

Automatic Ration Material Distribution System

Dr.Rajasekaran S¹, Dr Muruganantham B², Rakkammal S³, Mary Beula A⁴, Mayavel N⁵, Surendar R⁶

^{1,2} Professor, Department of Electrical and Electronics Engineering, M.A.M College of Engineering and Technology, Siruganur, Trichy, Tamilnadu, India

^{3,4,5,6} Assistant Professor, Department of Electrical and Electronics Engineering, M.A.M College of Engineering and Technology, Siruganur, Trichy, Tamil Nadu, India

Email: ¹rajasekar.nishanth@gmail.com, ²muruganantham.pec@gmail.com, ³rakkammalram@gmail.com, ⁴a.beula76@gmail.com, ⁵maya25.89@gmail.com, ⁶kuti.surendar@gmail.com

Article Info

Page Number: 13084-13092

Publication Issue:

Vol. 71 No. 4 (2022)

Abstract

Cash is shattered in the PDS (Public Distribution System) due to dishonesty. The Government offer to public by means of affordable food grains (wheat, sugar, kerosene, wheat, etc.). The ration shop system is disseminated transversely India to supply community with food protection. The delivery of ration in the ration shop is not obvious to community most of the instance. In this way, we are in front of dishonesty issues in PDS in the current circumstances. To look up the current system of PDS, as an alternative of a conformist ration card, the user must use this card to acquire the ration from the proposed system. This paper aim to diminish enticement and improved administration of PDS is creature brought together from our side. The proposed system reduces human efforts in store and continues the records absolutely and delivers the exact quantity of grains agreed by the government to the community. Nowadays, biometrics systems are used in ration shop but it is not work properly many times, so we go to eye retina recognition with help of camera through arm cortex (STM32F103).

Keywords: Biometric system, RFID Reader, ARM-cortex microcontroller, GSM, Servo Motor, Liquid Motor, Motor driver, LCD, RFID Tag

Article History

Article Received: 25 October 2022

Revised: 30 November 2022

Accepted: 15 December 2022

1.INTRODUCTION

Currently ration matter distribution system faces a lot of disputes and assortment of problems resembling illegitimate smuggling with corruption of materials happens in the ration sharing centers in our nation. It embraces unbalanced measurement of the materials, incorrect entries in the labor-intensive register, the real materials provided through the government for the delivery does not contact the ordinary populace. In the proposed system, ration materials disseminated from side to side automatic apparatus exclusive of every assist of humans. In this project, we introduced new concept to diminish individual efforts in

Store and preserve the records completely and distribute the exact quantity of grains agreed by the government to the community. Nowadays, biometrics systems are used in ration shop but it is not work properly many times, so we go to eye retina recognition with help of camera.

In this system, we have projected an automatic ration materials delivery scheme based on ARM controller via with Radio Frequency Identification (RFID). The ARM microcontroller, which determines the materials precisely and update it in database periodically concerning the availability of materials as well as information regarding the amount transactions done in a digital manner. First customer shows the eye in camera, camera recognition the customer EYE Retina and after compare the eye from the stored database through MATLAB. If eye harmonized RFID reader scrutinize the ration card here RFID Tag is be active as a smart ration card in addition to verify the buyer ID and quantity of materials which exhibit in LCD. And then after select the materials the servo motor and liquid motor will ON for required quantity through motor driver for deliver the goods. After getting the materials, ARM controller propel the information to government office as well as customer throughout universal service communique technology, with help of this system, it is probable to build community delivery system well-organized along with exact free from mismanagement.

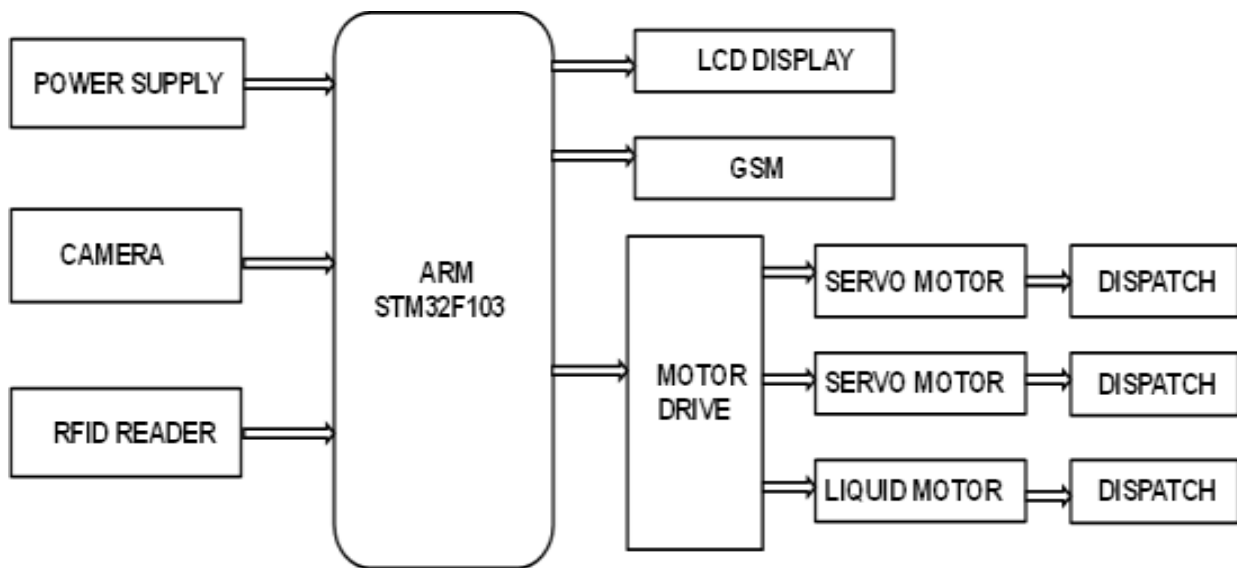
II.EXISTING SYSTEM

The ration shop system is disseminated transversely India to supply populace with food security. This distribution of ration can act jointly with the state government is controlled in addition to monitored by central government. Biometrics is interfaced by RFID to build the ration delivery automatic as well as to reduce human intervention.

III.PROPOSED SYSTEM

The automatic ration generation system is used with no man involved process except throughout the method of grains fixing. As an alternative of a conventional ration card, utilizes the fundamental RFID Tag system second-hand as an e-Ration card. The system is indistinguishable to the one second-hand by ATM Machine. As compared to our debit and credit card method, the e-ration card is introduced. Instead of a conformist ration card, the user should use this card to acquire the ration material from the proposed scheme. Nowadays, biometrics systems are used in ration shop but it is not work properly many times, so we go to eye retina recognition with help of camera. RFID reader scan the ration card and then camera recognition eye retina using MATLAB and then billing send through GSM and display in LCD and then servo motor started for deliver the rice. It all controlled through Arm cortex.

IV.METHODOLOGY



V.FLOWCHART

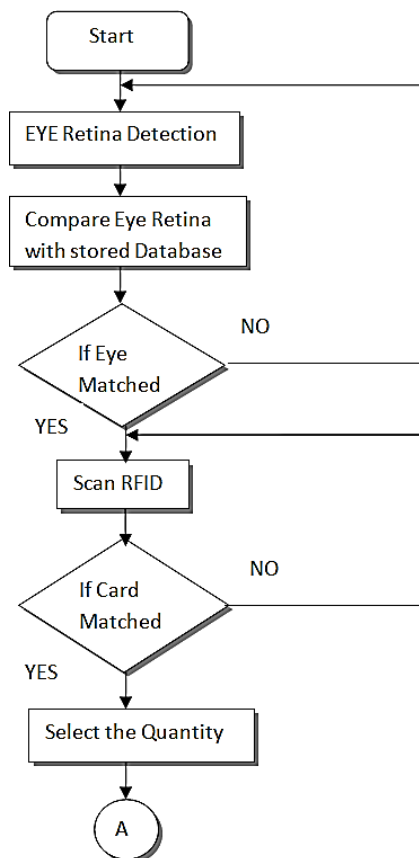


Fig:1 Overview of proposed system

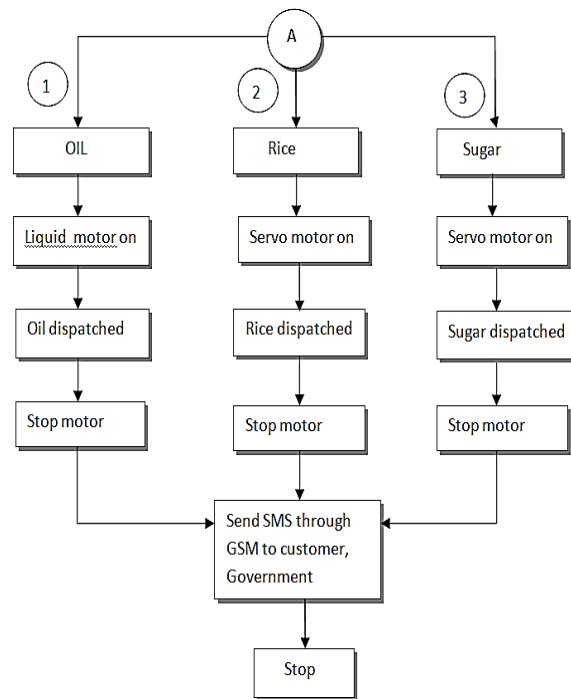


Fig:2 Flowchart of Automatic ration material distribution system

VI.HARDWARE

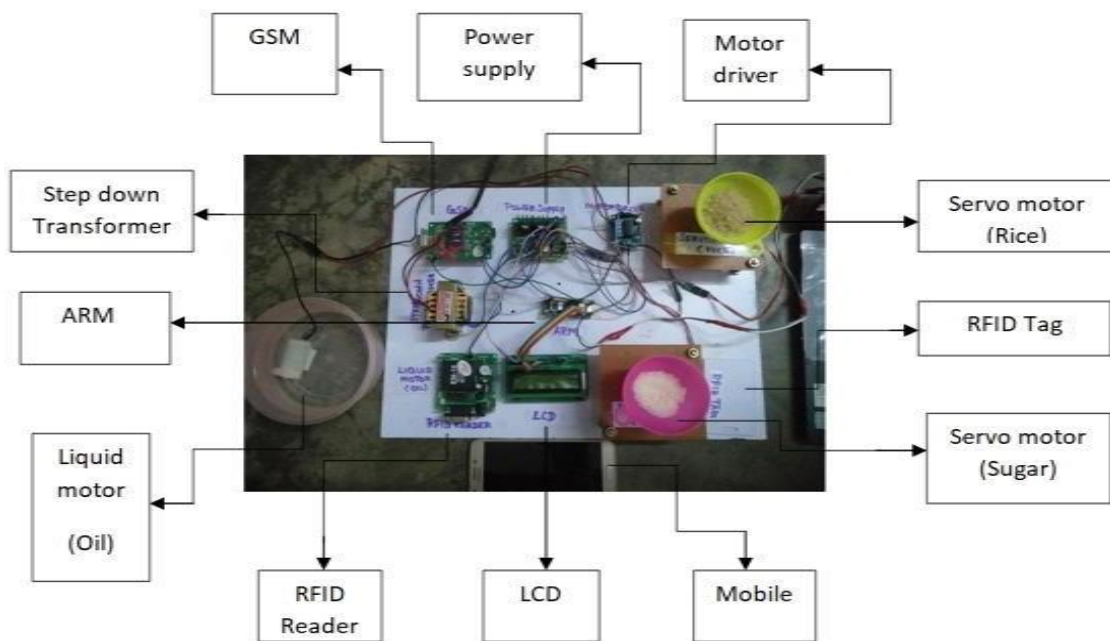


Fig: 3 Hardware of automatic ration material distribution system

VII.WORKING

First collect all the customer image and stored in the database. Customers go to ration shop and first Eye retina detection through web camera and compare the customer image with stored database. If the image match with collected database next process will proceed and if image not match means detect again, otherwise it is unauthorized person. After matched the image LCD will display show your card that card is provided by government, here RFID tag is act as Smart ration card. All the inputs are given to the ARM controller. Scan your card into RFID reader after scan the card LCD display the customer Details, select quantity of materials and amount details. After that materials will automatically dispatched for the selected quantity of materials at finally SMS send through GSM to customer& government.

VIII.RESULT

The Automatic Ration Materials delivery system based on ARM and RFID Technology used to dispense or vend the liquid and solid material,. Primarily each person will be provided an RFID or Smart Card, as a replacement for of a ration card. If the purchaser needs to acquire some ration matter, the customer has to show their EYES in the web camera for detecting the EYE Retina and after that system will match the customer Eye from the stored database the eye is matched customer illustrate the RFID tag card in the direction of the RFID reader. Every purchaser will encompass a inimitable number, which is not able to be seen to the user. This acknowledged RFID number will be prearranged to a microcontroller, which compared the input number through the database. The previous to preliminary system, the inimitable RFID number of the ration customer will be programmed in the controller, such as purchaser name & address details, date of expire of ration card, etc., so that the controller will be familiar with the data coming from RFID by comparing with the database. Once the customer is identified, the microcontroller will check whether the user has already bought the ration item belongs to that month. If not then, ration items to be dispensed will be displayed on the LCD screen. The customer, select the ration item for purchasing purposes then the controller will calculate the amount of his or her buy and check with the amount available in the RFID card. If he or she has sufficient amount to buy then the micro controller will start the motor mechanism to dispense the selected ration item. As the dispensing process is going on simultaneously in the controller will send a command to GSM to send the text SMS to the user about the ration item, he or she purchased. Before starting the process the amount of the item to be dispensed has to be calibrated separately then the only controller will dispense the correct quantity of ration item selected.

IX.OUTPUT

A. SOFTWARE OUTPUT

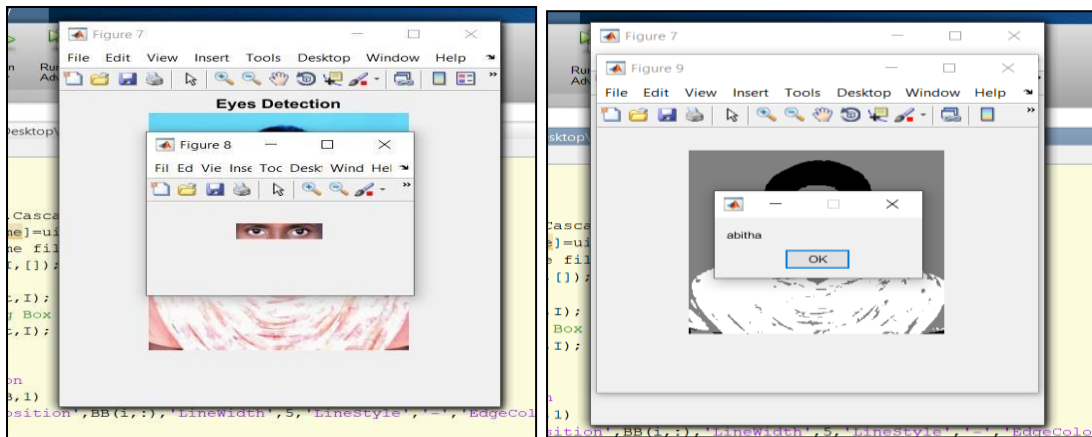


Fig:4 Eye Detection



Fig: 5 Eye Matched from the stored database

B.HARDWARE OUTPUT

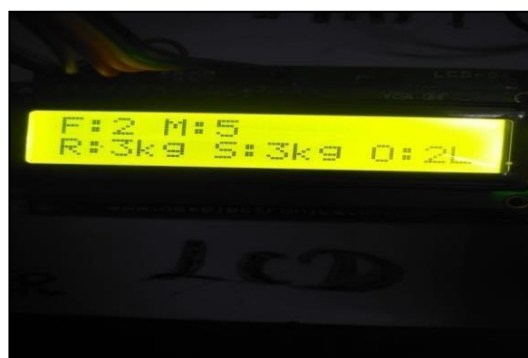


Fig:6 Customer ID and Quantity of items



Fig:7 Dispatching of Rice

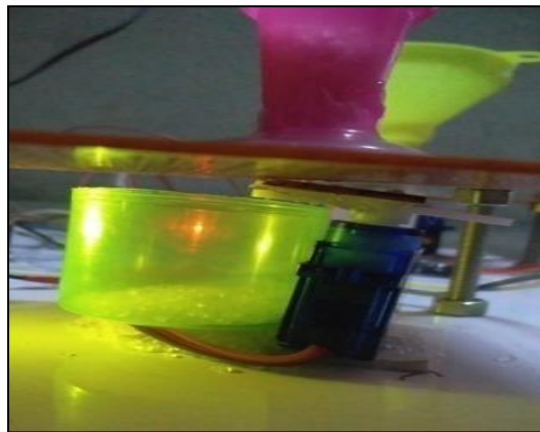


Fig:8 Dispatching of Sugar

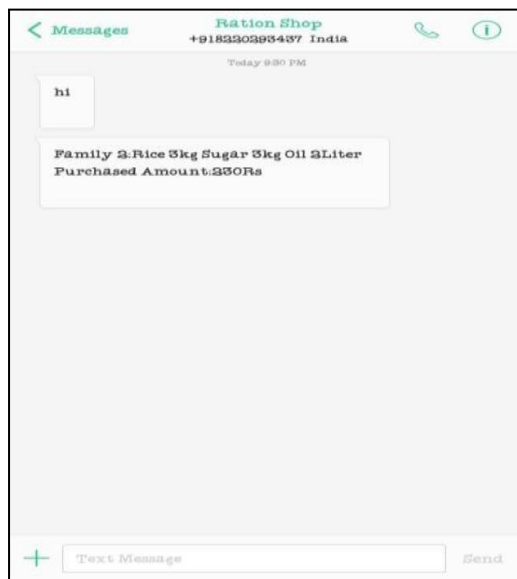


Fig:10 Message Received from PDS

X.CONCLUSION

In this project, we have implemented in addition to test an Automatic Ration Materials Distribution based on ARM and RFID technology as an alternative of ration cards. But in the accessible system having drawbacks weight of the material may be inaccurate due to human mistakes, low processing speed, extended waiting time at ration shop to acquire material along with material robbery in ration shop if not purchase the materials at ending of the month, they will transaction to others devoid of several warning to the government and customers. Therefore the proposed system is more safe and translucent than the usual ration system.

XI. FUTURE SCOPE

The system can be enhanced in future by incorporating the memory to store the information of all clients. On the off chance that a number of goods are not up to the requirement, data can be sent to both government experts in addition to the card holders utilizing GSM novelty. We can confirm the RFID cards with biometric. The system can be enhanced the purchaser loyalty via pretty the security.

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",
3. I.J. Intelligent Systems and Applications, 2013, 11, 47-54 published Online October 2013 in MECS.
4. Neha et. al. "Web-Enabled Ration Distribution and Controlling." March- 2012 International Journal of Electronics, Communication and Soft Computing Science and Engineering.
5. Mohan et. al. "Automation of ration shop using PLC." Vol.3, Issue.5, SeptOct 2013. International Journal of Modern Engineering Research.
6. Dhanashri et. al. "Web- Enabled Ration Distribution and Corruption Controlling System." Vol.2, Issue 8, Feb 2013, International Journal of Engineering and innovative technology.
7. 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.
8. Sukhumar et. al. "Automatic Rationing System Using Embedded System Technology", volume 1 Nov 2013, International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Controle Engineering.
9. K.Haribabu, Dr.S.V.S. Prasad, "An IOT based smart home automation using LabVIEW", Journal of Engineering and Applied Sciences, Vol.13, no.6, pp. 1421-1424, 2018.
10. D.Naresh kumar, V.Arun, "Automatic lawn mower using ni- labview", Journal of Advanced Research in Computer Science, Vol. 9pp.198-200, 2018
11. P.Ramesh, "Power Generation System using Hand crank and Fitness Analyzer by using LabVIEW", International Journal of Mechanical Engineering and Technology, Vol 8, No.

12. U. Korte, R. Plaga, Cryptographic Protection of Biometric Templates: Chance, Challenges And applications
13. Aditya Abhyankar, Stephanie Schuckers, Novel Biorthogonal Wavelet Based Iris Recognition For Robust Biometric System, International Journal of Computer Theory And Engineering, Vol. 2, No. 2 April, 2010 1793-8201 13] James L. Maseey, Guessing And Entropy, Doi: 0 - 7803-2015-8/94, Ieee, 1994
14. Asker M. Bazen And Raymond N. J. Veldhuis, Likelihood-Ratio-Based Biometric Verification, Ieee Transactions On Circuits And Systems For Video Technology, Vol. 14, No. 1, January 2004,
15. 1051-8215/04,Ieee, 2004
16. C. K. Chow, On Optimum Recognition Error and Reject Tradeoff, Ieee Transactions On Information Theory, Vol. It-16, No. 1, January 1970
17. C. K. Chow, An Optimum Character Recognition System Using Decision Functions, Pgec, June 3, 1957
18. Juels A. And Wattenberg M., "A Fuzzy Commitment Scheme", Acm Conference On Computer And Communications Security", 1999, P.28-36
19. Daniel Gonz´Alez-Jim´enez and Jos´E Luis Alba-Castro, Modelling Marginal Distributions Of Gabor Coefficients: Application To Biometric Template Reduction, Project Presa Tec2005-07212