AN EXPERIMENTAL ANALYSIS ON RFID BASED VENDING MACHINE FOR RASHAN

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Abstract

This method also involves tracking and maintains the database. The masterkey is nothing but user Password which is shared only to government authorized person. The government officer will place the finger on the finger print sensor to scan. The authorized finger print is stored in the database. If finger print matches system will send a user Password to start the dispensing materials. Every family card holders details and with respective finger prints is saved in the database. To get the commodities customer need to scan the finger for verification and security process. In this proposed system human intervention is not present due to automatic system and reduces the corruption using finger print sensor. After ration delivered to the consumer, the system is connected to the government database or server through GSM module to provide ration information to consumer and also ration distribution system authority.

Keyword *Arduino Programming, Automatic Control, Energy Efficient*

Introduction

The proposed system consists of RFID scanning method to initiate process for automatic ration dispensing materials. This method involves RFID scan that have the person data with the limit of rashan for wheat and rice. In our system we have used arduino to automate the system. In this prototype model for demonstration of the automatic ration dispensing system we have a used container for materials or grains 100gm pouches. The person asks to enter the rashan qty and that much pouches will dispense from the machine and RFID get limit deducted from the account. Machine has Sensor to indicate the rashan available in machine or not.

Literature Review

In preceding vending system is based on processor and also it uses RFID vending machine is used in various shops but this system has complex coding . This system consist of sensing of the normal coin, then of it decides direction of product deliver to user, connecting the dc motor to deliver perfect number of product, and using RFID tags . But the disadvantages of this system are if the putting of fake coins it accepts. This multiple coin acceptor overcomes the previous machine's drawback i.e. it cannot accept the fake coins made by the other metal, material. If peoples or user uses the same size, density, weight to make the duplicate coin then these coins are prevented by the multiple coin acceptor. The principle is very simple user or customer pay to the machine then machine will give the selected product or items to the user. In coin collector can not detect, through item not provide to user. The coin sensor detects the thickness and the size of the coins. It accesses the items by using fake coins with the same substance and size of material. To overcome drawback of this system we are using the multiple coin acceptor. Also the previous vending machine based on the Finite State Machine, this type of machine can give the auto billing features. But this system is not more feasible .
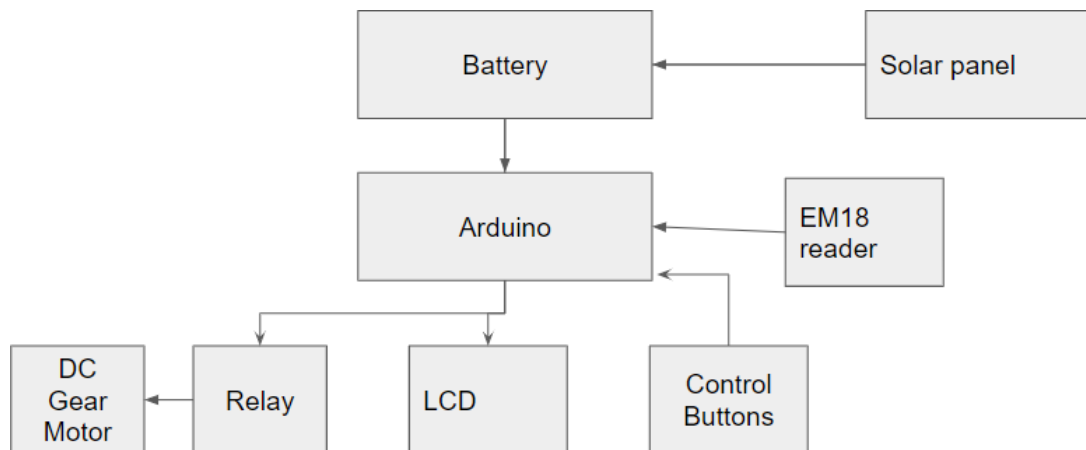
Methodology

Fig. Experimental Diagram

Working

Initially the LCD shows to scan the card. When RFID tag scanned, if the limit available in the card then LCD shows to press button for wheat or rice. As per the button pressed then respective pouch is dispense from the machine and RFID tags get updated from the limit.

1. If the limit over then LCD display the message to wait till the limit open.

2. RFID is a method of data collection that involves automatically identifying objects through low-power radio waves. Data is sent and received with a system consisting of RFID tags, an antenna, an RFID reader, and a transceiver.

Like barcode technology, RFID Scanner recognizes locations and identification of tagged items but instead of reading laser light reflections from printed barcode labels, it leverages low power radio frequencies to collect and store data. In a warehouse or distribution center, this technology is used to automate data collection. The transceiver reads radio frequencies and transmits them to an RFID tag. The identification information is then transmitted from a tiny computer chip embedded in the tag and broadcasted to the RFID reader.

Here are a few of RFID's helpful features and functions:

1. Tags can trigger alarms when moved

2. Communication between readers and tags is not contingent upon orientation

3. Data can be automatically read and stored

4. Tags can carry unique or standardized product codes

5. Items can be individually labeled, but read in mass

6. Tag data is compatible with WMS and ERP systems

7. Tags are difficult to reproduce/counterfeit

Hardware

1. Arduino Nano - AVR ATmega328 based microcontroller

2. 12v DC Gear motor : for the pouch dependence mechanism

3. Battery : 12V 1.2AH

4. Solar panel - 5W - to charge the battery

5. RFID reader and Tags (EM18)

6. LCD 16x2

7. Software: Arduino IDE

Conclusion

The content of this book has been concerned with the design of chipless RFID tags and RFID readers for low cost item tracking. The growing tendency today is to replace the barcodes with RFID tags. Knowing the limitation of the optical barcode, RFID provides unique ID codes for individual items that can be read at a longer distance. Hence, the obstacles of reading range and automation would be addressed by the use of RFID. However, the cost of RFID tags makes them unaffordable as an alternative to barcodes.

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