IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

ML BASED E RATION DISPENSIN SYSTEM USING RASPBERRY PI

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Abstract*:* Every family has to have a ration card in order to purchase government issued goods. It has also been used to verify addresses and obtain family member information. The goal of automatic rationmaterial distribution is to minimize human interaction in order to achieve efficiency and transparency. The primary goals of this project areto reduce corruption and boost the integrity of theration material distribution process.In this proposal, an automatic ration material distribution system that replaces ration cards withRFID tags utilizing face recognition authenticationand RFID (Radio frequency identification) is presented. The customer inserts the RFID tag intothe RFID reader to retrieve the materials. Next, thecontroller verifies the password and examines the customer code and details that are kept in thecontroller database. Following customer authentication, the customer must enter the necessary data using the supplied keys. The specifics of the item that was dispensed to the customer will be recorded in the database.

INTRODUCTION

India is among the nations that offer the poorest prices on a variety of ration supplies. This operation is managed by the government in tandem with the central government. Every familyis given a ration card by the Public Distribution System (PDS) to use to purchase the supplies. A shopkeeper who acts as a liaison between the government and customers gives each family a ration card all at once. The amount of supplies required will be set based on the family's income and size. Every month, supplies like rice, sugar, paraffin, etc., are given out. Government-issued materials may not reach the underprivileged and inneed due to human error, such as inaccurate material weight calculations and the sale of leftover goods without notifying the government.There will be some decrease in corruption if this mechanism is automated. An automated system isput into place in the suggested work to get aroundthe problems with the current distribution method.RFID (Radio Frequency Identification) tags, which store all the necessary data (name, contact number, Aadhar number, etc.), Have replaced ration cards. The authorized person is prompted toenter the quantity of ration material and their demand once the microcontroller has verified theiridentity. Additionally, this article suggests using facial authentication and using load cell in the event of theft. A Raspberry Pi controller is used tooperate the entire system.

LITERATURE REVIEW:-

1. SMART RATION DISTRIBUTION SYSTEM BY USING RASP- BERRY PI et.al[7] is One of the most contentious topics in India is the Ration Distribution System (RDS), which involves both urban and rural areas' share o0f corruption, mis- management, and illicit activity. The current Ration Distribution System (RDS) involves hand-delivering food grains, such as rice and wheat, to the ration cardholder. Additionally, there's a danger that grain won't be spread correctly.

2. RFID Based Smart Card Ration Distribution System et.al [8] This article offers an automated smart card-based commodity distribution system designed to lessen corruption and boost national transparency. The existing PDS system has a number of proven issues, such as inadequate governance, opaque- ness, accountability issues, deficient services, and widespread corruption. This article has used GSM and RFID to address this challenge and find a solution. RFID cards areintroduced in this study. Ration cards are replaced by RFID cards, which contain all cardholder information including family member details, cardtype and validity, and much more member details, card type and validity, and much more.

3. Smart Rationing System using RFID and Raspberry Pi et.al [9]The Public Distribution System is crucial. food security program run bythe Indian government's Ministry of Consumer Affairs, Food, and Public Health allocation. Thesmart ration card is beneficial to all homeownerfor a variety of reasons, including a family member information, how to receive free food and non-food goods, and gas connection as wellas address verification for different uses. Everybody Those who use ration cards to obtainvarious food grains like sugar, wheat, rice, and non-food goods like edible oils and paraffinfrom stores with fair prices.

4. IOT Based Smart Public Distribution System et.al[1] Providing for impoverished families in emerging nations like India is cru cial to addressing people's basic necessities. Grocery stores currently use a manual quantification system and transaction record keeping.

5. FACE DETECTION AND RECOGNITIONUSING RASPBERRY PI et.al[5]Face recognition plays a major role in security and surveillance in the modern world. Thus, a system that is both economical and effective is required. Our objective is to investigate the viability of deploying a face recognition systembased on a Raspberry Pi using standard face detection and recognition methods like PCA andHaar detection. The goal of this research is to advance face recognition technology to the pointwhere it can take the place of RF I-Cards and passwords for entry to buildings and high- security systems. Our goal with the Raspberry Pi kit is to provide a high-performing, user-friendly, and affordable solution.

METHODOLOGY:-

1 Proposed System

2 Circuit Diagram

1.PROPOSED SYSTEM:-

system will work as follows:-The user will swipe their ration card on the reader. The systemwill verify the user's identity. The system will capture user's face through webcam and to recognize the face of user exist in DB. After successfully authentication the amount of rationthey are entitled to. If user will not berecognized or not be authenticated in any of system then BUZZER will be activated. The system will then dispense the required amount of ration. The system will also keep a record of the ration that has been dispensed to each user. We can determine the weight of rations such asrice, wheat, and lower using a load cell.

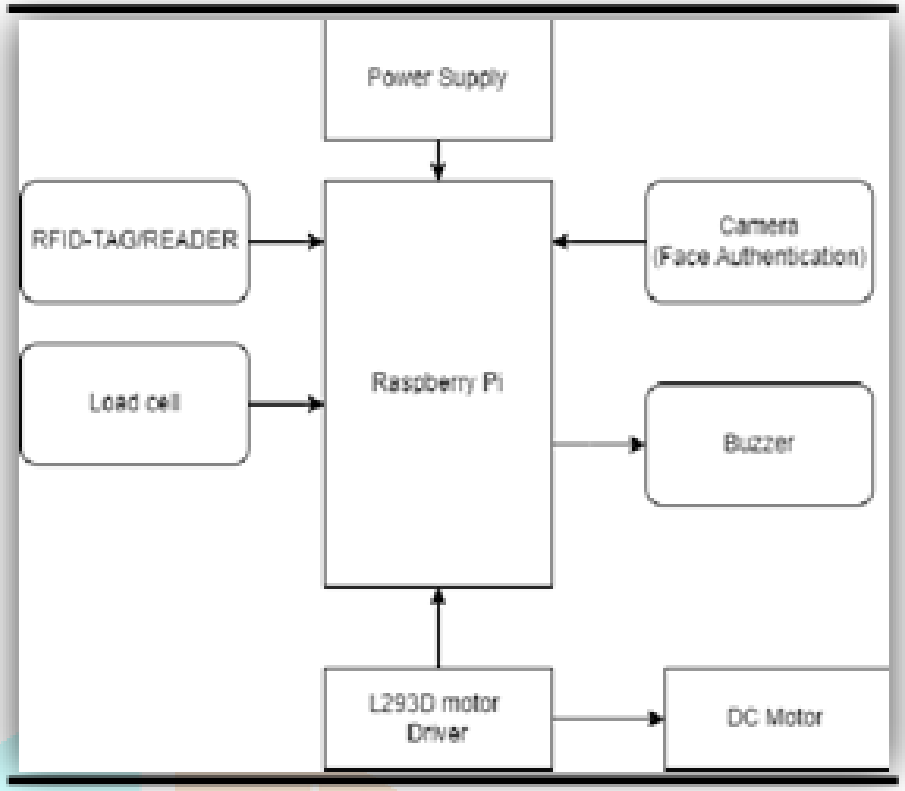

Fig.1 Block Diagram

2.CIRCUIT DIAGRAM

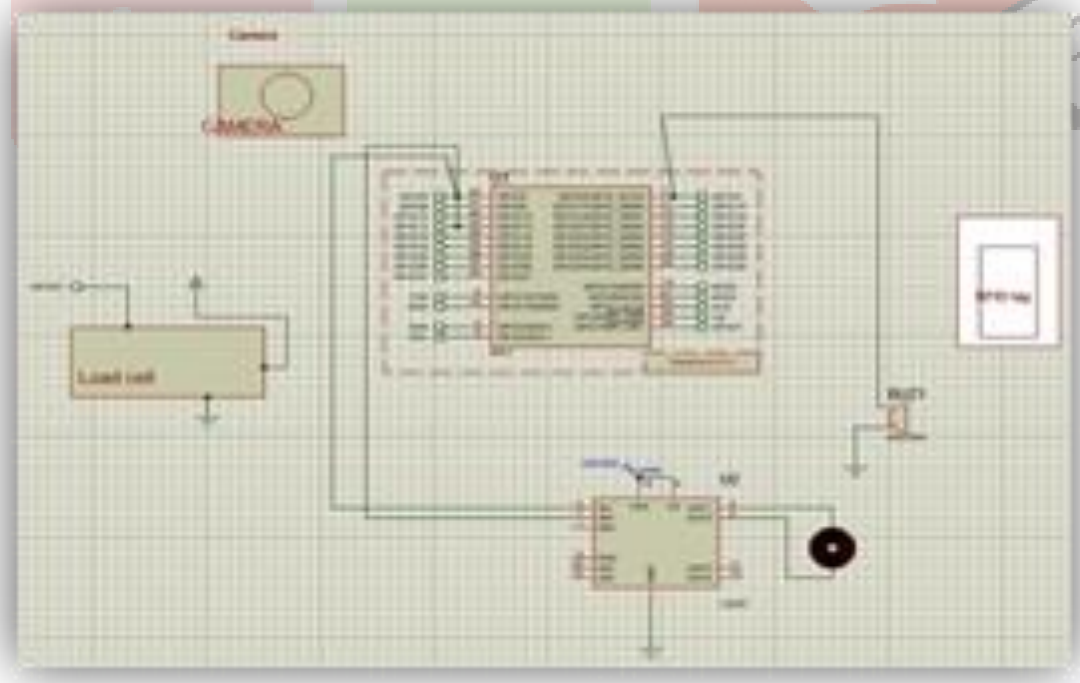

Fig.2 Circuit Diagram

Raspberry Pi

3 Model B+ is a single-boardcomputer developed by the Rasp- berry Pi Foundation. It is a credit-card-sized computer that can be used for a variety of tasks, includingprogramming, media center, and home automation. The 3B+ model features a 1.4GHz 64-bit quad-core ARM Cortex-A53 CPU, dual-band 802.11ac wireless, Bluetooth 4.2/BLE, faster Ethernet, and Power-over Ethernet support (with separate PoE HAT).

Fig.3 Raspberry Pi

CAMERA

A webcam is a video camera that is connected toa computer or other device, typically via a USBport, and is used to capture and transmit video over the inter- net. Webcams are commonlyused for videoconferencing, live streaming, andother applications that require real-time video communication. A high- quality webcam captures better images and ensures better communication of ideas. For personalrelationships: Just like in the case of work, video calls are equally important for connecting with your loved ones. It allows you to communicate as if you are sitting right beside them. A webcamis a video camera which is designed to record orstream to a computer or computer network. They are primarily used in video telephony, livestreaming and social media, and Security.

Fig.4 Camera

L293D MOTOR DRIVER:-

The L293D is a 16-pin Motor Driver IC which can control a set of two DC motors simultaneously in any direction.The L293D is designed to provide bidirectional drive currents of up to 600 mA (per channel) at voltages from 4.5 V to 36 V (at pin 8!).You can use it to control small dc motors - toy motors.

Fig.5 L293D Motor Driver

BUZZER:-

In simplest terms, a piezo buzzer is a type of electronic device that's used to produce a tone, alarm or sound. It's lightweight with a simple construction, and it's typically a low-costproduct.

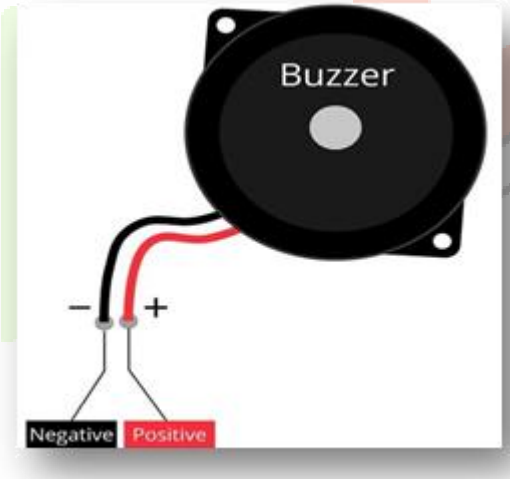

Fig.6 Buzzer

DC MOTOR:-

A DC Motor 300 RPM (revolutions per minute)is a type of direct current electric motor that rotates at a constant speed of 300 revolutions perminute.

It is a type of electric motor that converts electrical energy into mechanical energy. DC motors typically have a simple construction,consisting of a stator, or stationary part, and a rotor, or rotating part. The rotor contains a permanent magnet, while the stator has a set of coils that are energized by a DC current to create a magnetic field.

Fig.7 Dc Motor

LOAD CELL:

A load cell is an electro-mechanical sensor usedto measure force or weight. It has a simple yet effective design which relies upon the well-known transference between an applied force, material deformation and the flow of electricity.

Fig. 8 Load cell

RFID Tag:

RFID stands for Radio Frequency Identification.This rapidly-growing technology transmits information wireless, through the use of radio waves. RFID re- quires using a device known asa reader. The reader is needed to retrieve any data stored on a RFID tag

Fig. 9 RFID Tag

CONCLUSION:-

This project is a valuable contribution to the fight against ration fraud. It is a simple and effective way to ensure that the ration reaches the intended beneficiaries. The presented systemwill be a new approach to modernization ofvillages and will be helpful for controlling the unethical practices in the public ration distribution system. Due to continuous monitoring and data collection the system will play an important role in Disaster management.

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