

SMART RATION DISTRIBUTION SYSTEM BY USING RASPBERRY PI

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Abstract— The Ration Distribution System (RDS) is one of the most controversial issues in India and it involves mismanagement, corruption, and illegal activities that happen in rural as well as urban areas. In Existing Ration Distribution System (RDS) the food grains like wheat, rice, etc. are given to the Ration cardholder manually. And there will be chances that grain not properly get distributed. Similarly, remaining grains will be sold to the user illegally and there is no transparency in this existing system. Whenever the food grains are available in the ration distribution center, the beneficial family does not get proper information about when the distribution will start because most of the beneficial people are either a farmer or Worker. To overcome such illegal activity and problems we proposed a system called "Smart Ration Distribution System by Using Raspberry pi". In this system we use Raspberry Pi and GSM technology for automatic ration distribution and informing the people about ration is available in the Ration Distribution Center by using an SMS message. When the Smart Ration Distribution system start, Camera module scans the QR code available on the Aadhaar card as an alternative for ration card. When the information matches the existing data system will automatically display the number of food grains allocated to the user on a monitor.

In our project, we have replaced the manual work done in distribution centers by smart measuring automatic electronics device with the help of raspberry pi which measures goods accurately and updates the data regarding the stock the main database is created Which can be accessed by both common localities and by the government mainstream invigilators for distribution centers from their head office. Therefore this project ensures corruption-free ration centers working system which will also enhance the direct communication of the consumers with the government.

Keywords— - Raspberry pi, GSM, Web Camera, Aadhaar card.

1. INTRODUCTION

In this paper, we have proposed the Smart Ration Distribution System by using Raspberry Pi and GSM. A ration distribution shop, also known as public distribution shop (PDS), is a part of India's public system started by the Government of India which distributes rations at a Low price to the poor. These shops provide subsidized food grains like wheat, rice, etc. to the ration card holder as per the policy of Government. In the Existing system, all the food grains are distributed manually and the information about distributed grain is registered manually on paper. So there will be chances of wrong information get registered. Also, governments don't have the proper

information about how much grains stock is remaining. This existing system has various drawbacks due to the intervention of humans which leads to illegal selling of ration because of this corruption is increases and food grains not get distributed properly to the poor people. All this process of the distribution held manually that makes existing system time consuming and sometimes people have to Wait in lines for the grains. The main reason for using this Smart ration distribution system is to remove the drawbacks of the existing system and makes the system faster and accurate, also provide the proper information to the Government to reduce corruption and increase transparency.

2. LITERATURE SURVEY

Swapnil R.Kurkute et.al[1] introduced initial research on the basis of the RFID cards. RFID cards are not ration cards, but constitute of most of the particulars of the account holder, such as personal information, form of card and its legitimacy, etc. The grains are allocated by checking the RFID card by the customer.

Supriya Lokhande et.al[2] in the developed framework Client has to join the application in which it is associated with the application User name and password that are available from the email Address. At the stage where the Customer enters the Proportion Store, the RFID tag should be checked before the RFID peruse. Burden cell and IR sensor are used separately for the precise weighing of grain and gas.

S. Valarmathy et.al[3] In this article,suggested an Electronic Ration Products Delivery focused on GSM and RFID technologies rather than ration cards. To have the commodities in ration shops, the RFID sticker must be placed in the RFID scanner, so the manager scans the consumer codes and descriptions of the sums in the wallet.

R. Padmavathi et.al[4] aims to simplify the delivery of ration using smart cards based on Aadhaar card application. A concept device based on an ATM computer is used in this

method. With this technique, consumers can obtain a stable and immersive ration delivery automization strategy. The Aadhaar card contains all the necessary information such as name , phone number, address, bank account numbers, biometric and demographic information. Customer records are held in the centralized database established by the policy authority.

3. PROPOSED SYSTEM

In this proposed system our main focus is to remove the drawbacks of the existing system and reduce corruption. Our proposed system is simple and less time-consuming. In our system, Raspberry Pi is a main controlling unit, and the Camera module and GSM are interfaced with it. Here Camera is used to scan the QR code which is already present on Aadhaar card and the information which we get scanning Aadhaar card QR code is compared with the information already stored in the database. GSM is used to exchange the information\Messages to the people.

When the system starts first it will automatically send the message to the availability of the ration to all registered users via. GSM. We decided to use Raspberry Pi-3 Which acts as a mini-computer. After the information matched with stored information in the database, it will automatically show how much grains are allocated to that particular person and the machine will automatically provide the grains like Wheat or Rise, etc. This grain is measured using the weight sensor. Whatever grains allocated to the user is displayed on the screen and the distributor not able to change it. After the successful distribution of the grain, this data automatically stored in the government server. This will remove the total paperwork and there will be total transparency in the distribution. This will helps the government to better management of the grains stocks and Poor people will get the grains as per the government allocated them. The proposed system is shown in fig.1

4. BLOCK DIAGRAM

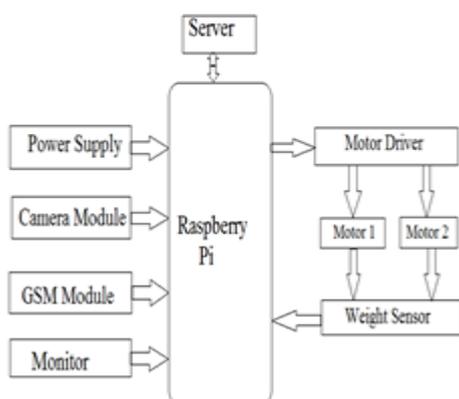


Fig 1 Block diagram of the proposed system

5. SOFTWARE TOOLS USED

1. Raspberry Pi OS

In our project, we have used raspbian. It is based on Linux Debian and used as an operating system for the proposed system. Raspbian is highly optimized for Raspberry pi lines low-performance ARM CPUs.

2. OPEN CV

Open CV is used in our project to scan the QR code of the customer ID card. Open CV is used for image and video analysis which includes but is not limited to facial recognition, photo editing, advanced robot vision, etc.

3. VS Code editor

Used for python code development.

6. FLOWCHART

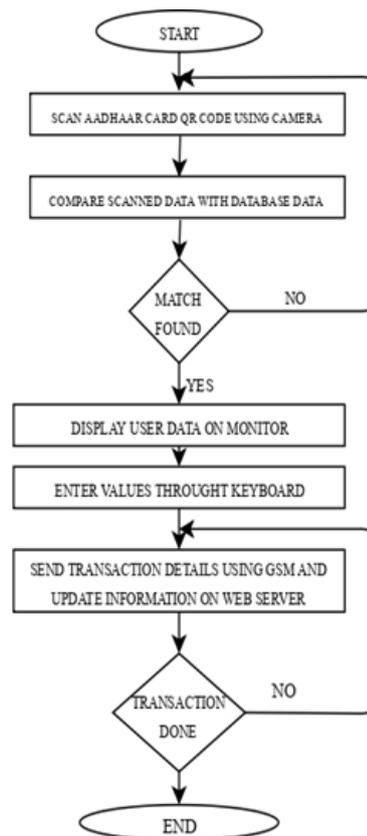
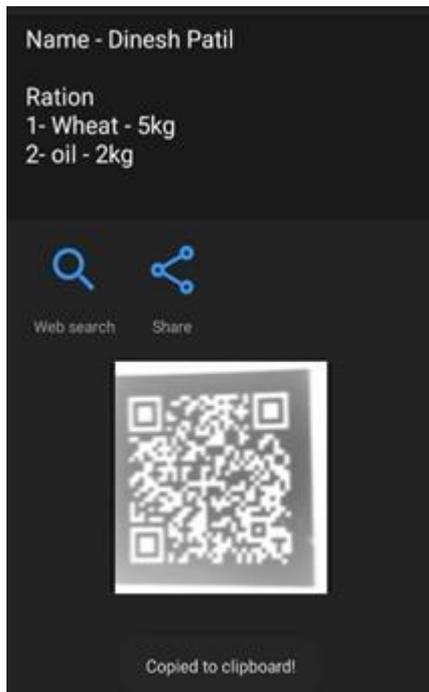


Fig 2:- Flowchart of system

7. ALGORITHM

1. Start
2. Initialize the system
3. Scan Aadhaar card details using camera.
4. Compare scanned data with database data.
5. Check whether match found with the database.
6. If found display data on the monitor.
7. If not found enter values through the keyboard.
8. Send transaction details using GSM and update information on web server.
9. Display transaction done.
10. Go back to step 1.

8. RESULTS



9. CONCLUSION

The Ration Distribution System (RDS) is one of the most controversial issues in India and it involves mismanagement, corruption, and illegal activities that happen in rural as well as urban areas. In Existing Ration Distribution System (RDS) the food grains like wheat, rice, etc. are given to the Ration cardholder manually. And there will be chances that grain not properly get distributed. Similarly, remaining grains will be sold to the user illegally and there is no

transparency in this existing system. We tried to make the system digitized system and we call it a smart ration system. Using this system we can provide quality products, good grains, and the process would be less expensive and less time-consuming. Aadhaar card integration is possible for the Distribution device. This requires less hard work as compared to other devices. It could also be optimized to reduce the chances of adulteration and fair weight policy.

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