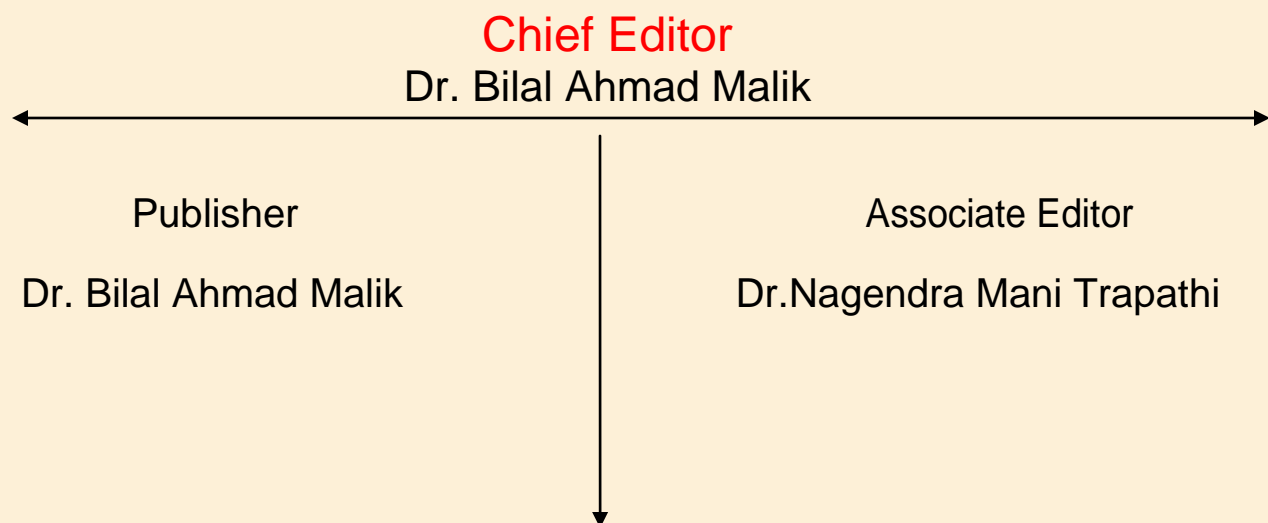


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SMART RATION CARD USING RFID, BIOMETRIC AND GSM TECHNIQUE

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Abstract—This system is based on the concept of Digital India which rationing is done digitally with proper record. In this system RFID reader has been used to get ration card number from the RFID tag given to customers. RFID sends the unique ration ID number to the microcontroller. Microcontroller Verify that ration number and if it matches with stored database then the system allows the customer for taking ration, watch the status of the operation on the LCD. Finally the GSM modem connected with the microcontroller sends data log or database to the customer through SMS. So, by this way we can manage the complete ration system smartly and effectively with proper record which results no corruption.

Keywords—GSM module, RFID Reader, Smart Card.

I. INTRODUCTION

Rationing distribution is one of the major issues that involve corruption. All these happen because every job involves manual work and there are no specific technologies to automate it. There are lots of illegal stuff occurs i.e. wrong entry in register of

shopkeeper, sometimes people do not have idea about how much quantity of good provided by government to them etc. In this paper we propose the concept about to replace manual work in public distribution system (rationing delivery system) by computerized system at the ration shop. In this automated system we replace the conventional ration card by a technique using character recognition of RFID based ration card. Management must have control over all operation happen at ration shop. SMART RATION means spreading of crucial supplies to public through a system on a periodic basis in an automated way. The apparatus supportive to Govt. of India PDS System and to several other disciplines. Here, we are crafting a system where a person shows his/her RFID based ration card and our system provides the Ration to that user. As a result venality is reduced. Radio-frequency identification (RFID) based access-control system allows only authorized or responsible persons to get the materials from ration shops.

There are many types of RFID systems available in the market. RFID classified based on their frequency

ranges. Some of the most commonly used RFID kits are low-frequency (30-500 kHz), mid-frequency (900 kHz-1500MHz) and high-frequency (2.4-2.5GHz). The passive tags are lighter and less expensive than active tags.

Global system for mobile communication (GSM) is a globally accepted standard for digital cellular communication.

GSM is a common European mobile telephone standard for a mobile cellular radio system operating at 900 MHz. In the current work, SIM300 GSM module is used. The SIM300 module is a Triband GSM/GPRS solution in a compact plug in module featuring an industry-standard interface. It delivers voice, data and fax in a small form factor with low power consumption

A. PROPOSED SYSTEM

Our proposed system is providing smart cards to all ration card holders. Smart card contains family head photo and details of all family members and also having thumb impression of them stored in database. Whenever they come to ration shop they can swipe the card and place their thumb impression for verification. After validation success they are allowed to purchase products and the bought product are sended as sms to their registered mobile. In this there is no kind of misuse are done. Whenever their validation was successful then only the product

purchase form opens or else it is not opened. To buy smart card is the normal process of getting ration card; we go to collector office and wrote a request letter by attaching proofs. Then the officer entering their id and places their thumb impression to open their account. After validation account opens, and then they used to enter the details of citizen and place their family head photo and save the document. If they want to add new member to their account they are added in government office after requesting. Then under officer there is an accountant who used to send goods to local shop. He/she has a separate account to add goods. These are also maintained in a database. When the accountant updates the goods details in particular shop they are updated in local system. Then the goods are transferred to that shop. The shop keeper cant able to change any details. Citizen can swipe card and place thumb impression and validate it and place order and buy goods.

Difficulty for eligible and excluded beneficiaries to obtain new ration cards

Establishing the identity and uniqueness of new applicant involves a thorough check to verify the genuineness. The task will be simplified to a great extent by cross-matching the applicant details with already existing entries from database such as Aadhar Card database, Voters List database, etc., The e-Ration Shop with Biometric device enables such searches and cross-verifications.

Difficulty in updating details such as addition/deletion of members, change of address, change of FPS, etc.

Updating details such as changes in family change in residential address, marriage in family and birth or death occurring in a family needs to be properly recorded for effective inventory control and distribution of rationed essential commodities. e-Ration Shop with Biometric device is a software system to automatically update and flag such changes so that the FPS manager can initiate proper action

FPS does not open every day, nor do they keep regular hours. Even on the days that the FPS is open, ration card holders have to stand in long queues.

Generally FPS neither opens every day nor do they keep regular hours. The proposed software system provides information about the day and time to report at e-Ration Shop to the card holders through SMS. The schedule mechanism in e-Ration Shop divides the total number of card holders based on categories and sends a message accordingly. This makes the card holders not to stand in queue for long duration of time.

FPS Manager has to maintain registers manually and has to spend considerable time to submit reports to the Food Department.

Considerable time is spent by the FPS Manager to document various details such as list of customers, list of items purchased by the customer, inventory on hand, projected inventory for next purchase date, and several other periodic, cumulative reports. Such reports can be automatically generated using the e-Ration Shop with Biometric device system, thus saving a lot of time and avoiding manual errors.

No mechanism to identify inclusion errors such as duplicate, bogus and ineligible beneficiaries.

The fingerprint is a unique human characteristic and hence this is used in the FPS to make it fool proof. Hence duplicate, bogus and ineligible beneficiaries can be avoided. On the whole, e-Ration Shop with Biometric device system aims to ensure that only the entitled lot receives the subsidized food material and all other routine chores of inventory planning and reporting are done with least human intervention to ensure smooth operation of the PDS scheme.

II. DATABASE MAINTENANCE

Ration Shop with Biometric device will have two databases for two different categories i.e. one for the card holder information and the other one to store the details of the products that are being distributed to the people below poverty line. So every time the distribution has been made there is a necessity of updating and maintaining the database to avoid the

miscalculations.

A. Customer's Database

For maintaining this database we have to collect all the related information and have to store it in the database. Every time if there is any change in the details provided by the customer. It should be immediately updated in the respective database. When the distribution of the products is made then the credits will be deducted from the customer's account so the dealer should make sure that it is updated in the following database and the credits are deducted from his/her account.

B. Product's Database

This database is used to contain the details of the products available at the FPS. When the stock of products arrives at the FPS then that particular amount of data is updated in the database. When the distribution is made to the people below the poverty line then the quantity of the products reduces in that particular FPS and hence it should be updated in the database. For example if 3kg of rice has been distributed to particular customer then that 3kg should be deducted from the total amount(quantity) of rice in the database. Maintain the database and generating the bill becomes important because these are the two factors that will help the government to avoid the corruption in PDS.

III. FINGERPRINT BIOMETRIC DEVICE

Fingerprint recognition is the technology that verifies the identity of a person based on the fact that everyone has unique fingerprints. It is one of the most heavily used and actively studied biometric technologies.

Why Fingerprints?

The cost of a fingerprint based biometric system is quite low in comparison to others like iris and face readers. Fingerprint based systems are quite strong and can be deployed across any kind of environment. This system is less intrusive than iris or retina scans. Most people find it unacceptable to have their pictures taken by video cameras or to speak into a microphone. Finger based systems are more user friendly. Besides, the ability to enrol multiple fingers makes this a very flexible option. It is a proven technology and has been in use for a long time as compared to other nascent technologies.

Principles of fingerprint biometrics

A fingerprint is made of a number of ridges and valleys on the surface of the finger. Ridges are the upper skin layer segments of the finger and valleys are the lower segments. The ridges form so-called minutia points, ridge endings and ridge bifurcations. Many types of minutiae exist, including dots, islands, ponds or lakes, spurs, bridges. The uniqueness of a fingerprint can be determined by the

pattern of ridges and furrows as well as the minutiae points. There are five basic fingerprint patterns: arch, tented arch, left loop, right loop and whorl. Loops make up 60

IV. GSM

GSM stands for Global System for Mobile communication. GSM is a globally accepted standard for digital cellular communication. GSM digitizes and compresses data, then sends it down a channel with two other streams of user data, each in its own time slot. It operates at either the 900 MHz frequency band. GSM modem is a wireless modem that works with a GSM wireless network. After distribution of the materials controller send the information about the distribution of material to government office and customer through GSM technology. This would bring the transparency in public distribution system as there will be a direct communication between people and Government.

V. RFID READER

This device is used to access the family members details with respective RFID cards. If the person shows the card to system then it is ready to ask password, if password matches then the person can access the materials. The Radio-frequency identification and detection reader is a tool that is used to talk with the RFID tags by means of transmitting and receiving signals. The

identification is based through a unique serial variety. In this task we are using to identifying the person information, based on the ones statistics we are able to perceive the good in redundant manner. the reader and the transponder.

"Transponder" is a counterfeit word made up of "transmitter" and "react". In the reader a generator creates a prepared sign that is bolstered to a curl. This curl creates a substituting attractive field, showed in Figure 1 by the oval field lines which enter and leave the whole loop on all sides. Some of these field lines move through the reception apparatus curl of the transponder. As indicated by the law of actuation a voltage is produced in the transponder curl which is then handled by the joined hardware (chip). A reaction sign is created that is transmitted back to the reader, in this manner recognizing the transponder and making it prepared. This rearranged portrayal of how the instrument functions frames the premise of all variations of the RFID framework. RFID frameworks are generally utilized as a part of stock following however get to frameworks in light of RFID are additionally entirely basic. In the field of word related security, transponder innovation is not yet that far reaching as this is another region of utilization.

VI. CONCLUSION

In old ration distribution system the ration is not provided to the needy people, the drawback is overcome by our system. As this system is a propose system we can see that by using such a system we can avoid corruption in ration distribution system in a large quantity. As there is no manual data stored in old ration distribution system now in a new system all information is stored in database, the higher authority can check the details as and when its necessary through the use of servers. The ration is taken from go down through the PC by swiping the card and placing thumb impression for verification. After validating id the goods are supplied to customer.

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