Automization of Rationing System

Shivabhakt Mhalasakant Hanamant[1], Suraj V. S.[2], Moresh Mukhedkar[3]

[1,2,3]**Electronics & Telecommunication Engg.,**
S. P. Pune University, Pune, Maharashtra, India

Abstract

In this system the proposed concept is to replace the manual work in public distribution system. India's PDS is the largest retail system in the world. Ration distribution is one of controversial issues that involves corruption and illegal smuggling of goods. All these things happen because all the work at ration shop involves manual intervention. The illegal activities like, wrong entry in register about amount of product in the shop, selling the products in other shop with high rates, adding impurities to the grains. People don't have the idea about how much grain is allotted to them for this munch. [3]In this paper we are automizing the distribution system at the ration shop as well as we are maintaining the database at one main control station and updating the database so that the shopkeeper do not cheat the poor people. RFID tag is used for authentication and the automatic distribution is done with microcontroller. [1]For updation GSM is used. [4]Along with updation GSM is used to alert the customer about the arrival if goods in the shop and to inform that Govt. has allotted this much quantity for them.

Keywords: GSM, PDS, ration shop,

I.INTRODUCTION

Now a day's every one need a government facilities. There are many facilities that government announces for poor people but, that is not actually provided to them. Because in such system there is lots of corruption. Due to corruption, facilities provided by the government are not reaching to poor people who really need this. One of the systems where we can see the corruption is in rationing system or we can say in public distribution system (PDS). By using ration card everyone is buying their monthly ration from licensed ration shop, but the shopkeepers are cheating the poor people for their own profit by not giving correct quantity of ration provided by government to them. To stop this and to help the common people we are atomizing the rationing system.

The word automation means doing the particular task automatically in a sequence with faster operation rate and more precisely or accurately. This requires use of microcontroller along with communication network and some relevant software programming. The concept is to automate the PDS, A Government Of India initiative process in which a fixed amount of ration is provided monthly to the people by the PDS stores. The increased corruption in the market sector can be prevented if the system becomes automated, increase adulteration can be prevented as well, the hoarding done by the officials and labourers of Govt.

II. EXISTING SYSTEM

Dhanashri Pingale, Sonali Patil "Web Enabled Ration Distribution and Corruption Controlling System"[1] In this system they are storing the grains in the tank, and when the ration is inserted into the shop then that quantity is updated in web server. That website can be accessed by the collector whenever the person requires the ration. The user has to enter the product and quantity using a keypad and LCD display to the computer on which the information of the every person is already filled in the database Then user gets the accurate quantity of required goods. Available quantity of goods in ration shop is again updated in server.
S.Kumar, K.Gopinathan, S.Kalpanadevi "Automatic Rationing System Using Embedded System Technology "[2] In this system overall functioning of module and proposed system that incorporates PLC based automated ration shop. Using AADHAR number and contact details government can send a message to the individuals, containing information regarding quantity of products allotted to a public in a respective ration shop. The smart card and finger print scanner is used for identification. If password and finger print matches then only user gets the access. From touch screen consumer can select the product needed for customer and the process takes place in order to check the account of customer whether the amount is there or not for the given inputs. PIC microcontroller is programmed in such a way that the above mentioned processes are done automatically without any manual interface. Power supply is solar based power supply.
Dhanoj Mohan, Rathikarani, Gopakumar "Automation Of Ration Shop Using PLC" In this system the automation is done through PLC. Keypad and LCD is used for entering

password and quatity of products that customer required. For counting of packets the LDR sensor is used and for weighing purpose load cell is used. Entire distributions of products are done automatically using PLC.

Presently in rationing system all work is required manual attention. Everyone is provided with ration card using this card they can buy their monthly ration, in shop they have to wait in queue for long time because due to manual distribution more time is needed for the shopkeeper to give the ration. All the data regarding of arrival and distribution of ration are entered manually in one book.

Table 2.1: Estimated consumption of TPDS rice & wheat as a percentage of TPDS off-trade rural & urban[4].

	1993-1994	1999-2000	2004-2005	2007-2008
TPDS Consumption	10.64	12.290	13.53	18.93
TPDS off-trade	14.7	17.11	29.65	33.12
Leakage (%)	28	28	54	43

III. PROPOSED SYSTEM

There will be two units. Main control unit from where all the registration process is done. Registration is done using software build in visual studio 2010 (c# language). Database is stored in Microsoft SQL 2008.

Second unit is placed at the ration shop, which will completely control the activities at shop like customer identification, grain distribution, alerting the customers at the arrival of grains and updating the database. We are using LPC2148 as controller to control all activities at the ration shop. Passive RFID tag is used for authentication purpose. Grains are automatically distributed. Solenoid valve is used for opening and closing of container. Two Relays controls the solenoid valve each for movement in each direction. Database is store in EEPROM at ration shop.

GSM is used for updating database. After each purchase a message in particular format is sent to main control unit and that message is decoded using visual studio 2010 and store to the database. Two GSM is used one for ration shop and another for main control unit.

Working

All customers have to register for the ration card. The registration is done at main control station. For registration all customers have to provide their personnel details about their family. After this head of family is provided with RFID card which is used to buy their monthly ration. Once the registration process is completed a message is sent to the ration shop in customer's locality. The message contains RFID no, name (head of family), password,

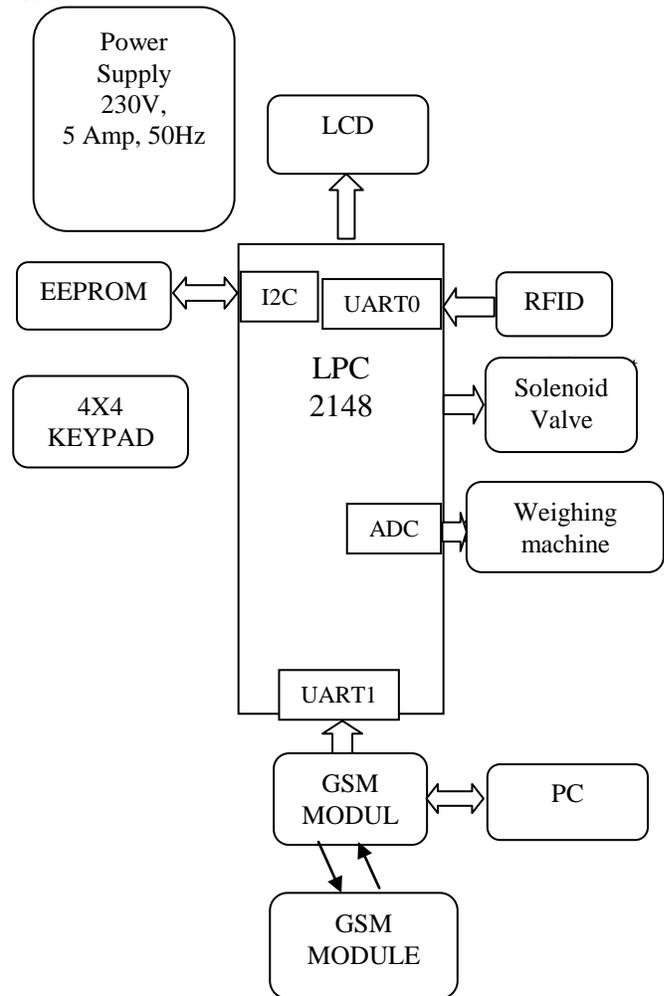quantity allotted and mobile no of customer. The content of

Fig 1: Block diagram of system

message is automatically saved in the controller at the ration shop. Similar way all ration shops and shopkeepers details is also stored at the main control station.

When the ration is dispatched to a ration shop a message is sent to the shop. The message contains the quantity of grains allotted for this month. When message successfully reached to the shop then a message is send to all customers related to the particular ration shop to alert the customers that their monthly ration has been arrived.

At ration shop we are using RFID card and RFID reader for identification. After reading RFID card the reader transmit the unique RFID no to the controller through UART at this time all other interrupts are disabled. Then controller will scan the database to check that the RFID card is valid or not. If it is valid then it asks for password from the customer. Keypad is provided to enter the password. Again controller matches the password with database if valid member then the weighing machine is

activated, the name and the amount of ration allotted is displayed on the LCD. We are using EEPROM for maintaining database in ration shop. Using keypad customer has to enter the product's corresponding serial number they want to buy along with quantity. After getting the input from the keypad controller open the valve of particular container containing the products whose serial number is entered by the user. The grain will directly fall into the container placed on weighing machine. Controller continuously monitor the weight in weighing machine if the weight of grains and the quantity entered by the customer is matched then the controller will close the valve of container. For opening and closing of valve we are using solenoid valve. The total amount which is to paid by the customer will be displayed on the LCD and also one message is sent to the customer via SMS. The content of SMS the amount that the customer has to pay for their current purchase as well as the grains left in their account.

IV. RESULT

The windows based application developed in C# language for providing the facility of registration in ration shop, shopkeeper and customer. Without registration data cannot be saved in ration shop.

Registration details are successfully stored in SQL server 2008.

Customer has to fill their personnel detail of their family for registration, after filling personnel details server provides one 12 digits unique number to the customer, which is unique RFID number.

At the end of registration customer's serial number, name, RFID number, password, quantity of grains and mobile number is send to the ration shop which is already registered in the database. The ration shop's mobile number is searched using the name of village that is present in the address. If ration shop is registered in that village then the details of customer are send to the shop. At the start of system offset is adjusted by pressing "0" from the keypad, then it shows the message on LCD i.e. "swipe the card".

RFID card is required for authentication. The 12 digit RFID number is read and serially sends to LPC2148, if the match found in EEPROM then displays shows "access granted" for 1 sec and then "enter password".

Entering correct password give access to the user's account and shows the message "name and remaining quantity of grain".

Entering required amount of grain opens the solenoid valve and keeps it open until the quantity entered and weight of grain doesn't match. The LCD continuously shows the reading of weight in the step of 50grams.

Remaining quantity of grain is calculated by subtracting the entered value from previously present value.

The remaining account balance and bill for current purchase is send to customer's mobile number and we again get an message displayed on LCD "swipe the card".

Any changes done from server side are displayed on the LCD when the message reaches to ration shop from server.

Server side provides options:

1. Add new account.

2. Send amount of grain.

3. Delete single user.

4. Clear entire memory.

5. Clear balance at the end of month.

Take data about quantity of grain left with the ration shop.

CONCLUSION

As this system is proposed system using this system we can avoid the corruption in rationing system to a large extent. This system has greater scope in future. As there is no manual data stored in books or register, all the data is stored in database hence it is easy for higher authority to cross check the data.

REFERENCES

[1] Dhanashri Pingale, Sonali Patil [1] "Web Enabled Ration Distribution and Corruption Controlling System" IJEIT Volume 2, Issue 8, February 2013.

[2] S.Kumar,K.Gopinathan, S.Kalpanadevi "Automatic Rationing System Using Embedded System Technology " International Journal Of Innovative Research In Electrical, Electronics, Instrumentation and Control Engineering Volume 1, Issue 8, November 2013.

[3] Dhanoj Mohan, Rathikarani, Gopakumar "Automation Of Ration Shop Using PLC" IJMER Vol.3, Issue 5 sep-Oct 2013 pp-2971-2977.

[4] Ministry of Consumer Affairs, Food and Public Distribution Department of Food and Public Distribution, Annual Plan 2011-12.