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A Survey On Advanced Ration Distribution System

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Abstract - *The Government has introduces the ration shops for giving out the fluids, grains, sugar and other necessities to the indigent peoples. As per present censes ration distribution system faces many challenges and incidents like corruption and illegal smuggling of goods. These problems include irregular measurement of the goods, wrong entries in the government register etc. Thus this project is proposed to have access to the information and data regarding the stock which can be access by both common consumer and by the government authorities in the head office. Thus manual work is replaced by fully automated electronic device with the help of controllers which measures the goods accurately and updates the information regarding transactions in a digital format.*

***Key Words*: Digitalization, Accurate measuring system, GSM verification method, DC Motor, Finger print authentication, Data base on Web Page.**

1. INTRODUCTION

This project is proposed to innovate a smart advanced ration distribution system to provide needs and necessity of the people. Most of the indigent people use ration shop to buy their monthly goods from the government using ration cards. These ration cards are used to keep records of goods purchased, and their quantity. The whole process involves manual work and thus manpower is required. This is time consuming and an Exhausting process. The process that we follow at present has a few drawbacks for example, the problems faced by the common people i.e. unavailability of goods that happens due to the illegal sale of goods by the workers and dealers. This proposed project known as Advanced ration distribution system would help people to buy their monthly household commodities in an enhanced manner by making the whole process smart, efficient, reliable and accessible.

The proposed project is an electronic device with smart features like ARM 7 controller, finger print scanner, smart measuring of goods and it maintains the record of all the information regarding the goods brought and delivered to the consumers. The basic working of the device is to provide a onetime password with a user login, and will start the hardware and software functioning of measuring the goods accurately and delivers it to the consumer in a smart manner. The consumer could access the availability of goods in a shop through internet.

2. LITERATURE SURVEY

In the literature survey we have observed various methods related to rationing system.

Automatic Rationing for Public Distribution System (PDS) using RFID and GSM Module to Prevent Irregularities. Is developed by Technological Institute, Mumbai, Maharashtra, India Page 102 HCTL Open Int. J. of Technology Innovations and Research HCTL Open IJTIR, Volume 2, March 2013 e-ISSN: 2321-1814 ISBN (Print):978-1-62776-111-6.Author, Veermata Jijabai Rajesh C. Pingle and P. B. Borole. In this paper the concept of replacing manual work/job in public distribution system (rationing System) by automated system. This automated system replaces the conventional ration card by finger print and GSM Module for receiving OTP in which all the details about users are provided including their AADHAR Card number which is used for user authentication. This prompted us to interface (R307A0) to the microcontroller (ARM 7 LPC2138) and PC via RS232 to develop such a system.

Web Enabled Ration Distribution and Corruption Controlling System Author.Reena Avhad Dhanashri Pingale, Sonali Patil, Nishigandha Gadakh.Involvement of manual work calls a lot of Vol-3 Issue-1 2017 IJARIIE-ISSN (O)-2395-4396 3400 www.ijariie.com 1320.In this project they have observed existing theoretical and empirical work on corruption with a view identifying opportunities for further research. Computerization can help in modernizing the PDS. This paper discusses strategy adapted in using ICT to control diversion and leakage in the delivery mechanism and its successful application in computerization of food grain supply chain. Here efforts from our side is done to overcome the corruption problem involved in ration distribution system through a kind of electronic web template where distribution of kerosene, rice, wheat etc.

Author:S.Valarmathy, R.Ramani , Mrs. B.Buvaneswari International Journal of Advance Electrical and Electronics Engineering (IJAEEE) ISSN (Print): 2278-8948, Volume-6 Issue-1_2, 2017 149.The automated ration system replaces the conventional ration card system by RFID tag. The main

objective of the designed system is the automation of ration shop to provide transparency by using, RFID & IOT technology. The RFID systems basically consist of three elements: a tag or transponder, a reader and a middleware deployed at a host computer. Consumers are given a RFID which acts as ration card. Sensor data can be sent to Thing Speak from Arduino, Raspberry, Beagle Bone Black, and other hardware.

The proposed project has designed and implemented an automated ration distribution system using RFID and IOT. By implementing the automated ration distribution system, each user is assured to get a correct amount of ration at the Correct Price.

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3. PROPOSED HARDWARE AND SOFTWARE

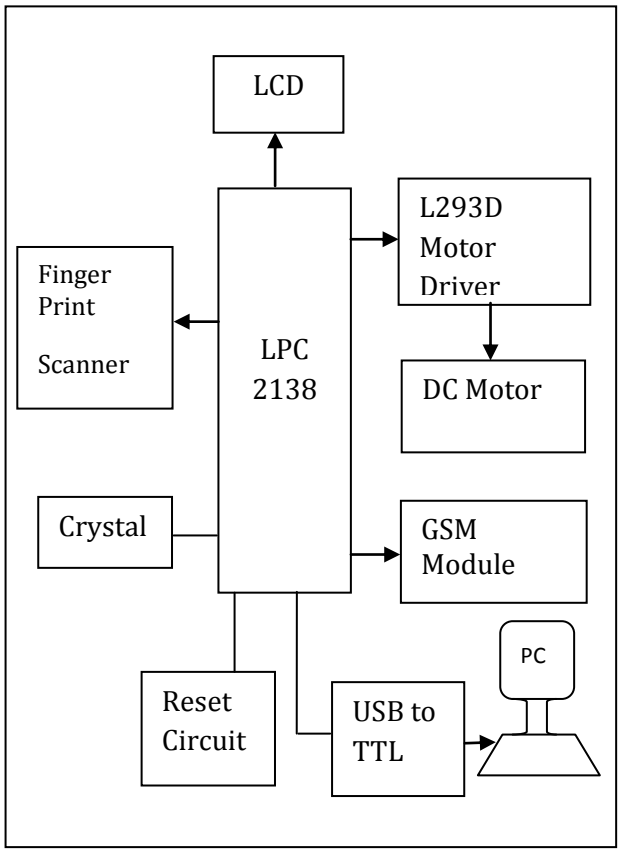

Fig1: Block Diagram

Fingerprint Scanner (R307A)

The scanner uses a light-sensitive microchip (either a {CCD} charge-coupled device, or a CMOS image sensor) to produce a digital image. The computer analyzes the image automatically, by the data of fingerprint, and then uses sophisticated pattern-matching software to turn it into a code.

There are four types of fingerprint scanners: the optical scanner, the ultrasonic scanner, the capacitance scanner and the thermal scanners. The function of these three types of scanners is to get an image of a person's fingerprint and find a match for this print in the database.

LPC2138

The **LPC2138** microcontrollers are based on a 16 or 32 bit ARM7 with real-time and embedded trace support that combines the microcontroller with embedded system of high speed flash memory range 32 KB -512 KB.

Due to their mini size and low power consumption, these microcontrollers are used in applications where miniaturization is a key requirement.

These microcontrollers are particularly suitable for industrial control and medical systems.

L293D Motor Drive

L293D is a typical Motor driver IC which allows DC motor to drive on either direction. **L293D** is a 16-pin IC which can control a set of two DC motors simultaneously in any direction. Hence you can control two DC motor with a single **L293D IC.**

Keypad 4X4

The 4*4 matrix keypad usually is used as input. It has 16 keys in total. A matrix keypad is the kind of keypad you see on microwave ovens, gas pumps, and calculators.

Liquid Crystal Display (LCD)

A liquid crystal display **(LCD)** is a flat electronic panel display that uses the light modulating properties of liquid crystal. LCDs are more energy efficient and other than CRTs.

Its low electrical power consumption enables it to be used in battery-powered electronic devices.

Dc Motor

A DC motor is a rotary electrical motor that converts DC into mechanical energy. Their commutation can be brushed or brushless with a rotary direction.

USB to Serial Converter

The USB to Serial converter allows you to connect a **RS-232** serial device such as a modem to a USB port on your Desktop or Laptop.

A. Hardware

The hardware system can be further sub-divided into three parts:

1. Measuring System

This set up is operated through a motor and mechanical timing arrangement interfaced with LPC2138 ARM 7. Where, the mechanical arrangement of solid state system is controlled by L293D driver IC.

2. GSM Module

This module is interfaced with LPC2138 ARM 7 to send OTP to the card holder of the ration shop as a mode of security.

3. Finger Print Scanner

This scanner (R307A) is used for authentication of the consumer.

B. Software

The software demand for this project is as follows:

1. Keil micro version 4 .Embedded C Language for interfacing all the hardware with the ARM 7 and its hardware requirement board.

2. HTML and JAVA script a long with the PHP for the development for online access of the system Information through internet (Eclipse Software).

C. Flowchart

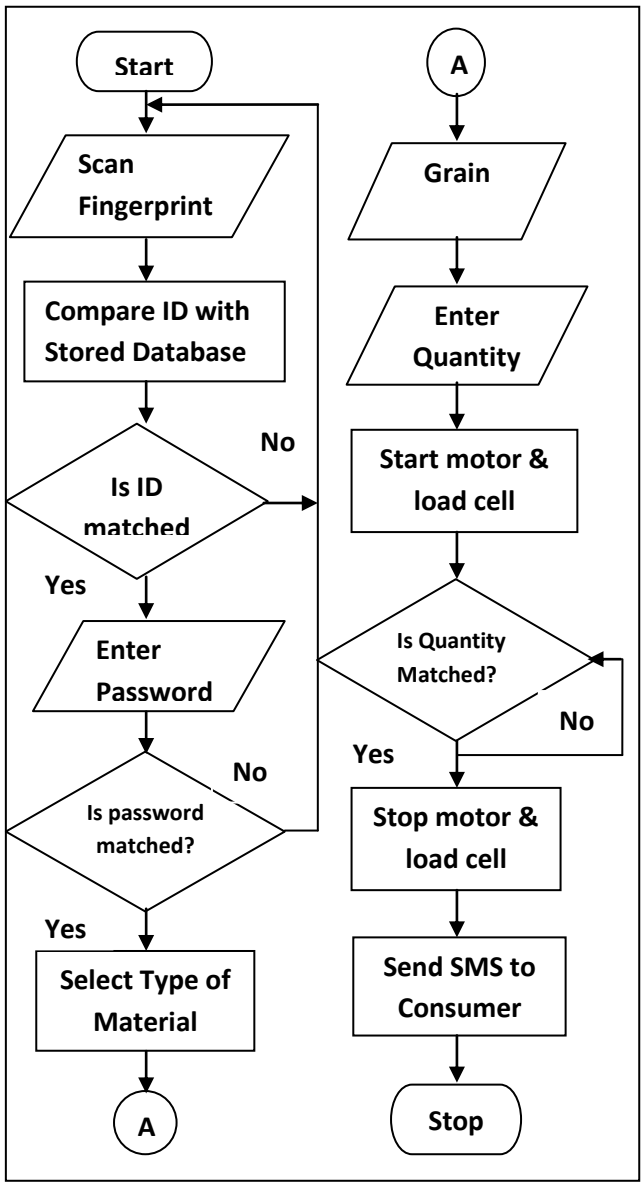

Fig1: Design Flow

4. MECHANISM USED

Flow Control

This arrangement is controlled by arm 7 consisting of a mechanical hand and a motor. The motor allows mechanical hand to move with some gear arrangements. The mechanical hand is connected to a shutter which opens and closes according to the command .The electrical DC 12 V motor operates in both directions which are done with the help of an IC L293D.

Container

The containers for solid state such as grains are stored in a barrel from which the solid materials flows in to the temporary container which contains a fixed diameter through which the goods such as rice or sugar enter.

Open & Close System

This arrangement contains a movable hand attached to the 12V electrical DC motor which is powered by a DC source, the movement of the hand is controlled by the L293D driver IC. It allows the opening and closing of the disk. These signals from the driver are controlled by the ARM 7 microcontroller.

Login System

The login system is done by the HTML for the front end and the background verification is done by the java script and the data base is been managed by the PHP.

Password & Security Setup

The password is operated according to the programming done in the ARM 7 controller. The authentication is done for the hardware section through (online) web page. The web page has an access of unique OTP and user login. The GSM module is interfaced with the controller for giving an OTP to the card holder. It consists of individual security modules for accessing the online login system.

Fig2: Hardware System

5. COMPARISON WITH EXISTING TECHNIQUES

Sr No	Authors	Paper	Description
1	S.Valarmathy, R.Ramani,	Automatic Ration Material Distributions (2016-2017) Instrumentation and Measurement Technology Conference	GSM and RFID Technology
2	Scott Manson, Ashish Upreti	Current transformer selection techniques for low-voltage motor control centers (2016) IEEE	Flow direction sensor using solenoid valve
3	Rajesh C. Pingle and P. B. Boroley	Rationing for Public Distribution System (PDS) (2015-2016)	IOT and GSM Module
4	Joffin George, N.Naveen, P.R.Madhava Panicke	Manipulator robot for crack detection and welding in underground process pipes (2014) IEEE	Magnetics, Machines and Drives
5	Dhanoj Mohan, Rathikarani, Gopakumar	Ration Shop Using PLC (2013) Journal of the SMPTE	Ration Card and GSM using PLC method

6	Gama Moreno L, Reyes J, Sanchez M Ochoa-Franco C, Nogueron C,	Instrumentation of a Water-Leaks Detection System Controlled 2010 (CERMA),	Short Message Service through the GSM Network

6. CONCLUSION

In this project the identification of individual customer, accurate measuring of solid goods, stock information and authentication is processed. This will in turn create a bridge between the common people and the government that would allow us to step forward making India a developed country. Thus we have developed a project that would remain the Bench Mark under the E-Governance of India. It would also provide easy access to the local community in legal manner. It will make the process of buying commodities from ration shop smart, automated and time saving. Electronic devices used in this project can also be modified and made to be used in the glossaries shops and markets as an automated machine.

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