

Intelligent Food Distribution System

[¹] Vishnu.S, [²] Abhisheka, [³] Anilkumar.J.B, [⁴] Dhanush.M, [⁵] Dr. Shipra Upadhyay

[¹][²][³] Department of Electronics and Communication Engineering, R R Institute of Technology, Chikkabanavara, Bengaluru-560090

Abstract— Now a day's corruption and leakage of goods are the major concern in the food distribution system. This is because of the manual operation of food distribution. Most of the times peoples are not aware about the quantity of the food assigned to them. In this paper we propose to replace manual food distribution with Intelligent Food Distribution System at ration shop. Actual quality of the food didn't reach to the poor peoples. Which is flexible to control the distribution system. It provides more efficiency and good quality of service. Here we are using a microcontroller (8051), RFID, DC motor and load cell to design this system.

Index Terms— Microcontroller (8051), RFID, Load cell.

INTRODUCTION

In Intelligent Food Distribution System, food distribution process is automatic. Hence it reduces the manual interventions and provides efficient way of ration distribution. It will provide modern food distribution system in ration shops. So that more transparency & efficiency can be maintained.

This system consists of a user Card, which is a RFID card. An automated system interfaced with a PC and material dispensing mechanism. For material dispensing mechanism a DC motor is used and pump is used to distribute the oil. A microcontroller unit is used for control the whole system. A LCD is used to display the message.

To read and store information about user we punch the card in the card reader and then enter the password through keypad, card reader will reads the information of the card and stores it in microcontroller. Depending on the card information food will be distributed automatically using material dispensing mechanism. The card reader is connected to the system through the printer port. Load cell is used to convert force into electrical scales. LCD is used to display the message.

LITERATURE SURVEY

Vikram et. al. [1] has proposed Smart Ration Card System. It consists of a microprocessor. Smart card contains barcode. When the user flashes the card to the barcode reader. As per the card details dealer provides the ration.

S.Valarmathy et. al. [2], Mohan et. al. [4] and Sukhumar et. al. [7] has proposed an automatic ration material distribution based on GSM (global system for

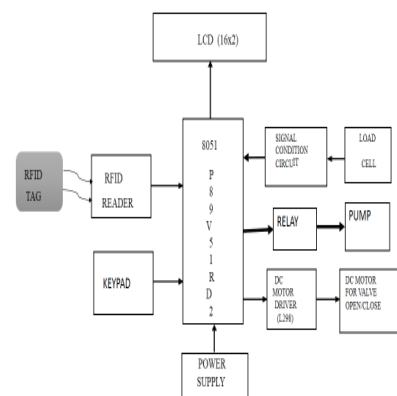
mobile) and RFID (Radio Frequency Identification) technology, which replaces a ration card. This system is automatic and provides ration without interference of human.

Sharma et. al. [6] has proposed new ration distribution system using biometrics, face recognition and voice recognition system.

In the present scenario it is costly to provide automated ration distribution system, because of the population across the country. Barcode based systems are not secure.

BLOCK DIAGRAM OF THE SYSTEM

It consists of a P89V51RD2 microcontroller, LCD, keypad, RFID, power supply, load cell, DC motor and relay.



13

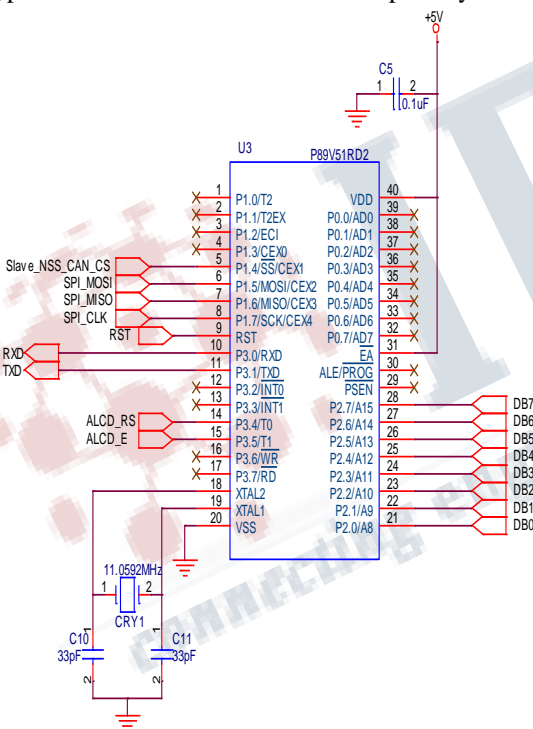
Figure 1: Block diagram for intelligent food distribution system

**International Journal of Engineering Research in Electronics and Communication Engineering
(IJERECE)
Vol 4, Issue 6, June 2017**

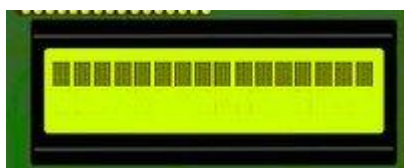
**HARDWARE REQUIREMENTS P89V51RD2
MICRO CONTROLLER (8051)**



Here we are using 40 pin IC. It has 4 ports P0, P1, P2, P3, Each port has 8 pins. P3 is used as a dual function port. It consists of 4KB ROM, 128 bytes of RAM. It consists of two 8 bit timers and counters. It has a single serial port. Its crystal frequency of 11.0592MHz. Various modules such as RFID, load cell, DC motor, keypad is interfaced to it to form a complete system

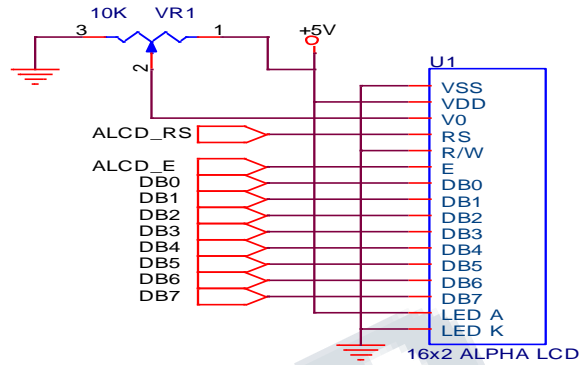


ALCD (ALPHA-NUMERIC LIQUID CRYSTAL DISPLAY)



A liquid crystal display is a thin, flat electronic visual display that uses the light modulating properties of liquid

crystals (LCs). Here we are using 16*2 LCD. It consists of 2 rows and 16 columns.



Pin NO.	Symbol	Level	Description
1	VSS	0V	Ground
2	VDD	5.0V	Supply voltage for logic
3	VO	---	Input voltage for LCD
4	RS	H/L	H : Data signal, L : Instruction signal
5	R/W	H/L	H : Read mode, L : Write mode
6	E	H, H → L	Chip enable signal
7	DB0	H/L	Data bit 0
8	DB1	H/L	Data bit 1
9	DB2	H/L	Data bit 2
10	DB3	H/L	Data bit 3
11	DB4	H/L	Data bit 4
12	DB5	H/L	Data bit 5
13	DB6	H/L	Data bit 6
14	DB7	H/L	Data bit 7
15	LED A(+)	4.2V	Back light anode
16	LED K (-)	0V	Back light cathode

Table 1: Pin details of ALC

When RS (Register Select) is 0 and E (Enable) becomes high then LCD commands will be transmitted through data lines. When RS is 1 and enable becomes high then data will be transmitted through data lines.

RFID (RADIO-FREQUENCY IDENTIFICATION)

RFID is an automatic identification method. RFID is used for storing and remotely retrieving data. It will be punched to the RFID reader. RFID consists of an antenna or coil, transceiver (with decoder) and a transponder (RF tag).

LOAD CELL



Load cell is used to convert force into electrical scales and displays weights in digits. It will varies from 0 to 255.

KEYPAD



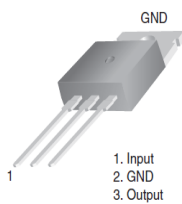
Here we are using 4*4 keypad. When any one of the switches are pressed, the corresponding row and columns are connected. In this system keypad is used for entering the user password.

DC MOTOR



DC motor is used for opening and closing of valves. They are typically of 12V rating.

POWER SUPPLY



Power supply consists of a step down transformer of 9V A.C, diode bridge rectifier, and filter capacitor and 5V regulator I. Cs. It generates a 5V regulated power supply to all the I. Cs and circuits and 9V unregulated power supply.

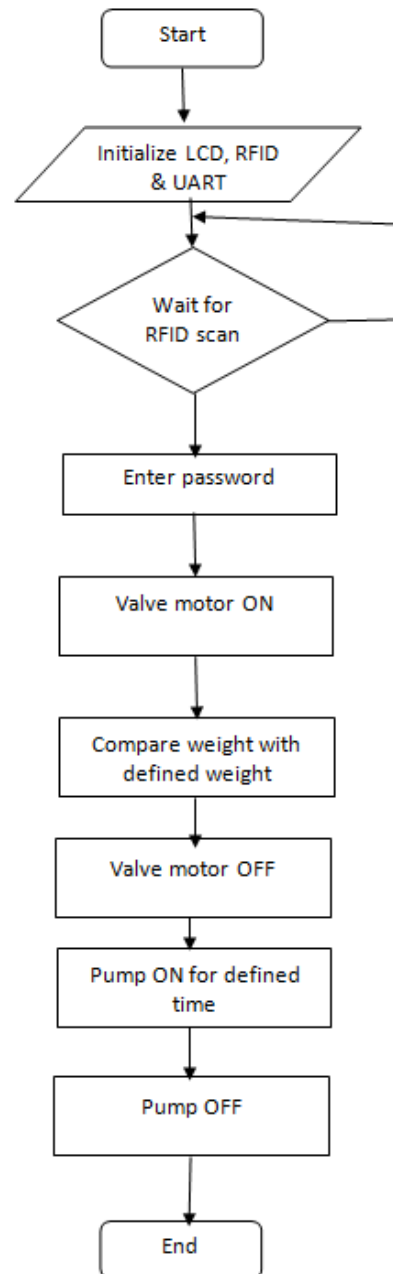
RELAY



HRS4(H) Relay

It is an electrically operated switch. Used for switching operations between load cell and pump. It requires 9V unregulated power supply.

FLOW DIAGRAM



ADVANTAGES

Intelligent food distribution system is fully automatic and easy to use, eliminating the man power. This system based in advanced memory chip technology, thus enabling to track & protect the database of the user. With

**International Journal of Engineering Research in Electronics and Communication Engineering
(IJERCE)
Vol 4, Issue 6, June 2017**

its centralized server connectivity the project can be made real time & thus helping resource management effectively.

CONCLUSION

Using this system we can have Better management in the ration distribution system. We can reduce the corruption. It is transparent and has control over prices of some commodities in the open market. It will avoid the fake ration cards. System helps to modernize traditional ration distribution system.

REFERENCES

- [1] Vikram Singh et. al. "Smart ration card", Volume 4, No. 4, April 2013 Journal of Global Research in Computer Science.
- [2] S.Valarmathy et. al. "Automatic ration material distribution based on GSM and RFID technology", I.J. Intelligent Systems and Applications, 2013, 11, 47-54 published Online October 2013 in MECS.
- [3] Neha et. al. "Web-Enabled Ration Distribution and Controlling." March-2012 International Journal of Electronics, Communication and Soft Computing Science and Engineering.
- [4] Mohan et. al. "Automation of ration shop using PLC." Vol.3, Issue.5, Sept-Oct 2013. International Journal of Modern Engineering Research.
- [5] Dhanashri et. al. "Web- Enabled Ration Distribution and Corruption Controlling System." Vol.2, Issue 8, Feb 2013, International Journal of Engineering and innovative technology.
- [6] Sharma et. al. "Multi-Modality Biometric Assisted Smart card Based Ration Distribution System", volume 3 June 2014, International Journal of Application or Innovation in Engineering of Management.
- [7] Sukhumar et. al. "Automatic Rationing System Using Embedded System Technology", volume 1 Nov 2013, International Journal of Innovative Reserch in Electrical, Electronics, Instrumentation
- [8] A.N.Madur, Sham Nayse,"Automation in Rationing System Using Arm 7," International journal of innovative research in electrical, electronics, instrumentation and control engineering, vol.1, Issue 4,Jul 2013.
- [9] Rajesh C. Pingle and P. B. Borole, "Automatic Rationing for Public Distribution System (PDS) using RFID and GSM Module to Prevent Irregularities," HCTL Open International Journal of Technology Innovations and Research, vol 2,pp.102-111,Mar 2013.
- [10] S.Valarmathy, R.Ramani,"Automatic Ration aterial Distributions Based on GSM and RFID Technology," International Journal of Intelligent Systems and Applications, vol 5, pp.47-54, Oct 2013.
- [11] K.Balakarhik, "Closed-Based Ration Card System using RFID and GSM Technology," vol.2, Issue 4, Apr 2013.