Automatic Ration Material Distributions Based on GSM and RFID Technology

GOPIKA MURUGANANTHAM
ELECTRONICS AND COMMUNICATION
ENGINEERING
M.KUMARASAMY COLLEGE OF ENGINEERING
KARUR, INDIA
gopinidhish@gmail.com

A.ELAVARASI
ELECTRONICS AND COMMUNICATION
ENGINEERING
M.KUMARASAMY COLLEGE OF ENGINEERING
KARUR, INDIA
rasimabe15@gmail.com

Abstract—**Nowadays ration card is exceptionally basic for every single house and it is utilized as a part of different fields, for example, relative's points of interest, to get gas association, Domicile authentication, Bank account , it go about as an address evidence for different purposes and so forth. Every one of the general population are having an ration card to purchase the different materials (sugar, rice, oil, lamp oil, and so on.) from the ration shops. Yet, this framework has two inconveniences, initial one is weight of the material might be uncertain because of human mix-ups and the second, if not purchase the materials toward the finish of the month, they will offer the materials to others with no insinuation to the administration and clients. RFID(Radio Frequency Identification) and GSM(Global System for Mobile Communication) are the two main technologies implemented in this proposed paper. To purchase the things in the ration shops, we have to show the RFID tag into the RFID reader, and after that the controller verifies the client code and essential elements of the sum in the card. After verification, this framework shows the sum points of interest. At that point the client needs to enter their required materials by utilizing keyboard, subsequent to getting the materials from the ration shop, the controller sends the data to the administration office and to the client through GSM module. This framework gives the materials naturally without help of human.**

Keywords—**Microcontroller, RFID, GSM, Solenoid Control Circuits, Mechanical Part and Motor.**

I.   INTRODUCTION

An extensive segment of the all-inclusive community is having an apportion card to buy the things from the proportion shops. While getting the materials from the proportion shop, first we need to give the apportion card and they will put the mark in the apportion card depends on upon the materials. By then, they will issue the things through the weighting structure with help of a human. In this structure having two drawbacks, introductory one is mass of the material may be off course due to human slip-ups and the second, if not purchase the materials toward the finish of the month, they will arrangement to others with no implication to the organization and customers. In this paper, we have proposed an Automatic Ration Materials Distribution Based on RFID and GSM Technology to avoid these drawbacks. Today we are standing up to some portion of transport related issues. RFID innovation can adequately use

to comprehend some of those. RFID is going about as a ration card and for different purposes, for example, RC book, protection subtle elements, benefit points of interest and so forth. GSM used to speak the data between the two individuals or more than two individuals to upgrade the proof relies on upon the provisions.

The RFID utilizes remote innovation to recognize the protest. It comprises of RFID tag and the reader. The bidirectional correspondence between the tag and the reader is expert by the radio recurrence (RF) part of the electromagnetic range to convey the data between a RFID tag and reader. Inactive RFID labels are utilized as a part of this framework as an e-proportion card. It does not require any outer power supply. The label reception apparatus gets the RF flag (13.56MHz) from the reader. This got flag is corrected and provided to the chip to power it up. Presently tag retransmits the flag to reader. The reader gets it. At that point, the flag is sent for further calculation of the information.

The GSM (Global System for Mobile Communication) module comprises of GSM modem. It is a standard created by the European media transmission standard foundation to portray conventions for 2G computerized cell systems utilized by cell phones. It acknowledges SIM cards, and works over a membership to a portable administrator, much the same as cell phones. It utilizes frequencies between 890-915 MHz UL and 935-960 DL (Band of 25MHz). Through this GSM modem, SMS is conveyed consequently to the supporter about accessibility of sustenance grains at the proportion dispersion focus and about the exchange.

A Ration Card is an archive appropriated under a request or a specialist of the State Government, according to the Public Distribution System, for the buy of basic products from reasonable value shops. State Governments issue particular Ration Cards to Above Poverty Line, Below Poverty Line and Antyodaya families and direct periodical survey and checking of Ration Cards. It is extremely risky and old technique so now the time is for some change consequently we speak to Real Time Automatic Ration Material Distribution System.

II.   LITERATURE REVIEW

The current obvious distribute structure has the essential issues of restoring the apportion card every year by the delegates to the mischievous activities done by the proportion store vendors like diverting sustenance grains to open market to make profit. To deal with this issues K.Balakarthik proposed the "Cloud-Based Ration Card System using RFID and GSM Technology", displays a compelling methodology for the customer to buy the things in the allocate shop by essentially sporadic the card at the RFID reader. The customer approval is done by sending a self-assertive mystery key substance to the customer convenient, which must be entered in a keypad. The purchase is endorsed by the delegate just after the purposes of intrigue are entered in a windows application, which stores the customer's near and dear, and purchase information. The present PDS incorporates corruption and unlawful pilfering of stock in light of manual work. A.N.Madur et.al.Developed the "Robotization in Rationing System using Arm 7", S.Valarmathy et.al. Proposed the "Programmed Ration Material Distributions Based on GSM and RFID Published in A R DIGITECH A R DIGITECH International Journal Of Engineering, Education And Technology (ARDIJEET) www.ardigitech.in ISSN 2320-883X, VOLUME 3, ISSUE 2, 01/04/2015 3 Technology" . Here every client is given RFID cards. In this framework, first client is confirmed, and afterward framework demonstrates the adjust of individual. Customer need to enter the measure of Kg he have to pull back. If the customer will have sufficient change in accordance with draw back the present total, system will open the valve. Through valve, grain will come and it will be weighted by weight sensor. Once the count went to the entered aggregate controller thus close down the valve and updates the record of the customer.

Proposed the "Programmed Rationing System Using Embedded System Technology", in this the proportion circulation framework is mechanized by utilizing PLC. This mechanized proportion framework replaces the routine ration card framework by ration card. The proposed ration shop framework is associated with the administration database by means of GSM modules, which additionally sends the avant-garde data to the legislature and the shopper. So we proposed the "e– Ration Shop: An Automation Tool for Fair Price Shop under the Public Distribution System", this paper talks about procedure adjusted in utilizing ICT to control redirection and spillage in the conveyance gadget and its fruitful application in computerization of nourishment grain inventory network.

III.   EMBEDDED SYSTEMS REVIEW

3.1 Introduction of embedded system

An Embedded System is a mix of programming and PC hardware, and possibly additional mechanical or diverse parts, planned to play out a specific limit. A decent illustration is the microwave controller. Practically every family unit has one, and a huge number of them are utilized each day, however not very many individuals understand that a processor and programming are included in the planning of their lunch or supper. This is in direct complexity to the PC in the family room. It too is included PC equipment and programming and mechanical segments (circle drives, for instance). Nonetheless, a PC is not intended to play out a particular capacity rather; it

can do a wide range of things. Many individuals utilize the term broadly useful PC to make this refinement clear. As transported, a universally useful PC is a clear slate; the maker does not recognize what the client will do wish it. One client may utilize it for a system document server another may utilize it solely to play recreations, and a third may utilize it to compose the following awesome American novel. In the event that an inserted framework is composed well, the presence of the processor and programming could be totally unnoticed by the client of the gadget. Such is the situation for a microwave broiler, VCR, or wake up timer. Now and again, it would even be conceivable to construct a comparable gadget that does not contain the processor and programming. This should be possible by supplanting the blend with an exceptionally incorporated circuit that plays out similar capacities in equipment. Notwithstanding, a great deal of adaptability is lost when an outline is hard-cooled along these lines. It is much less demanding, and less expensive, to change a couple lines of programming than to update a bit of custom equipment.

3.2 Real time systems

One subclass of inserted is deserving of a presentation now. As usually characterized, an ongoing framework is a PC framework that has timing imperatives. At the end of the day, a constant framework is somewhat determined as far as its capacity to settle on specific estimations or choices in a convenient way. These essential figuring are said to have due dates for finish. Also, for all handy purposes, a missed due date is similarly as awful as a wrong answer.

The issue of consider the possibility that a due date is missed is a vital one. For instance, if the continuous framework is a piece of a plane's flight control framework, it is feasible for the lives of the travelers and team to be jeopardized by a solitary missed due date. In any case, if rather the framework is included in satellite correspondence, the harm could be constrained to a solitary degenerate information parcel. Extreme the results, the more probable it will be said that the due date is "hard" and therefore, the framework is a hard constant framework. Ongoing frameworks at the other side of this dialog are said to have "delicate" due dates.

3.3 ARM Controller

The circuit is worked around 32 bit ARM 7 RISC (lessened direction set unpredictability) kind of controller. It comprises of 64 pins with two ports of 32 bits. It utilizes Von Neumann engineering with three phase pipelining. It has high code thickness and backings 16 bit (thumb direction set) and in addition 32 bit improved guideline set. Every guideline executes in a solitary cycle with a clock speed of 80MHz. The different modules, for example, GSM, RFID, LCD show, RTC, keypad and warm printer are interfaced to it to shape an entire PDA gadget.

3.4 GSM (Global System for Mobile Communication)

It is an overall recognized standard for cutting edge cell correspondence. GSM is the name of systematization social event developed in 1982 to make a run of the mill European mobile phone standard that would characterize judgments for a dish European convenient cell radio structure working at 900MHZ.All through the headway of cell communicate interchanges, distinctive systems have been created without

the upside of standardized specific. This presented various issues clearly related to similitude, especially with the change of automated radio development.

3.5 EEPROM (Electrically Erasable Programmable Read Only Memory)

It is one of the sorts of ROM (Read Only Memory). EPROM is a kind of non-precarious memory used as a part of various present day electronic devices that yearning to store memory for a specific measure of time, and besides requires it to be erased at given conditions. EEPROM or E2PROM is an acronym for Electrically Erasable Programmable Read Only Memory. Earlier Erasable Programmable Read Only Memory (EPROM) chips contained {or did not, if the maker wished to make One Time Programmable (OTP) chips} an unobtrusive quartz window that allowed Ultraviolet (UV) light to enter the chip and annihilate the non - unusual memory set away in it. EEPROM data can be erased electrically (as the name itself suggests) by the wonder of field electron spread. This methodology allows the ROM to hold its data dependably, and moreover be set up for a re-programming when required, or a destruction if critical.

3.6 RFID (Radio-Frequency IDentification)

It is a modified acknowledgment strategy, contingent upon securing and remotely recuperating data using devices called RFID names or transponders. The development requires little level of getting required of a RFID tag and a RFID reader .A RFID tag is a challenge that can be associated with or merged into an animal, thing or individual with the ultimate objective of recognizing confirmation and taking after using radio waves. A couple names can be examined from a couple meters away and past the perceptible pathway of the reader .Most RFID marks contain no under two areas. One is a fused circuit for securing and taking care of information, controlling and demodulating a radio repeat (RF) signal, and other particular limits. The second is an accepting wire for getting and transmitting the banner. There are by and large two sorts of RFID labels: dynamic RFID labels, which contain a battery, and uninvolved RFID labels, which have no battery. This venture utilizes latent labels. Perused just labels are ordinarily detached and are customized with an exceptional arrangement of information (more often than not 32 to 128 bits) that can't be altered. Future chip less RFID considers discrete ID of labels without an incorporated circuit, along these lines permitting labels to be printed straightforwardly onto resources at a lower cost than conventional labels. As of now (2008) none of the chip less ideas has turned out to be operational. Today, RFID is used as a piece of huge business generation organize organization to upgrade the viability of stock after and organization.

IV. PROPOSED WORK
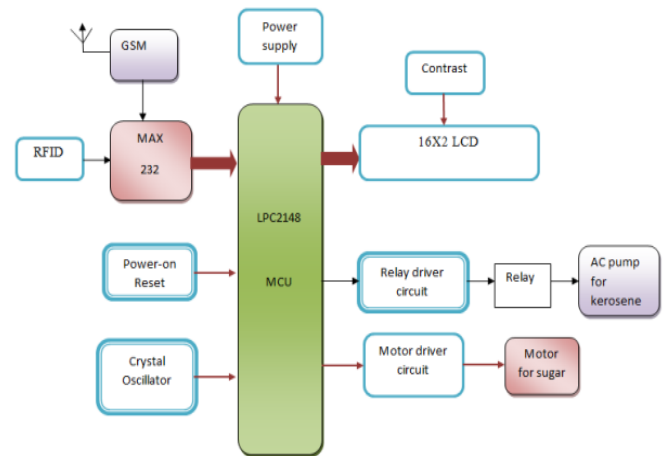
4.1 Block Diagram

FIGURE1. Block diagram of proportion materials dissemination framework

The block diagram of an Automatic Ration Materials Distribution Based on GSM and RFID Technology is showed up in the Fig. 1. This structure includes diverse parts, for instance, RFID, GSM, microcontroller, solenoid control circuits, console and engine driver.The proposed framework exhibits dissemination of strong and in addition fluid purchaser materials that is grains (wheat/rice) and lamp oil. RFID reader, load cell, ultrasonic sensor and keypad goes about as contributions to framework and LCD is utilized for showing ration stock and related exercises. The microcontroller yields are utilized to drive solenoid valve and motor.

4.2 Algorithm

Algorithm of proposed system is:

1. Each buyer is given a RFID card which is enlisted by the Government expert.

2. At the season of ration circulation at ration shop, first secret key of buyer is checked.

3. Client ID checked with the database gave by the Government specialist which is put away in the microcontroller.

4. When confirmation is effective, customer is requested a select sort of material and amount required through push catches and keypad separately.

5. In view of sort of material picked, the solenoid valve or motor is enacted.

6. The level indicator or load cell is checked for legitimate amount.

7. In the wake of gathering legitimate amount material solenoid or motor is crippled.

8. GSM module will send the data in type of SMS to the client and in addition PDS specialist.

9. Current stock in the ration shop is shown utilizing LCD.
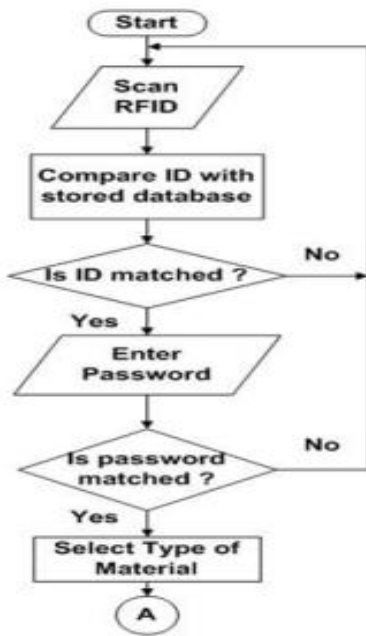
4.3 Flow Diagram

FIGURE2. Flow chart of the proposed ration material distribution system

V.CONCLUSION

The routine Ration Materials Distribution framework has disadvantages like weight of the material might be erroneous because of human errors, low handling speed, long holding up duration at ration shop to get the material and the material robbery in the ration shop. On the off chance that materials are not purchasing at end of the month by customer, they will deal to others with no insinuation to the legislature and purchaser. To overcome above issues, programmed ration shop assumed essential part. The programmed ration shop included RFID and in addition GSM innovation to convey the lamp fuel or grain material. Ration card is supplanted by data and RFID is sent to buyer utilizing the GSM module. The proposed framework makes straightforwardness out in the open dissemination framework as the work gets to be distinctly programmed. In this framework, apportion Materials (sugar, rice, oil, lamp fuel, and so on.) conveyed through programmed system with no assistance of people. With the assistance of this framework, it is conceivable to make open dispersion framework productive and free from acts of neglect. In the wake of getting the materials, the controller sends the data to the government office and the client through GSM innovation. The proposed framework has favorable circumstances like it is useful to avoid acts of neglect at proportion shop, keep up information appropriately, decreases paper work, efficient approach and financially savvy.

REFERENCES

[1] S.Valarmathy, R.Ramani, "Automatic Ration Material Distributions Based on GSM and RFID Technology" International Journal Intelligent Systems and Applications, 2013, Vol. 11, pp. 47-54.
[2] V.Kavitha, V.Palanisamy, "New Burst Assembly and Scheduling T technique for Optical Burst Switching Networks", Journal of Computer Science, Vol. 9, Issue 8, pp.1030-1040, 2013.
[3] Rajesh C. Pingle and P. B. Boroley, "Automatic Rationing for Public Distribution System (PDS) using RFID and GSM Module to Prevent Irregularities" HCTL Open International Journal of Technology Innovations and Research, 2013, Vol. 2, pp. 102-111.
[4] K. Sundaravadivu and S. Bharathi, "STBC codes for generalized spatial modulation in MIMO systems," 2013 IEEE International Conference ON Emerging Trends in Computing, Communication and Nanotechnology (ICECCN), Tirunelveli, 2013,pp.486-490.doi: 10.1109/ICE-CCN.2013.6528548.
[5] S. Sukhumar, K. Gopinathan, "Automatic Rationing System Using Embedded System Technology" International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering, 2013, Vol. 1, Issue 8, pp. 339-342.
[6] S.PalanivelRajan, "Review and Investigations on Future Research Directions of Mobile Based Tele care System for Cardiac Surveillance", Journal of Applied Research and Technology, Vol.13, Issue 4, pp.454-460, 2015.
[7] Yogesh Kumar Sharma, K. B. Shiva Kumar, "Multi-Modality Biometric Assisted Smart Card Based Ration Distribution System" International Journal of Application or Innovation in Engineering & Management, 2014, Vol. 3, Issue 6, pp. 382-392.
[8] K.Kaarthik, C.Vivek, "Hybrid Han Carlson Adder Architecture for Reducing Power and Delay", Middle East Journal of Scientific Research, Vol.24, Special Issue, pp.308-313, 2016.
[9] 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.
[10] 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.
[11] A.Manikandan, V.Nirmala, "A Low Cost Thermoelectric Refrigerator" in International Journal of Applied Engineering Research- IJAER, ISSN: 0973-4562, pp 3097-3100, 2015.
[12] S.Valarmathy, R.Ramani,"Automatic Ration Material distributions Based on GSM and RFID Technology," International Journal of Intelligent Systems and Applications, vol 5, pp.47-54, Oct 2013.