



iJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 Issue: IV Month of publication: April 2018

DOI: <http://doi.org/10.22214/ijraset.2018.4040>

www.ijraset.com

Call: ☎ 08813907089

E-mail ID: ijraset@gmail.com

Authenticated Automatic Ration Shop using RFID and GSM

M. Selvaganapathy¹, N. Nishavithri², T. Manochandar³

^{1,3} Asst. Professor, Dept. of ECE, CK College of Engineering and Technology, Cuddalore, Tamil Nadu

² Asst. Professor, Dept. of ECE, Mailam Engineering College, Mailam, Tamil Nadu

Abstract: The main aim of the project is to automatize the ration materials distribution system for the public. The goal of this project is to provide the ration materials automatically using RFID technology. The existing system consists of manual ration distribution process. The proposed system discusses about automatic material distribution that includes user data entry section in which the user will enroll their user ID and password. The proposed system also contains automatic weighing section and GSM module. The automatic weighing section scales the authorized measure of the ration materials like sugar, rice, etc. and distributes to the customer in exact measure. The outcome of the project is to reduce the unnecessary ration materials distribution.

Keywords: RFID, GSM Module, HMI, Programmable Logic Controller (PLC)

I. INTRODUCTION

As the ration material distribution in recent scenario consumes more time to distribute the material due to population. The user spent more time to waiting the queue. Automatic ration dispensing system is useful for automatic and more efficient way of ration distribution. This project is designed to minimize the manual intervention in the distribution, so that more transparency & efficiency can be maintained. In that system various products like rice, sugar and kerosene are distributed using conventional ration shop. And also the chance of illegal usage of our product in the conventional system i.e. the materials are robbed by making wrong entries in the register without knowledge of the ration card holder. Due to human operations the working hours of the ration shops are restricted, so that the user cannot be able to get the materials at any time. To overcome these problems we go for the automation of the ration shop using PLC. In automatic ration shop we use PLC for controlling purpose. The controller outputs are used to drive motors and solenoid valves.

II. LITERATURE SURVEY

The paper [1] followed as Automatic rationing shop using embedded system technology. In this paper ration distributed system is automatic by using PLC. The main aim of this paper is to run by the system in the use of solar power. High cost and difficult implement. The paper [2] followed as fair price shop tracking system. The system overcome the corruption in the fair price shop by using thumb detector. Secure for the below poverty line card hold for getting food and grains manual distribution.

The paper [3] followed a systematic application for public distribution ration shop. The aim of this system to have officer dealer and consumer will access for the supply of grains and rice. Efficient process for data registers. Time consuming and manual data website entry may leads to corruption. The paper [4] followed as Smart ration distribution and controlling. This paper is not efficient way of ration distribution. In this system smart card is used instead of ration card.

III. BLOCK DIAGRAM

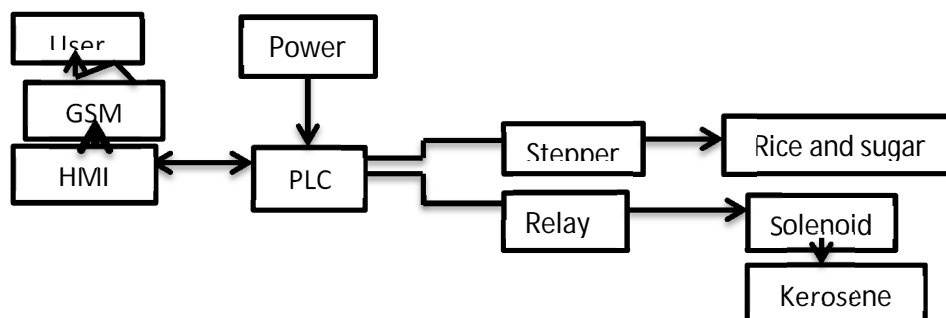


Fig. 1 – Block Diagram of Automatic Ration Material Distribution System

IV. CONCEPT OF THE BLOCK DIAGRAM

The user will register their user name and password. After the successful verification the user will select the materials using Human Machine Interface. Weighing machine mainly used to calculate the weight of the materials. If the user's want rice means stepper motor will automatically rotate in clock wise and distribute the rice. After current quantity of materials distribution, the stepper motor will be automatically stop with help of IR sensor for avoiding the wastage of materials. Suppose if user's select sugar means stepper motor will be rotate in anti -clockwise and distribute the sugar. If user's want kerosene means the solenoid valve will be automatically open and distribute the kerosene. Here liquid level sensor is used to identify the flow and the level of liquid in a particular container. The processor will be interface with GSM for communicate to the user's mobile.

V. MODULES OF THE PROJECT

A. Hardware

- 1) HMI
- 2) PLC
- 3) RFID
- 4) GSM module
- 5) Stepper motor
- 6) Relay
- 7) Weighing section
- 8) Solenoid valve

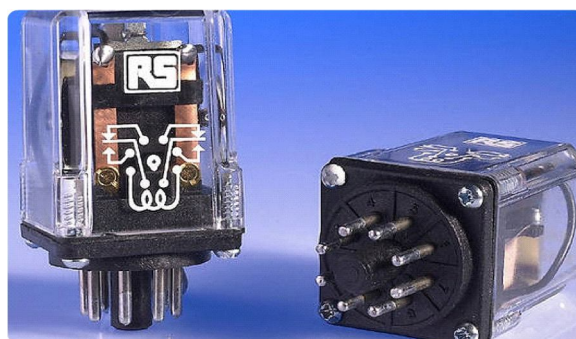
B. Software

C. GSM Modem

- 1) In GSM modem must have active service plan that allows for sending and receiving of text messages.
- 2) In many cases you can get a data only plan.
- 3) Once the modem has been prepared for the use connect to the serial port on your PC using that data cable included with the modem.
- 4) The flashing light on a GSM modem is indicates the modem is receiving the power and that is communicating with the mobile networks.
- 5) If the light is not flashing on a GSM modem is not receiving the power.

VI. RELAY

Relays are the primary protection as well as switching devices in most of the control processes or equipment regardless of whether they are electronic or electromechanical. All the relays respond to one or more electrical quantities like voltage or current such that they open or close the contacts or circuits. A relay is a switching device as it works to isolate or change the state of an electric circuit from one state to another. These are found in all sorts of devices. Relays allow one circuit to switch over to a second circuit that can be completely separated from the first. There is no electrical connection inside the relay between the two circuits – the link is magnetic and mechanical only.



Basically a relay consists of an electromagnet coil, an armature, a spring and a series of electrical contacts. The electromagnet coil gets power through a switch or a relay driver and causes the armature to get connected such that the load gets the power supply. The

armature movement is caused using a spring. Thus, the relay consists of two separate electrical circuits that are connected to each other only through a magnetic connection, and the relay is controlled by controlling the switching of the electromagnet.

VII. SOLENOID VALVES

The valves are used to stop the flow of a fluid or start the flow of fluid in a piping configuration. The type of solenoid valve refers to whether that valve is a 2-way, 3-way or 4-way. A 2-way valve has two port connections an input port and an outlet port. Usually, a 2-way valve is referred to as a 2/2 valve, which means the valve has two ports and two positions. The positions are: 1) on or energized and 2) off or de-energized.

Three way valves have three ports an input port, a cylinder port and an exhaust port. A 3-way valve's most common application is for process valve automation. The solenoid sends air to a spring return actuator or cylinder, which creates rotational movement to open or close a process derived.

VIII. ADVANTAGES

- A. Reliability.
- B. Make operation easy
- C. Visualization.
- D. Flexibility.
- E. Transparency.

IX. CONCLUSION

Our project focuses design and implementation of Automatic of Ration Shop. In recent scenario, all the public and private sectors go for automation in their process. In that system various products like Rice, Sugar and Kerosene are distributed using conventional ration shops.

REFERENCES

- [1] Chuang wang, Pingyujiang, Tiantianlu, "The Production Instruction system for smart job shop", IEEE International conference on Mechatronics and automation. August 2016. DOI: 10.1007/s 10845-016-1194-1.2016.
- [2] R.Parthipan, K.Sreenivas, A Systematic Application for Public Distribution-Ration Shop", National conference on advanced technologies in computer science & information technology. August 2015.
- [3] S.Skhumar, K.Gopinathan, S.kalpanadevi, "Automatic Rationing system Using Embedded System Technology", International journal of innovative research in electrical .November 2013.
- [4] Dhanoj Mohan, Rathikarani, Gopakumar, "Automation of Ration Shop Using plc. International journal of modern engineering research, Sep-Oct 2013



Mr. M. Selvaganapathy is currently working as an Asst. Prof. in CK College of Engineering and Technology, Cuddalore and pursuing his Ph.D., in Image Processing from Annamalai University, Chidambaram. He has received his M.E in Communication Systems and B.E – Electronics and Communication Engineering from Anna University, Chennai. His research areas are Digital Image Processing, Wireless Networks, Embedded Systems and automations, process control and applications, etc. He has published more than 15 papers in Scopus indexed journals, Annexure journals, IEEE Conferences, etc. He is a life time member in Indian Society for Technical Education, International Society for Research and Development and Indian Association for Engineers. He is also an annual member in Institute of Electrical and Electronics Engineers.



Mrs. N. Nishavithri is currently working as an Asst. Prof. in Mailam Engineering College, Mailam. She has received her M.E in Communication Systems and B.E – Electronics and Communication Engineering from Anna University, Chennai. Her research areas are Wireless Networks, Embedded Systems and automations, etc. She has published more than 10 papers in Scopus indexed journals, Annexure journals, IEEE Conferences, etc. She is a life time member in Indian Association for Engineers.



Mr. T. Manochandar is currently working as an Asst. Prof. in Asst. Prof. in CK College of Engineering and Technology, Cuddalore. He has received his M.E in Communication Systems and B.E – Electronics and Communication Engineering from Anna University, Chennai. His research areas are Wireless Networks, Embedded Systems and automations, etc. He has published more than 15 papers in Scopus indexed journals, Annexure journals, IEEE Conferences, etc. He is a life time member in Indian Society for Technical Education and Indian Association for Engineers Indian Association for Engineers.



10.22214/IJRASET



45.98



IMPACT FACTOR:
7.129



IMPACT FACTOR:
7.429



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089  (24*7 Support on Whatsapp)