal. The electrical signal changes proportionally to the force applied to the load cell.

3. **RF ReaderModule**

RFID Reader Modules are embedded in RFID reader systems and allow them to read data from compatible tags. Some reader modules have multiple antenna ports, which can be used to read tags with different frequencies or to cover a larger area.

4. **RFCard**

The use of radio waves to read and capture information stored on a tag

attached to an object is known as radio-frequency identification (RFID). A tag can be read from up to several feet away, and it does not have to be in the reader's direct line of sight to be tracked.

5. **ServoMotor**

A servomotor is a rotary or linear actuator that can control angular or linear position, velocity, and acceleration with precision. It is made up of a suitable motor and a position feedback sensor.

6. **JumperCables**

Jumper cables, also known as booster cables or jump leads, are a pair of insulated wires with alligator clips on each end that are used to connect the disabled equipment/vehicle to an auxiliary source, such as another vehicle or equipment with the same system voltage or a different battery.

IV. RESULT &DISCUSSION

The traditional Ration Materials Distribution system has a number of flaws, such as the weight of the material being inaccurate due to human error,the long wait time for materials at ration shops, the slow processing speed, and material theft in ration shops. The automatic ration shop plays a criticalrole in resolving these issues. To distribute grains and other items evenly, the automatic ration shop uses RFID and GSM technology. An RFID tag replaces the ration card, and data is sent to the consumer via GSM modules. The proposed system creates transparency in the public distribution system due to automation.

This system distributes ration materials such as sugar, oil, rice, and kerosene automatically and without human intervention. Becauseof this automation, it is possible to make the public distribution system more efficient and free of fraud. The information is sent to the government office and the customer via GSM technology once the materials are received. Figure 1 depicts a block diagram of an RFID and GSM-based automatic ration materials distribution system. Microcontroller, GSM, RFID, motor driver, solenoid controlled circuits, and keyboard are among the components in this system. The proposed system shows how grains (wheat/rice) and kerosene, both solid and liquid consumer materials, are distributed. A RFID reader, an ultrasonic sensor, a load cell, and a keypad are used as components. An LCD displays

the ration stock and related activities, while a keyboard accepts system inputs. The motor and solenoid valve are driven by the microcontroller output.

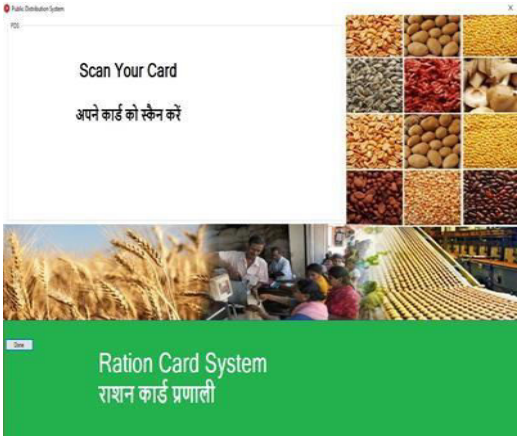


Fig3. Front end view of smart ration card automation system

The fig 3. illustrates the instruction given by system to the customer about scanning their card which is nothing but RFID card.Electromagnetic fields are used in radio-frequency identification to automatically identify and track tags attached to objects. The tags contain information that has been stored electronically. Passive tags collect energy from interrogating radio waves emitted by a nearby RFID reader.

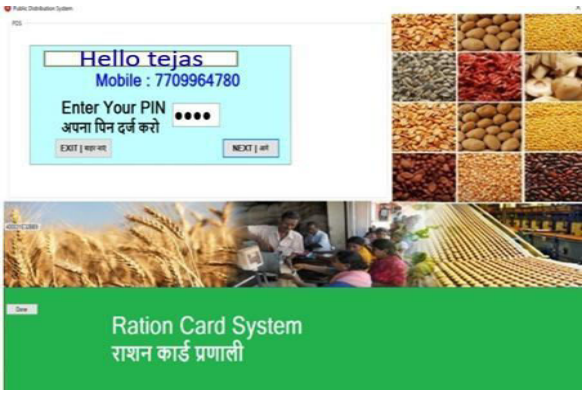


Fig 4 Customer will enter detail

The fig 4. shows the details ofauthorized person and the OTP entered by the customer which they received on their mobilephone.

Fig.5 Monthly quota of customer

The fig.5 shows monthly quota of the customer gives details of deducting amount of grains at particular time and update the current amount of monthly quota.

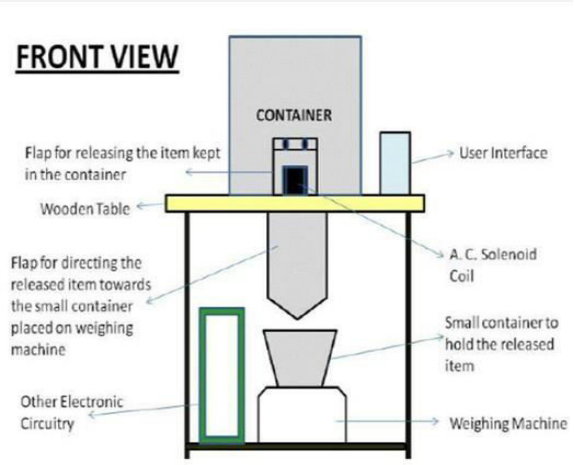


Fig.6 Front view

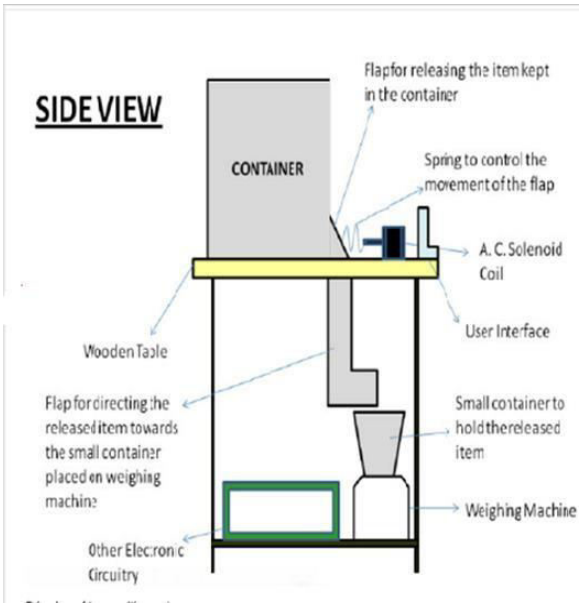


Fig.7 Side view

V. CONCLUSION

We have attempted to introduce a new technologythroughthispaperthataidsin the removal of the existing system's flaws. This technology also has its own set of benefits that can be applied to other applications; for example, it can be usedasananti-corruptiontoolbecauseit reduces corruption to a large extent, which was one of the main reasons we cameupwiththisconcept.The standard Ration Materials Distribution system has shortcomings such as material weight inaccuracy due to human error, slow processing speed, long wait times for material at the ration shop, and material fraud in the ration shop. If materials are not bought by the end of the month, they will be sold to others without informing the government or the public. The automated ration shop was instrumental inresolvingthe above problems. The automated ration shop used RFID to distribute kerosene and grain content. The ration card is replaced by RFID, and customer data is stored in a database.The proposed framework creates flexibility in the public delivery system since the function is automated.

VI. REFERENCE

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