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 This problems can be fixed with the E-Ration card. As seen here, the E-ration card system is based on radio frequency identification. An RFID card is given to each customer. 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 solenoidvalvewas 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 main aim of the project is to provide a more stable and collaborative approach to automating public delivery systems (PDS). The Indian government offers subsidised food through the public distribution system, but graft, ration hijacking, and fake ration delivery remain problems. 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.Aadharcards are given instead of traditional

rationcards.Smartcard-based automatic rationing is an innovative solution to proportion conveyance in the public distribution system (PDS) that is useful for a more efficient, accurate, and Integrated policy.[2]

"Smart ration distribution system" is a term used to describe a system that distributesrationsByreplacingThis proposed initiative, focused on Radio Frequency Identification (RFID) technology, aims to eliminate theft by replacing standard ration cards with RFID tags. The database of customers issued by the government authority is stored on the microcontroller. The customer must scan the RFID tag to the RFID scanner, and the microcontroller will compare the customer's information to the database on the microcontroller to allow content (ration) dispensation. After successful verification, the customer must use the keypad to enter the material type and quantity.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 password will be sent to the consumer via SMS. The customer will receive a confirmation text message via gsm, and the database will be updated in realtime. [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. To buy different products (sugar, flour, gasoline, kerosene, and so on) from ration shops, everybody requires a ration card. The drawback of this RFID generation is the need for external memory in the garage, as well as the difficulty of referring to or exporting data 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.
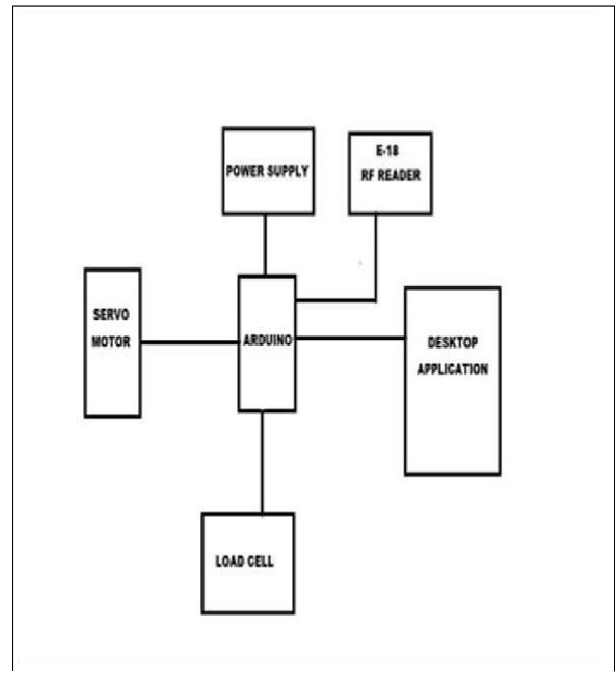

Fig.1 System Architecture

An RFID-based automated ration materials delivery mechanism is depicted in this block diagram. This machine includes an RFID reader, a microcontroller, a motor generator, solenoid control circuits, and a keyboard. Grain (wheat/rice) delivery as a solid commodity commodity is shown in the proposed scheme. Device inputs include an RFID scanner, ultrasonic sensor, load cell, and keypad, while an LCD displays ration stock and related operations. The motor and solenoid valve are powered by the microcontroller outputs.

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

is to register. In the presence of the administrator, the recipient can search the RFID-based smart card at the ration shop.

• The card is read with an RFID reader. To authenticate the correct RFID smart card, we are using the authentication model. If the card is legitimate, the device will create an OTP and deliver it to the user via their mobile number.

• After the user has been authenticated, the database will be queried for relevant information. The specifics of a specific individual will then be seen on the appropriate PC. The user will see all of his previous purchases, as well as the rations allotted to him based on the government of India's recommended rates.

• As an input to the scheme, the user must have the quantity of ration he or she wishes to remove. The customer will pick the quantity he requires, and the machine will then provide the same number of grains to him.

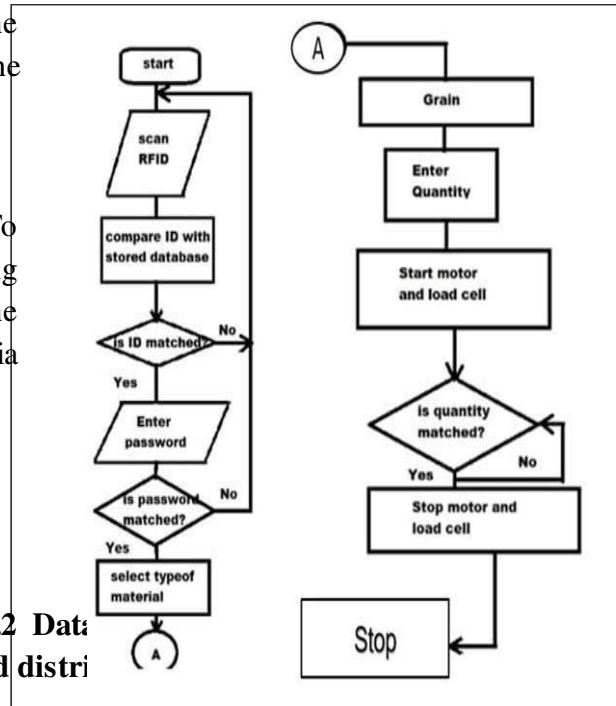• User will collect the grains successfully by paying the amount which is required topurchase.

Fig.2 Data ... card distri...

The standard Ration Distribution scheme has shortcomings such as incorrect commodity weight due to human error, a lack of speed, a long wait period to get supplies at the ration store, and ration shop goods fraud. 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. The new method creates flexibility in the public delivery system when the function is automated. In this scheme, ration products (sugar, flour, gasoline, kerosene, and so on) are distributed without the use of humans. With the aid of this device, it is possible to make

profits. The controller sends the details to the government office and customs after getting the merchandise.
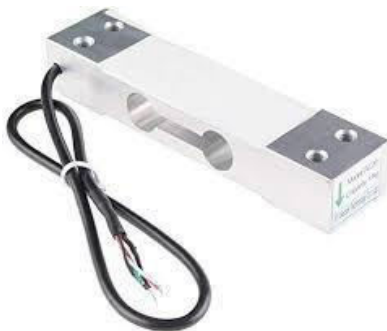
Tools used

1.   ARDUINOUNO

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

2.   LoadSensor

A type of transducer is a force transducer, specifically a load cell. It converts an observable and standardised electrical signal from a force such as friction, compression, vibration, or torque. The electrical signal varies in direct relation to the load cell force.

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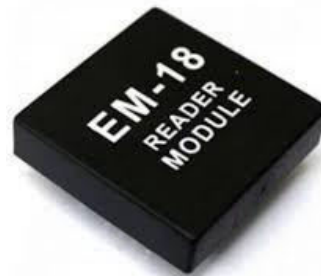
RFID Reader Modules are embedded in RFID reader systems and allow them to read data from compatible tags. Some reader modules have multiple antenna ports, which can be used to read tags with different frequencies or to cover a larger area.

4.   RFCard

Radio-frequency recognition is the process of reading and capturing information stored

on a tag connected to an object using radio waves (RFID). A tag can be viewed from up to several feet away and does not need to be in the reader's immediate line of sight in order to be monitored.

5. ServoMotor

A servomotor is a rotary or linear actuator that has the ability to precisely regulate angular or linear orientation, velocity, and acceleration. A appropriate motor and a position feedback sensor make up the system.

6. JumperCables

Jumper cables are a pair of shielded wires with alligator clips on each end that are used to link the damaged device/vehicle to an auxiliary source, such as another vehicle or equipment with the same system voltage or a separate battery.

IV. RESULT &DISCUSSION

The standard Ration Materials Distribution scheme has a variety of drawbacks, including human error in material weight, lengthy wait times for materials at ration shops, poor production speed, and material fraud in ration shops. In settling these problems, the automated ration shop is crucial. The automated ration shop uses RFID and GSM technologies to disperse grains and other products equally. The ration card is replaced by an RFID sticker, and data is transmitted to the user via GSM modules. Due to automation, the new scheme provides flexibility in the public delivery system.

This system distributes ration materials such as sugar, oil, rice, and kerosene automatically and without human intervention. Because of this automation, the public distribution system will become more reliable and fraud-free. If the materials are collected, the information is transmitted via GSM technology to the government office and the client. A block diagram of an RFID and GSM-based automated ration materials delivery system is shown in Figure 1. This machine includes a microcontroller, GSM, RFID, motor pilot, solenoid operated circuits, and keyboard. The suggested method depicts the distribution of grains (wheat/rice) and kerosene, both solid and liquid commodity goods. Components include an RFID scanner, an ultrasonic sensor, aload cell, and a keypad.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.Radio-frequency recognition uses electromagnetic fields to automatically classify and trace tags applied to objects. The tags include data that has been collected in an electronic format. Interrogating radio waves released by a nearby RFID reader provides energy to passive tags.

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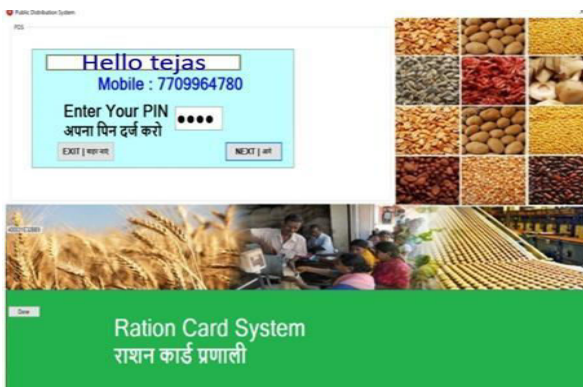
The fig 4. shows the details ofauthorized person and the OTP entered by the customer which they received on their mobilephone.
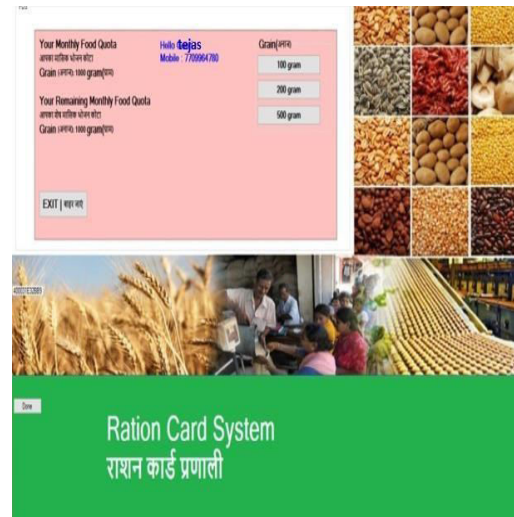

Fig.5 Monthly quota of customer

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.
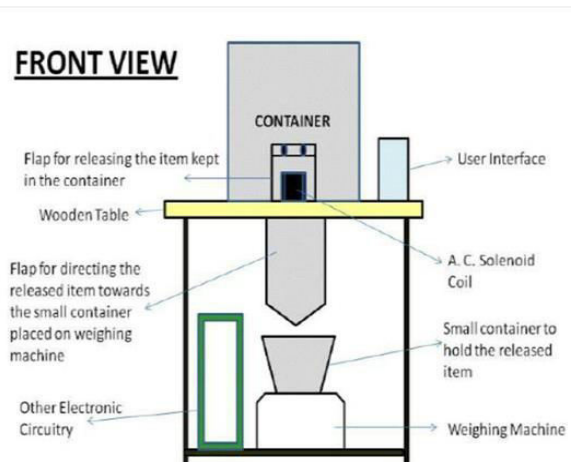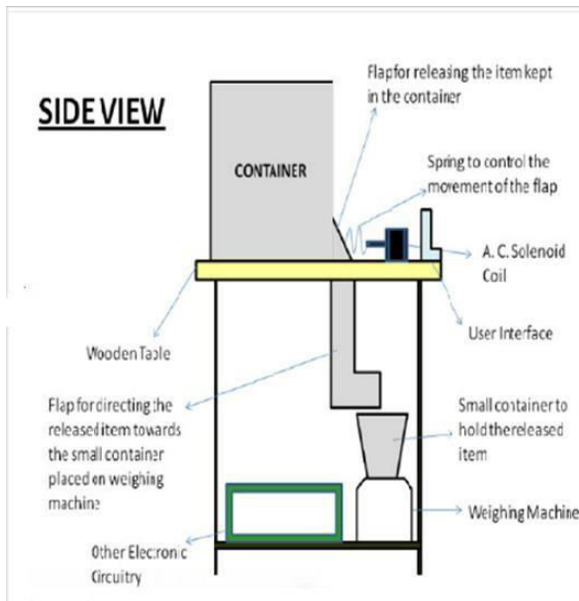

Fig.6 Front view

Fig.7 Side view

V. CONCLUSION

We have attempted to introduce a new technology through this paper that aids in 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 used as an anti-corruption tool because it reduces corruption to a large extent, which was one of the main reasons we came up with this concept. Material weight inaccuracy attributable to human error, poor production speed, lengthy wait times for material at the ration shop, and material theft in the ration shop are all flaws in the regular Ration Materials Distribution method. If the goods are not purchased before the end of the month, they will be distributed to others without the knowledge of the government or the general public.

The electronic ration shop was crucial in addressing the above issues.

RFID was used to supply kerosene and grain material in the automated ration store. RFID replaces the ration card, and consumer data is stored in a folder.The proposed framework creates flexibility in the public delivery system since the function is automated.

VI. REFERENCE

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