Automated Ration Distribution System

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Abstract: RFID based programmed apportion framework is a methodology in open circulation framework helpful for increasingly productive, precise and robotized system of proportion conveyance. The regular apportion dissemination framework has downsides like incorrect amount of merchandise, low preparing pace, huge holding up time and material robbery in proportion shop. The proposed programmed apportion look for open appropriation framework depends on Radio Frequency Identification (RFID) innovation that replaces customary proportion cards. The RFID labels are given rather than regular proportion cards. Customer's database is put away in miniaturized scale controller which is given by Government Authority. Client needs to examine tag to RFID per user, and afterward smaller scale controller checks client's subtleties with put away to appropriate material in apportion shop. After-effective verification, client needs to enter kind of material just as amount of material utilizing keypad. Subsequent to conveying appropriate material to shopper, the smaller scale controller sends the data to client just as PDS specialists utilizing GSM.
Keywords: RFID Reader, GSM, Customer database, PDS, AT-MEGA328

I. Introduction

The proportion dispersion framework is one of the biggest government's monetary approaches in India. Its fundamental maxim is to give sustenance grains (sugar, wheat, rice, lamp oil and so forth.) to the general population at moderate rates. The system of the proportion shops is spread all over in India to give nourishment security to the general population. This dissemination of proportion is constrained by focal government and state government. Be that as it may, it has such a significant number of constraints.

A large portion of the proportion retailers keep counterfeit apportion cards with them. Because of phony proportion cards, the merchant gets the additional apportion from more recognizable specialist and he deals it beyond any confining influence showcase. The merchant may not give an adequate measure of sustenance grains to buyers. More often than not individuals don't know about the accessibility of apportion in proportion shop. The merchant may deal apportion at higher rates than prescribed by the legislature or he may foul up sections in register.

Programmed Ration Dispensing System exhibited here is a propelled framework helpful for the effective method for proportion appropriation. This venture centers around structure and execution of Automation of Ration Shop. The apportion circulation framework is robotized by utilizing AT-MEGA328. This robotized proportion framework replaces the regular apportion card framework by RFID card and Ration Materials Distribution Based on GSM and RFID Technology. Finally, Section VI contains the conclusion of this work.

II. Related Works

Paper 1 portrays a Centralized Web Enabled Ration Distribution and Corruption Controlling System is the undertaking that will permit a smooth and simple proportion conveyance. The paper clarifies the idea of apportion circulation and controlling. This framework empowered the conveyance of sustenance similarly among needy individuals. The items are put away tank, when products are embedded in the FPS, at that point that amount of merchandise is refreshed in web server. That site can be gotten to by the authority at whatever point he requires the apportion from individual proportion shop[1]. Paper 2 depicts the idea to robotize the PDS, a Government of India activity process in which a fixed measure of proportion is given month to month to the general population by the PDS stores. The expanded debasement in the market segment can be counteracted if the framework ends up computerized, increment in defilement can be anticipated too, the storing done by the authorities and workers of government. Open conveyance framework (PDS) is an Indian framework

nourishment security built up by the Government of India under Ministry of Consumer Affairs, Food, and Public Distribution and oversaw mutually with state governments in India, it appropriates sponsored sustenance and non-nourishment things to India's poor. Significant products conveyed incorporate staple nourishment grains, for example, wheat, rice, salt, and cooking oil, through a system of open dissemination shops (otherwise called proportion shops) set up in a few states the nation over. Nourishment Corporation of India, an administration claimed company, secures and keeps up the PDS[2].
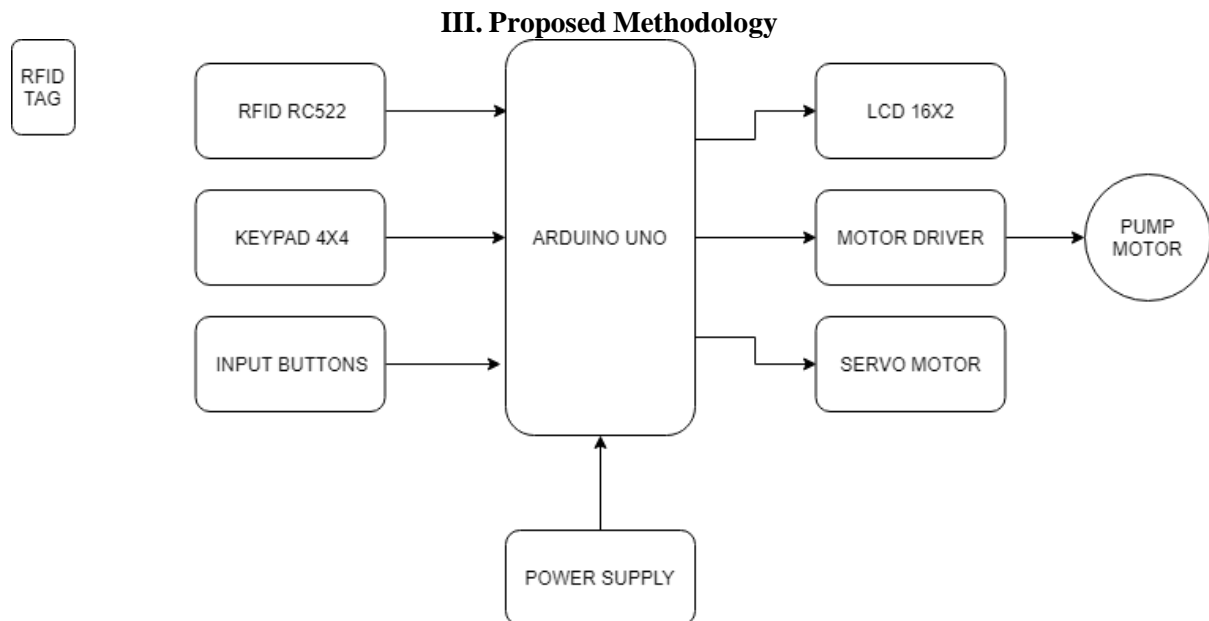
III. Proposed Methodology

Fig. 1 Transmitter (Control Room)

The apportion circulation framework is mechanized by utilizing ATMEGA328. Customary proportion card is supplanted by smartcard in which every one of the insights regarding clients are given in it. In our framework, we proposed interfacing the framework at proportion shop to a focal database (given by government.) by means of GSM module. Thus it is conceivable to keep the defilement and inconsistencies at proportion shop. This would acquire the straightforwardness open circulation framework and there will be an immediate correspondence among individuals and Government through this.

The traditional Ration shops can't ready to meet the necessities of the client because of the over populace of our nation. Accordingly, there is dependably horde of individuals in the proportion shop. Because of the human activities the working hours of the apportion shops are confined; with the goal that the client can't ready to get the material whenever for example 24*7 premise. To conquer these issues we go for the computerization of the apportion shops utilizing ATMEGA328.

In our undertaking we structure the equipment for two items in particular rice and oil. These two items are put away in store tanks and they are estimated and provided to the client when required. The client needs to enter the required item and amount utilizing a keypad and LCD Display. For the estimating reason, we use load cell for rice and time delay for oil. Also, these parameters are constrained by the controller[3].

IV. Components

This project primarily makes use of the following modules.
- Arduino Mega
- RFID RC522, RFID Tags
- LCD(16x2), Motor, Pump Motor
- L293D Motor Driver
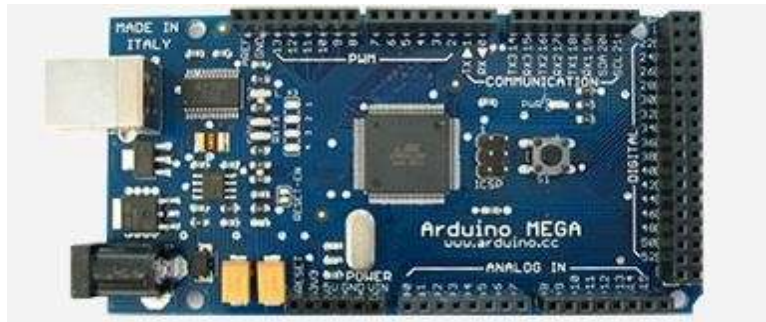- Keypad(4x4)

1. Arduino Mega

Fig. 2 Arduino Mega

The Arduino Mega 2560 is a microcontroller board dependent on the ATmega2560. It has 54 computerized info/yield pins (of which 15 can be utilized as PWM yields), 16 simple data sources, 4 UARTs (equipment sequential ports), a 16 MHz precious stone oscillator, a USB association, a power jack, an ICSP header, and a reset catch. It contains everything expected to help the microcontroller; essentially associate it to a PC with a USB link or power it with an AC-to-DC connector or battery to begin. The Mega 2560 board is good with most shields intended for the Uno and the previous sheets Duemilanove or Diecimila.
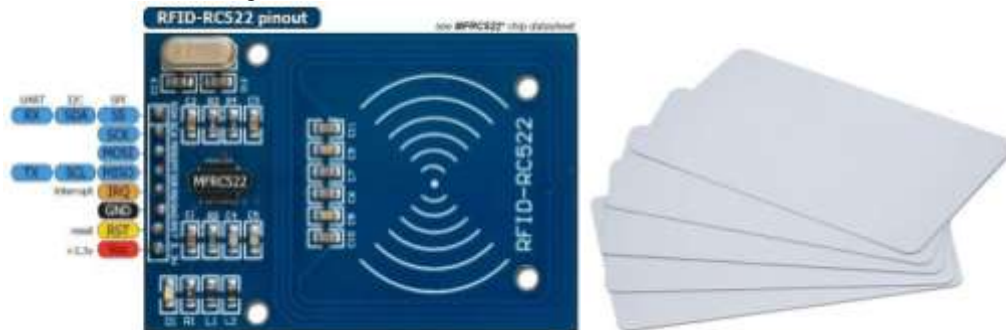
2. RFID RC522 And RFID tags

Fig.3 RFID Reader and Tags

The MF RC522 is an exceedingly incorporated transmission module for contact-less correspondence at 13.56 MHz. RC522 underpins ISO 14443A/MIFARE mode. RC522 - RFID Reader includes an exceptional adjustment and demodulation calculation to serve easy RF correspondence at 13.56 MHz. The S50 RFID Cards will ease up the procedure helping you to learn and include the 13.56 MHz RF change to your undertaking.

RFID labels are a kind of following framework that utilizes savvy scanner tags to distinguish things. RFID is another way to say "radio recurrence ID," and all things considered, RFID labels use radio recurrence innovation.

3. Keypad (4x4)

Fig. 4 Keypad

4X4 Keypads are available in different sizes and shapes. But they all have same pin configuration. It is anything but difficult to make 4X4 Keypad by orchestrating 16 catches in framework arrangement. A 4X4 Keypad will have 8 terminals.

4. LCD (16x2) :- LCD (Liquid Crystal Display) screen is an electronic presentation module and locate a wide scope of utilizations. LCDs are affordable; effectively programmable; have no constraint of showing exceptional and even custom characters (dissimilar to in seven fragments), movements, etc.
5. Motor :- An electric engine is an electrical machine that changes over electrical vitality into mechanical vitality. It consists of a suitable motor coupled to a sensor for position feedback.
6. Pump Motor :- It is a submersible motor which can be used to pump liquid from one place to another.
7. L293D Motor Driver :- L293D is a double H-connect engine driver coordinated circuit (IC). Motor drivers act as current amplifiers since they take a low-current control signal and provide a higher-current signal[4].

V. Advantages And Limitations

- **Advantages:**
1. Corruption in the Government and market area can be halted if this framework ends up robotized.
2. Helpful to avoid acts of neglect at apportion shops.
3. Reduces desk work.
4. Increased corruption in consumables can be avoided.
5. Time sparing methodology.
6. This framework keeps the information appropriately.

- **Limitations:**
1. System is complex.
2. Requires dedicated space.
3. Expensive.

VI. Conclusion

Apportion fabrication is a standout amongst the most troublesome difficulties looked by the sustenance appropriation office. The customary framework has downsides like acts of neglect, low preparing pace, long holding up time at apportion shop to get material and material burglary in proportion shop with no affirmation to Government and shopper. To beat this issues Smart Ration Vending System has been created. This technique can give protected, secure and proficient method for open appropriation framework. Utilizing this cutting edge framework, we can have better administration of the apportion circulation. Government can have aberrant beware of the accessibility of the proportion to the recipient. In this manner, the proposed framework is increasingly secure and straightforward then the ordinary existing framework.

References

[1] Dhanashri Pingale, Sonali Patil, Nishigandha Gadakh, Reena Avhad, Gundal S.S "Web Enabled Ration Distribution and Corruption Controlling System", International Journal of Engineering and Innovative Technology (IJEIT), Volume Issue 8, February 2013.
[2] Shivbhakt mhalsakant Hanmant, Suraj V.S, Moresh Mukhedkar, "Automization of Rationing System", International Journal of Computational Engineering and Management (IJCEM), Volume 7, Issue 6, November 2014.
[3] https://www.onlinejournal.in/IJIRV3I12/010.pdf
[4] http://www.ijsrp.org/research-paper-0415/ijsrp-p4058.pdf