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RFID Based Automatic Ration Selling System

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Abstract: Now a day ration card is very important for every home and used for various field such as family members details, to get gas connection, it act as address proof for various purposes etc. All the people having a ration card to buy the various materials (sugar, rice, oil, kerosene, etc) from the ration shops. But in this system having two draw backs, first one is weight of the material may be inaccurate due to human mistakes and secondly, if not buy the materials at the end of the month, they will sale to others without any intimation to the government and customers. In this project, proposed an Automatic Ration Materials Distribution Based on GSM (Global System for Mobile) and RFID (Radio Frequency Identification) technology instead of ration cards. To get the materials in ration shops need to show the RFID tag into the RFID reader, 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 they 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.

I. INTRODUCTION

The most of the people having a ration card to buy the materials from the ration shops. When get the material from the ratio shop, first need to submit the ration card and they will put the sign in the ratio card depends on the materials. Then they will issue the materials through weighting system with help of human. But in this system having two draw backs, first one is weight of the material may be inaccurate due to human mistakes and secondly, if not buy the materials at the end of the month, they will sale to others without any intimation to the government and customers. In this project, we have proposed an Automatic Ration Materials Distribution Based on GSM and RFID Technology to avoid the drawbacks. Today we are facing a number of transport related problems. RFID technology effectively used to solve some of them. RFID is act as ratio card and other purpose such as RC book, insurance details, service details etc. GSM used to communicate the information between the two people or more than two persons to update the information depends on the requirements.

Radio-frequency identification (RFID) based access-control system allows only authorized or responsible persons to get the materials from ration shops. An RFID system consists of an antenna or coil, a transceiver (with decoder) and a transponder (RF tag) electronically programmed with unique information. There are many types of RFID systems available in the market. 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.

II. PUBLIC DISTRIBUTION SHOP

Both 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. Under PDS scheme, each family below the poverty line is eligible for 35 kg of rice or wheat every month, while a household above the poverty line is entitled to 15 kg of foodgrain on a monthly basis. A BPL card holder should be given 35 kg of food grain and the card holder above BPL should be given 15 kg of food grain as per the norms of PDS. However, there are concerns about the efficiency of the distribution process.

A. LITERATURE REVIEW

In March 2013 Rajesh C. Pingle and P. B. Borole presented a title as Automatic Rationing for Public Distribution System (PDS) using RFID and GSM Module to Prevent Irregularities and said that public

distribution system i.e rationing distribution is one of the widely controversial issue that involves corruption and illegal smuggling of goods. One reason of this to happen is because every job in the ration shop involves manual work and there is no septic technology involved in automating the job. Involvement of manual work calls lots of irregularities. These irregularities or illegal activities are for example - wrong entries in stock register of shop containing wrong stock information of the products that is supplied to the public, sometimes there are chance of distribution of low quality/graded products than the actual products provided by the Government for supplying to the public, also the information regarding the actual available stock quantity in a ration shop that is provided by the Government to the public. In this paper we propose the concept of replacing manual work/job in public distribution system (rationing distribution system in India) by automated system which can be installed at the ration shop with ease. In this automated system we replace the conventional ration card by smartcard in which all the details about users are provided including their AADHAR (social security) number which is used for user authentication. This prompted us to interface smart card reader (RFID Based) to the microcontroller (AT89C51) and PC via RS232 to develop such a system. 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 connecting the system at ration shop to a central database (provided by Govt.) via GSM module (SIM900D) and RS232. Hence it is possible to pre- vent the corruption and irregularities at ration shop. This would bring the transparency in public distribution system as there will be a direct communication between people and Government through this.

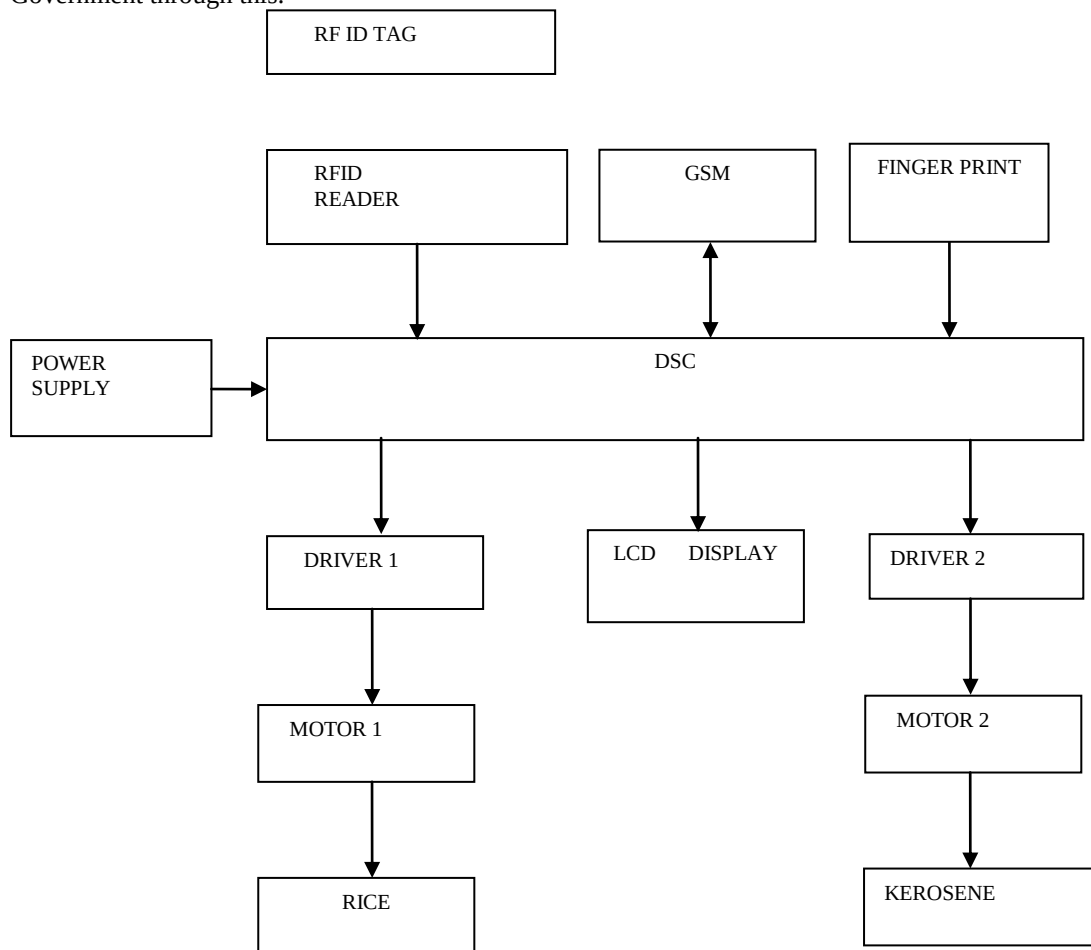


Figure 2.1 Overall block diagram of automatic ration selling system

In July 2013 A.N.Madur1, Sham Nayse presented a title as Automation in Rationing System Using Arm 7 and said that Public distribution system i.e. rationing distribution is one of the widely controversial issues that involves corruption and illegal smuggling of goods. All these happen because every job in the ration shop involves manual work and there are no specific high-tech technologies to automate the job. Because of intervention of manual work there are lots of illegal activity occurs. The illegal activities are like, wrong entry in register of shop about the amount of products that given to the people, sometimes there is chance of distribution of low quality products than actual product provided by government for poor people, 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 distribution system) by automated system which will be installing at the ration shop.

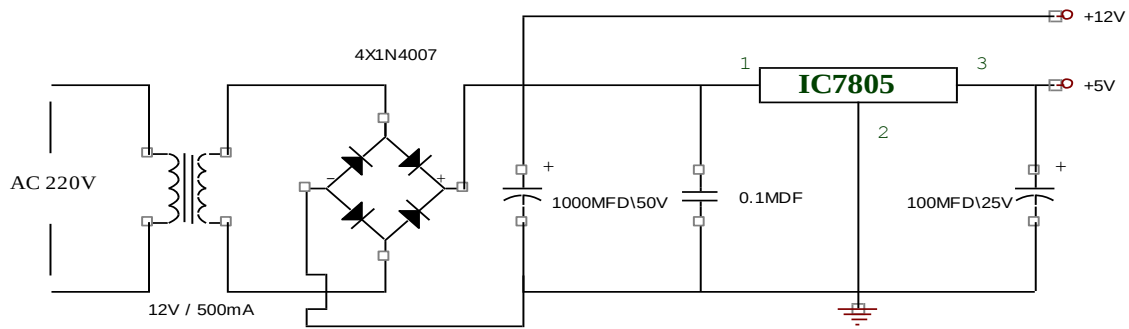


Figure 2.1 Circuit diagram of power supply

In this automated system we replace the conventional ration card by smart card in which all the details of user provided. This prompted us to interface smart card reader (RFID Based) to the ARM. Government should have control over all transaction happen at ration shop, to involve government in the process we can connect the system which is at ration shop to the government database via GSM module.

In November 2013 S.Sukumar *et.al* presented a title as Automatic Rationing System Using Embedded System Technology and proposed concept is to replace the manual work in public distribution system. The ration distribution system is automated by using PLC, which is similar to the ATM. This automated ration system replaces the conventional ration card system by smart card. In addition, the finger print detector is placed in the machine in order to check the correct user access. If the user is correct user, the next process takes place and the input can be given in the touch screen. As soon as the input is given, the products are obtained from the automated ration shop and the amount is taken from the bank account of the particular person. The embedded controller is preprogrammed in such a way to perform the similar operations. In this automated ration shop government have control over all transaction that occurs in ration shop. In order to involve government in the process, the proposed ration shop system is connected to the government database via GSM modules, which further sends the up-to-date information to the government and the consumer. For the efficient operation and economic constraints of the system, the power supply unit is fully made alternate to solar power.

B. CIRCUIT DIAGRAM

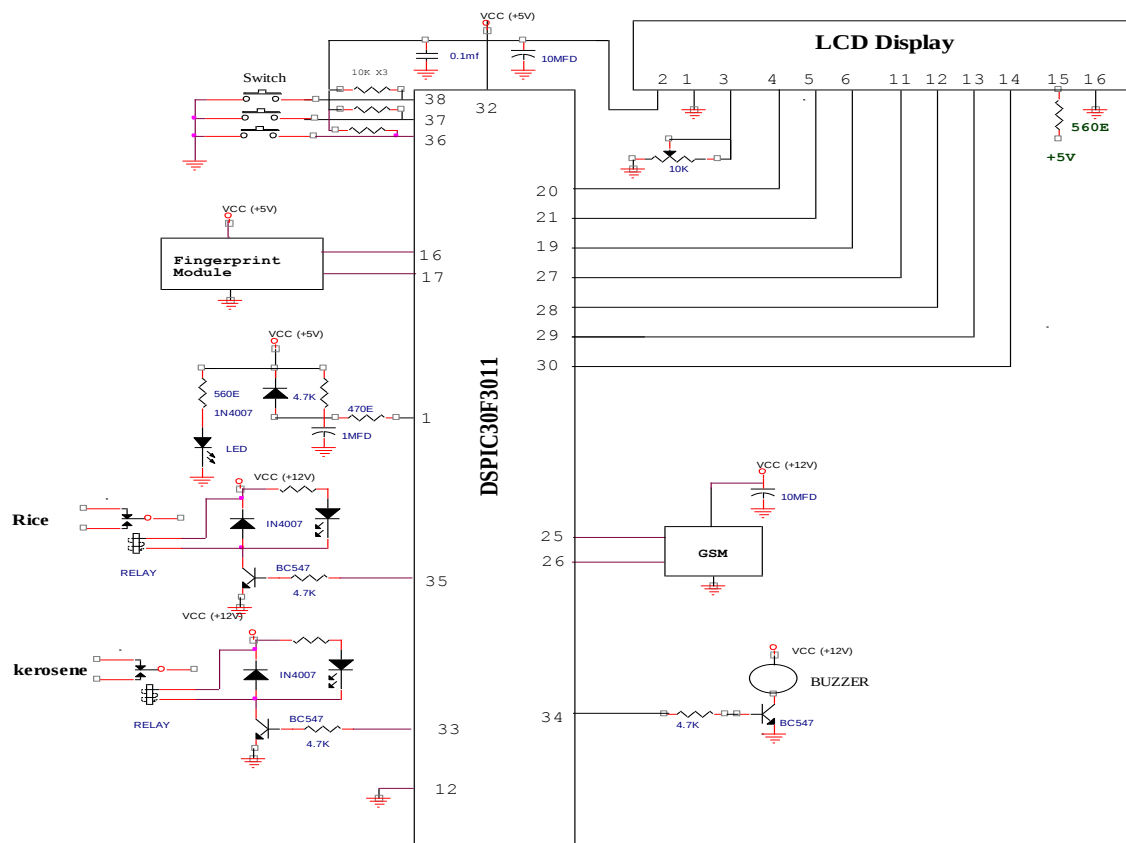


Figure 2.2 Circuit diagram of Digital Signal Controller

III. CONCLUSION

Ration Materials Distribution Based on GSM and RFID technology instead of ration cards. But in the existing system having two draw backs, first one is weight of the material may be inaccurate due to human mistakes and secondly, if not buy the materials at end of the month, they will sale to others without any intimation to the government and customers. The above drawbacks rectified by this method. In this system, ration Materials (sugar, rice, oil, kerosene, etc) distributed through automatic mechanism without any help of humans. After receiving the materials, controller sends the information to government office and customer through GSM technology. This system is very accurate, simple and low power consumption, which is used for the real time applications.

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