

The APP based Ration System

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Abstract— In today's scenario many immoral activities are taking place regarding distribution of items in the ration shops. As the ration system is meant to deliver ration commodities to the customers in a fair and stipulated amount of time, but now-a-days current ration system in India lacks such things and moreover they involve in illicit and manipulated ways of distribution of the items. To overcome all these issues, we rather discovered the concept of RFID cards and online mode of payment of items purchased by the customers. This paper will contain all the depiction and descriptions of introduction and use of RFID cards along with the automation of the entire existing system. Further the entire system will be connected to the cloud using a local host to simultaneously update and fetch the data.

Keywords— *RFID, Cloud, Ration system, Local host*

I. INTRODUCTION

Public Distribution System is an important body undertaken by the Government of India under Ministry of Consumer Affairs Food and Distribution. The main aim of PDS is to deliver ration to each individual in a subsidized form as compared to the market. Introduction of PDS has played an important role in a country like India where majority of its population residing in villages are suffering from malnutrition. But ongoing PDS system fails to overcome problems like improper storage of commodities, lack of proper hygiene, less of monitoring of data and manual work. As all the systems are inefficient in certain aspects, we came up to address and combat such issues in a well efficient and easy manner.

The major issues related to current PDS system is malpractices related to adulteration of ration items, improper weighing and faulty data management are prevailing from years. Our approach of upgradation in PDS not only helps in furnishing good and hygienic product but also helps in eradicating most of the issues.

The main functioning of current PDS includes the following points:

- Procurement of food grains
- Identification of poor and needy

- Issue of ration card to poor people
- Storage
- Allocation of food grains to states
- Transportation of food grains to Fair Price Shops
- Ration shops
- Customers

As an overview of our project, we are incorporating certain technologies which will help in eradicating certain loop holes in this current system. Some enhancements like introduction of RFID (Radio Frequency Identification Card) cards are used as an upgradation to the ration cards. This card will contain the ration details of each individual which will be protected by a unique password so the access is totally confined to the user itself. The card will then be linked with the bank server which will be created through the cloud. All the functions like data upgradation, money transactions, data fetching etc can be done through the server itself. This approach will not only decrease malpractices but also reduce the use of manual work in the work place.

II. LITERATURE SURVEY

The central and state governments shared the responsibility of regulating the PDS. While the central government is responsible for procurement, storage, transportation, and bulk allocation of food grains, state governments hold the responsibility for distributing the same to the consumers through the established network of Fair Price Shops (FPSs). State governments are also responsible for operational responsibilities including allocation and identification of families below poverty line, issue of ration cards, supervision and monitoring the functioning of FPSs. A public distribution shop, also known as fair price shop (FPS), is a part of India's public system established by Government of India which distributes rations at a subsidized price to the poor.[5] Locally these are known as "ration shops" and chiefly sell wheat, rice and sugar at a price lower than the market price called Issue Price. [2]It proposes the main function of PDS in India along

with its working and management. The central and state Governments share responsibilities to provide food grains to the identified recipients. The centre procures food grains from farmers at a minimum support price (MSP) and sells it to states at central issue prices. It is responsible for transporting the grains to warehouses in each state. States hold the responsibility of transporting food grains from these warehouses to each fair price shop (ration shop), where the beneficiary buys the food grains at the lower central issue price. [3]This helps in approaching the software implementations and managing the data so that it can be stored in the server. It is a virtual platform where cloud environment can be created so that whatever documentations are done are rapidly updated in the cloud platform. Further it provides easy modes working stages to alter every details in an efficient manner. [5]It was designed for the Internet of Things. It can control hardware remotely, can display sensor data, can store data, visualize things and do much more. It is responsible for all the communications between smartphone and hardware.

III. PROPOSED WORK

The entire system consist of implementation of hardware for the delivery of the items and software part for the maintenance of the database for transaction and stock handling purposes. The design is basically electronically updates to control and coordinate all the processes. Working with the Blynk software to create an application based software system which will provide it provides a platform for connectivity using Bluetooth and USB without using any sort of WiFi or Ethernet shields. It is a pre designed app in which we have to configure our design requirements with it. The flow diagram of both the hardware and software is shown in the figure below.

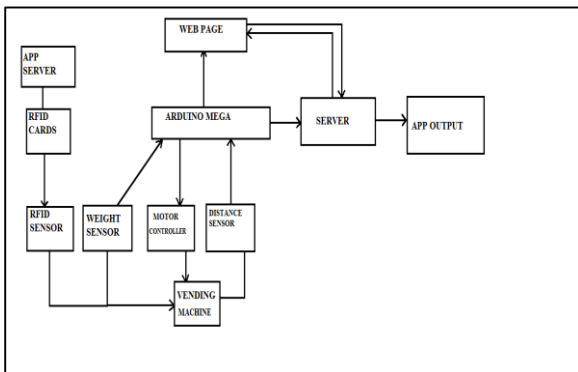


Fig. 1. Proposed model

The proposed design has two containers, each to deliver different ration item separately. In each container there will be a servo programmable motor attached beneath it. The specific work of the motor is to control the opening and closing of the small outlet attached to the chamber of the container. All these two motors are configured with timing circuits and are interfaced with the main circuit hub. A collector is placed beneath the outlet above the load cell. Each separate load cell is placed exactly below each outlet of the cabinets which are in turn connected to weight sensors. This weight sensor sends data to the arduino that in turn send commands to on and off the motors and hence controls the pouring of items from the container.

RFID based automatic ration shop is novel approach in public distribution system (PDS) useful for more efficient,

accurate, and automated technique of ration distribution. Public distribution system also called rationing distribution system is one of the widely controversial issues that involve malpractices. The user interface is designed using adafruit. The above fig shows the homepage of user interface, the new user has to register his/her personal details. Further it contains one admin page that stores all the general details of the customer which can be fetched during usage of the data pages as mentioned below.



Fig. Homepage

Fig. 2. Homepage

The above figure shows the homepage which indicates the number of user which are entitled to get the ration items on a specific day.

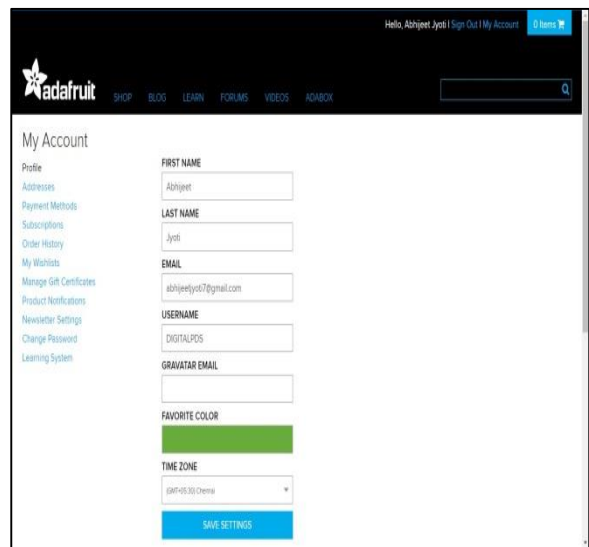


Fig. 3. Registration page

The above page shows the customers personal details which is to be updated in the server.



Fig. Admin page

Fig. 4. Administration Page

The Administration is meant for transaction and monitoring the level of stock. Administration page is made so that against each customer there should be some fixed amount which is stored in the Administration server. Whenever transaction is done the money will be deducted from that particular server against each customer.

IV. RESULTS AND DISCUSSIONS

All the automation which we have done are really helpful for the poor and needy people to safeguard them from get victimizing themselves from malpractices. Further it brings transparency in the working of such large based systems.

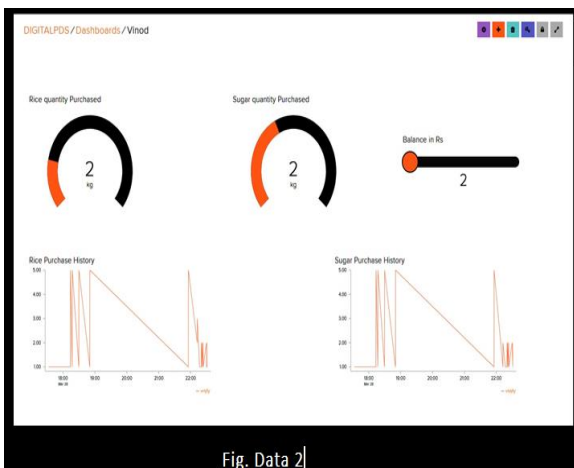


Fig. Data 2

Fig. 5. Data Page

The above figure shows the data distribution of delivered items to the customers along with the remaining balance with the admin server. Each item is specifically mentioned with level of quantity remaining in the stock. With respect to

different type of ration items and we came to know that for widely available items when it is considered as a standard, the experimented items like sugar and rice will take minimum of 30-40 seconds to be poured as 1 kg respectively. The amount requested by the user if it satisfies all the constraints then the total time needed to dispense that item is calculated by finding out the product of respective unit time of the grain (time to dispense 1kg of that grain) with the respective quantity entered by the user.

V. CONCLUSIONS

There is a need of Smart Vending Machine to automate ration shop. Hence it is set as the objective of designing in respect of which a series of experiment will be carried out and different designs will be prepared and based on that the best design will be chosen. This machine is basically designed to work in a timely manner and the time is set through programs by observing results from different experiments which will be carried out in future works of our to increase efficiency and making the system more cost effective.

When the machine will be implemented in real time in a ration shop successfully it helps for the reduction of corruption and hence helps for the development of India.

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