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RFID Based Ration Card Using Autmated Load Cell

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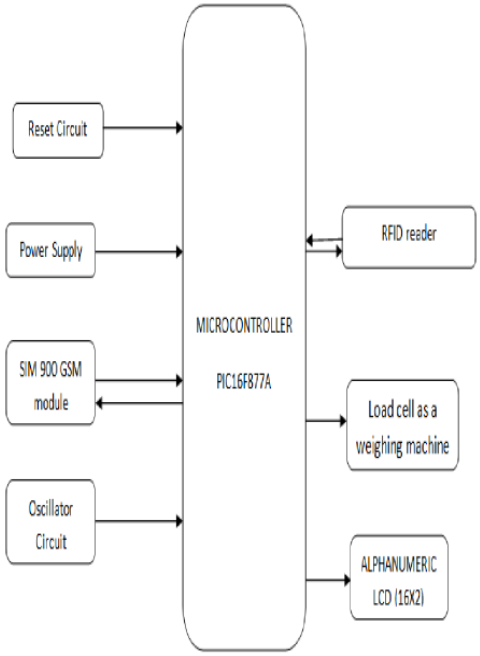
Abstract—
Ration distribution is one of the big issues that involves corruption and smuggling of goods. The only reason of this to happen is because every work in the ration shop involves manual work. These irregularities activities are happen like – the entries which are incorrect in collection record of store containing wrong stock information of the products that is supplied to the peoples, at times it may chance of distribution of minimum quality products than the actual products given by the Government for providing to the public, also the information regarding the available stock quantity in a ration shop that is supplying by the Government to the public. In this paper we propose the concept of changing manual work in public distribution system by automated system which can be installed at the ration shop with ease. This would bring the transparency in rationing system as there will be a direct communication between user and Government through this system.

INTRODUCTION

In this section, we are going to provide a whole introduction about automatic rationing for PDS system using GSM module and RFID to protect irregularities. Using the AADHAR number and phone details, the Government can send a SMS to the users, containing Information regarding quantity of products allotted to any user in a respective shop. Users who are accessing the ration shop for benefits in the cost of products would be allotted a electronic ration card. This card is RFID based card containing all information about the users such as AADHAR number, name and count of family members, their profession, age etc. The system, installed at the ration shop would have three parts i.e. smart card interfacing to PIC microcontroller, GSM module interfacing to microcontroller as well as central database provided by the Government. The user would have to swipe the RFID Tag on the system placed at ration shop. Once authenticated, the automatic rationing system would get information regarding the existing benefits for the that user. Further to protect destructions in distribution of materials. Government can provide various products (like kerosene, wheat, eatable oils rice, etc.)

BLOCK DIAGRAM



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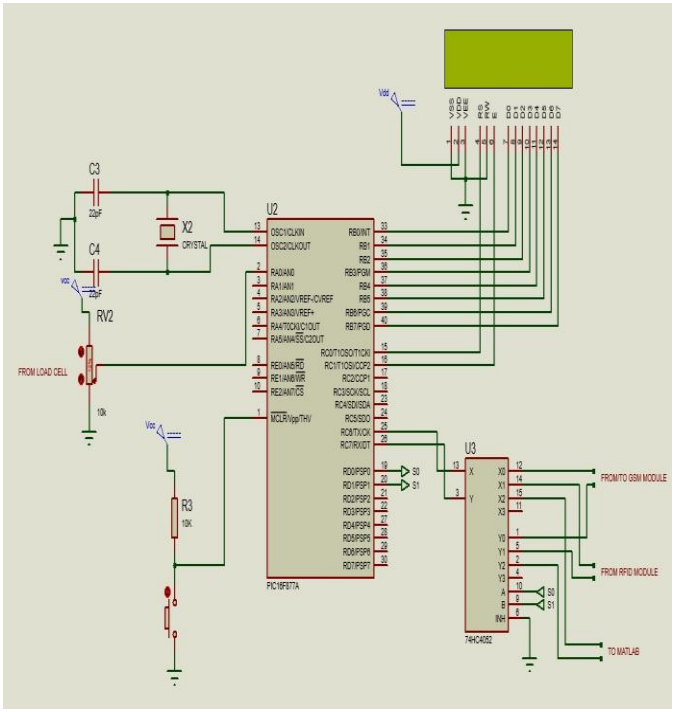
CIRCUIT DIAGRAM



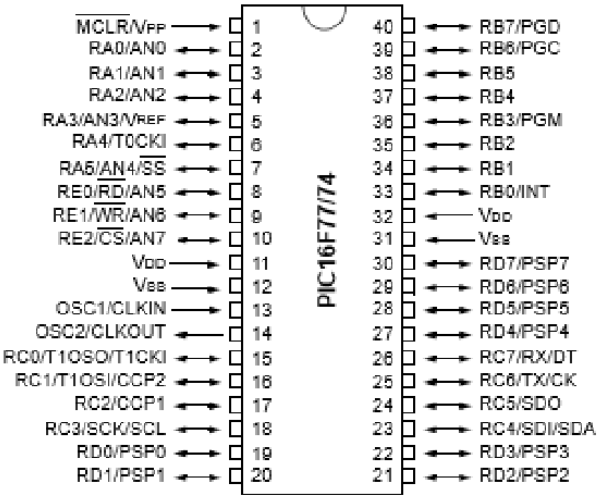
METHODOLOGY

The registration is done at main work station. For registration all customers have to inform their personl information of family. behind this lead of family is provided with RFID card which buys their regular 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 message is automatically saved in the controller at the ration distribution shop. Similar way all ration shops and owener of shop details is also stored at the main control station.

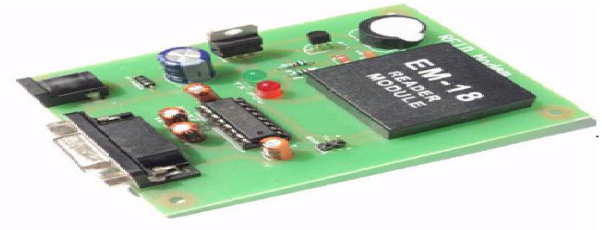
At ration shop we are using RFID tag. After reading RFID card the reader send the RFID number to the controller through UART at that incidence all other distructions are disabled. Then controller will scan the information to check that the RFID card is valid or not. If it is valid then it asks for password from the user. We are using EEPROM for controlling database in shop. Using keypad customer , has to enter the product's regarding serial number they have to buy along with quantity. After getting the input from the keypad controller open the control device of exacting container contain the products whose serial number is entered by the user. The grain will directly fall into the container placed on weighing machine. Controller monitor the weight of load cell if the weight of grains and the quantity entered by the customer is satisfied 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.

HARDWARESPECIFICATION:

1) The PIC Microcontroller (PIC16F877A)



2) RFID Reader Module:



It operating at frequency range of 125 KHz. RFID reader with serial output with a range of 8-12cm. It is a compact unit with built in antenna and can be directly connected to the PC using RS232 protocol. A passive tag consists of three types: an antenna, a semiconductor chip connected to the antenna. The

tag reader is responsible for powering and communicating with a tag.

SOFTWARE USED

- MPLAB IDE
- MULTISIM
- PROTEL (PCB DESIGNING)

ADVANTAGES:

- Increased corruption can be prevented if automated system is used.
- Increased adulteration in consumables can be prevented.
- The problem of hoarding PDS Stores that give materials to price hike can be prevented.
- Cost effective approach.

APPLICATIONS:

- Efficient for Public Distribution System.
- Needed as OTP (one time password) is one of feature of our system.
- Private or any Government sector where large database require.

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