

International Journal of Innovative Research in Science, Engineering and Technology

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Visit: www.ijirset.com

Vol. 8, Issue 1, January 2019

Smart Automatic Rationing System

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ABSTRACT Ration card is extremely vital for every home. It perform as address evidence for various purposes. It is used for various fields such as for obtaining family members details, to obtain gas connection, etc. Every home has a ration card to obtain the various materials (sugar, rice, oil, kerosene, etc.) from the ration shops.

The proposed automatic ration shop for public distribution framework is based on Smart Automating rationing system that replaces ordinary ration cards. Smart rationing system based on Aadhar card based automatic ration shop is novel approach in public distribution framework (PDS) valuable for more productive, precise, and automated strategy of proportion conveyance. A fingerprint sensor is used for identification. The proposed distribution framework has the ability to overcome disadvantages of the existing system like wrong amount of products, low processing speed, and large wait in time, material theft in ration shop. The proposed framework replaces the manual work in proportion shop. The principle goal of the planned framework is the automation of ration shops to give straightforwardness.

KEYWORDS: Biometric, Automatic Ration System (ARS), IoT

I. INTRODUCTION

Everyone having a ration card to buy material from ration shop. When they get material from the ration shop, at first they need to show distribution card and they need to sign the ration card to get the material. To distribute essential commodity at subsidized rate to the general public, who belong to below poverty line, public distribution system has been established by Government of India. But, various malpractices have been carried out in public distribution system namely distribution of inferior quality goods, under weighing of goods, circulation of ghost cards, circulation of PDS articles in open market. As a result, eligible beneficiaries are unable to obtain goods from public distribution shops. Thus, main goal of Government has not been fulfilled as a result of problems prevailing in PDS.

II. PROBLEM STATEMENT

To design a real-time system. It will help to automatize the work that will help to replace the manual work. It helps to reduce wrong amount of products and also to reduce large waiting time and material theft, authenticate the user using valid authentication and enable the user to get information about their ration via SMS. It helps to design the separate modules such as admin module, user module and consumer module. It is design a database that will store information of customers and their distributed ration. It helps to generate a graphical report which can be viewed by admin and also to reduce the frauds occur in current ration distribution system.

III. LITERATURE SURVEY

Automated Rationing System Using Raspberry Pi:

Public distribution system i.e. rationing distribution is one of the issues that involves corruption and illegal smuggling of goods. In this paper we propose the concept of replacing manual work/job causing these irregularities in public distribution system (rationing distribution system in India) by automated system which can be installed at the ration shop with ease. Automated system described in, author replace the conventional ration card by ATM card. Proposed system also uses AADHAR No (UID) for user's authentication. Using such a system, Government would have all required control/monitoring over the transactions at ration shop. To involve Government in the process we proposed

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connecting the system at ration shop to a central database (provided by Govt.) via GSM module (SIM300D) and RS232. [1]

Smart Ration Card System Using Raspberry-pi:

Ration Card is one of the important documents for every Indian family. Every family is given facility by government to receive food grains against a card. But there is lot of corruption involved in TPDS such as black marketing of the subsidized food grains as many families do not claim their quota of food grains and many families claim the quota of other families. As a solution to above problems this paper proposes a system which is highly scalable Ration Distribution System based on embedded system. The main target of project was to bring transparency between government and customer, and this transparency is provided by webpage. Here the conventional paper ration book is replaced with Biometric based smart card. When any transaction is done by customer he/she will receive a message on his mobile through GSM technology. [2]

Automatic Ration Material Distributions Based on GSM and Biometric System:

System proposed an Automatic Ration Materials Distribution Based on GSM (Global System for Mobile) and Biometric technology instead of ration cards. To get the materials in ration shops need to match the finger print, then controller check the customer codes and details of amounts in the card. After verification, these systems show the amount details. Then customer need to enter the required materials by using keyboard, after receiving materials controller send the information to government office and customer through GSM technology. In this system provides the materials automatically without help of humans. [3]

Smart Ration Distribution and Controlling:

This system proposes the advanced Ration Distribution System, named as “Smart Ration Distribution and Controlling”. Huge amount of Government money get wasted due to corruption in the conventional Ration Distribution System. This paper implements a simple PDA device (personal data assistant) with Finger print scanner used as an e-ration card in place of a conventional ration card. This PDA device scans the finger print to check the authorized person to decrease fraud. Efforts are put together from our side to combat corruption and to have better management of public distribution system. [4]

Key difference between these reference papers and our system is a Smart System and Application for ration card contains Biometric. To prevent the ration forgery as there are chances that the shopkeeper may sell the material to someone else and take the profit and put something false recodes in system. In smart rationing system, Biometric used as authentication. If the user is found authentic then the quantity of ration to be given to the customer according to the total number of family members will be displayed on display device. A smart system is free from thieves. Delivered ration details directly send through web application to the government of India without any manual feeding and also sending message to customer’s register mobile number and ration receipt.

In the existing system having two drawbacks, first one is weight of the material may be inaccurate due to human mistakes and secondly, if the materials are not bought at end of the month, they can be sold to others without any intimation to the government and customers. The above drawbacks can be rectified by the proposed method. In this system, ration materials (sugar, rice, oil, kerosene, etc.) are distributed through an automatic mechanism without any help of humans. After receiving the materials, information is sent to government and customer through GSM technology. This system is very accurate, which is used for the real time applications. Thus, on the basis of literature survey and by analyzing the existing system, we have come to a conclusion that the proposed system will not only aid the government agencies but will also help to digitize the system and in turn help to deploy resources efficiently to the citizens.

The apportion card framework confronts two disadvantages: - first the business person who weighted the material can be erroneous as a result of his misstep. Second is, if the material is not purchased till the end of the month they will send to others without authorization of the administration. After effective check client expected to enter the required material with the assistance of keypad. After conveying legitimate material to client microcontroller and in addition PDS authorities utilizing GSM (Global System for Mobile Technology)

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Smart Automatic Rationing system is based on GSM & Biometric instead of ration card through which the controller will send the information to the customer & this same information will be updated on web page. By using this system we can avoid corruption in ration or public distribution system to some extent.

IV. SYSTEM ARCHITECTURE

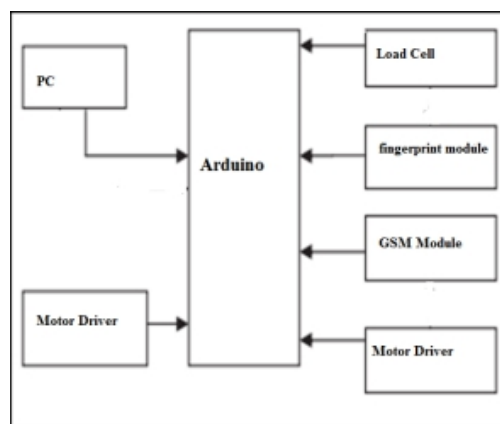


Fig.1 block diagram of proposed system

PC:

Personal computer is required to maintain the database using web application. PC is mainly used to display details of consumer or customer. Dealer can login into the system to check availability of materials.

Load Cell:

A load cell is a sensor or a transducer that converts a load or force acting on it into an electronic signal. There are many types of load cells which are resistive load cells and capacitive load cells.

Fingerprint Model:

Biometrics is the measurement and statistical analysis of people's physical and behavioral characteristics. The main aim of the bio-metrics authentication is that everyone is unique and an individual can be identified by his or her intrinsic physical or behavioral traits. Proposed providing biometric authentication of the customer to maintain privacy and security. Biometric authentication of single person from family is allowed. There are different biometric authentications are used for security purpose like iris, fingerprints, etc. Thumb recognition is used in proposed system.

GSM Model:

An SMS gateway allows a computer to send or receive Short Message Service (SMS) transmissions to or from a telecommunications network. Most messages are eventually routed into the mobile phone networks. The connection to the mobile network is made by acquiring a SIM card number from the mobile operator and installing it in the gateway.

Motor Driver:

A high control dual motor driver/controller Integrated Circuit (IC). It is able to drive load having current up to 1A at the voltage ranging from 4.5V to 36V. Motor driver usually act as current amplifier because they receive a low current signal as an input and provides high current signal at the output.

Proposed system: first consumer register with the GOVT. portal afterwards consumer will get the User ID and Password through SMS. Then consumer will visit the ration shop that time he/she will have to scan thumb that time it

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will allocate the ration to that consumer. Then the respective ration that may be solid or liquid will dispense to him/her automatically. The consumer will get the confirmation SMS through GSM.

For controlling amount of ration, System using motor so that only that approximate amount of ration will fall for weighing. Since controller output voltage and current are only 5V approx. and 16mA whereas a motor requires 6/12V and 100mA therefore we need a motor driver IC to drive motor with such a large power. GSM is used for sending message to convey a customer that he has took this amount of ration from ration card.

V. ALGORITHM

- Step 1:** Initialize the system.
- Step 2:** Scanning of customer's fingerprint.
- Step 3:** Scanned data get by controller.
- Step 4:** Matched customer's data with already present data in database.
- Step 5:** If valid then shopkeeper access customer's data.
- Step 6:** Allot ration given per month.
- Step 7:** Load cell measures the ration, if allotted 5kg then only 5kg ration will be given to user by Motor.
- Step 8:** If allotted ration is given then it is deducted from current allotment.
- Step 9:** User get all details about its ration by text message on mobile.
- Step 10:** Stop.

VI. CONCLUSION

Subsequently finish of the venture is to secure and safe access of ration cards in savvy way, and it is extremely secure with mystery scratch protection, if entered secret word isn't right in first endeavor then the structure permitted to enter watchword once more, the client again neglects to enter effectively then the system sends message to affirmed individual through GSM module. In order to overcome the above problems in the existing system, an automated embedded system is proposed.

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