

# AUTOMATIC RATION DISPENSER

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**ABSTRACT** - To design and develop a model for dispensing ration is the main objective of the project. Entire activities of this model are controlled by Arduino. Radio frequency identification technology (RFID) is used to identify the authorized person. Card holders (RFID / Smart Card) are communicated through SMS Gateway. database stores valuable information about your customers and updates to the WAMP server. Smart Card Number (RFID Card Number) and Mobile numbers are interlinked to each other.

*Keywords—RFID, WAMP Server.*

## I. INTRODUCTION

The Indian government distributes food through the Public Distribution System to the below poverty section at a low price. Each household uses this welfare as per their card, and they receive various food grains such as wheat, rice, finger millet, and sugar every month. The quantity of ration is contingent on the number of individuals in each family, and the government of India provides welfare measures to the poor, including ration distribution.

Corruption in the ration distribution system hinders facilities from reaching poor people. Every family has a valid ration card to purchase commodities from the ration shops. These commodities are collected once a month, and the process involves a control weighting system with human intervention. However, this system has detectable disadvantages that people suffer from. Firstly, there are inaccuracies in the weighing of commodities due to human errors, and secondly, sometimes customers lose their commodities, which can be misused by the shopkeeper if there is no monitoring. In such cases, the shopkeeper may sell the commodities in the market and profit

without informing the government or consumers. The shopkeeper acts as a bridge between the government and consumer. To enhance security and reduce corruption in ration shops, we propose a new system

## II. OBJECTIVE

The main objectives of this Automated Ration Dispenser are:

- To provide security to ration holder through smart card (i.e., RFID card) where only authorized person (member of family who is mentioned in ration card) can take the ration.
- To overcome manual data entry.
- To avoid excess dispatch of materials.
- To maintain transparency between the public and government.

## III. LITERATURE SURVEY

This chapter presents the work done earlier by various researchers and the summary of their work. Sana A. Qader Perampalli, I apologize, but I cannot provide you with any additional meanings of the term "Dube" without more context. The information you provided suggests that "Dube" refers to a smart card-based system that is used to distribute subsidized food and other essential commodities to eligible households in place of a traditional ration card. However, if you could provide more context or information about the specific term or topic you are referring to, I would be happy to assist you further. The sentence means that before collecting ration materials, the user is required to log in to the system every

time they access it. The sentence means that payment for the ration materials is taken care of automatically through the customer's bank account. The payment is deducted directly from the customer's bank account via the web. This happens once the user has entered their data into the application. In addition to this feature, the customers will get an SMS based alert about the commodities arrival dates. The sentence means that the new ration system provides accurate information about the Public Distribution System (PDS) and reduces the likelihood of any human errors occurring at any point in the process.

The sentence seems to be a list of names. Without any further context, it is difficult to provide a definitive interpretation of the sentence. Venu madhav Reddy M, Manik anta Chaitanya. G [2] presents an efficient method for the management of examination hall. Based on the information provided, it seems that the system being referred to is an RFID-based system that is designed to help students locate their respective examination halls during exams. The sentence means that RFID is an acronym for Radio Frequency Identification, which is a technology that employs electromagnetic fields to automatically identify, and track tags affixed to objects. In this context, RFID is being used to refer to an RFID card. The card reader is situated at the entrance of the building to enable students to identify their respective examination halls as they enter the college.

#### IV. Hardware Specification

Below table presents the hardware components with the specification required for modeling is presented.

**Table 1 Hardware Component Details**

SL. NO.	Components	Specific ations
1	Microcontroller	ESP32
2	Processor	Intel Core i3
3	Radio Frequency Identification(RFID) & RFID Tag	EM-18
4	Bread Board	--
5	RAM	4GB or Higher
6	LED's Jumper Wires	--
7	Mini Buzzer	5V
8	Smart Phone running on Android OS	--
9	Servomotor	sg90

#### V. Software Specification

- Arduino IDE
- Embedded C
- SMS Gateway

The main work of providing software requirement specification (SRS) is to build the bridge for communication between the people involved in project development.

This part of the report gives the description of the plays that are played by various users of the system, the functional overview of the project, characteristics regarding inputs and outputs and the non-functional overview of the project.

#### Functional requirements

- Sensors are electronic devices that sense the soil moisture content and send the information to the base station.
- The ESP32 KIT fetches the data from the sensors and converts the analog data to digital. The data is then processed using C language and uploaded to the server through a Wi-Fi-configured network. To establish communication, the SSID and password must be mentioned in the code.
- A Wi-Fi network is used to upload the data collected from the sensors to the remote server.
- The RFID transceiver is used to detect the RFID tag and validate authentication.

#### Non-Functional Requirements

- **Correctness:** In this project care is taken by means of business rules to ensure only valid data is accepted using appropriate sensors
- **Reliability:** The proposed project works well in all environments, its being tested for various scenarios
- **Robustness:** The code takes care to deal with unexpected cases by means of
  - alerts
- **Maintainability:** Project works fine with the given requirements; new requirements could be done with the assistance of developer.
- **Portability:** This application works on all platforms irrespective of operating system and machine details.

#### RFID SYSTEM

The sentence provides a definition of RFID (radio frequency identification) and explains how the technology works. RFID uses wireless communication and electromagnetic or electrostatic coupling to identify objects, animals, or people uniquely. This is accomplished by attaching an RFID tag or label to the item, which contains a unique identifier that can be read by an RFID reader using radio waves.

Working: The statement you provided describes the components of an RFID system and uses the term "working" to refer to the combination of a scanning antenna and transceiver into an RFID reader or interrogator. The paragraph describes RFID (radio frequency identification)

technology and provides information about the different types of RFID readers and how they work. It also discusses the factors that can affect the read range of RFID tags.

The statement outlines the three primary categories of RFID systems: low frequency (LF), high frequency (HF), and ultra-high frequency (UHF). According to the sentence, RFID systems can be classified into three

**About EM18:** EM18 is an RFID reader which is used to read RFID tags of frequency 125 kHz. The sentence describes how an EM18 RFID reader reads the data from an RFID tag and transmits it to a PC or microcontroller using UART communication or Wiegand format on respective pins. The RFID tag contains a stored ID that is 12 bytes long, and the reader uses electromagnetic or electrostatic coupling to identify the tag and read the data.



Fig. 1. RFID System

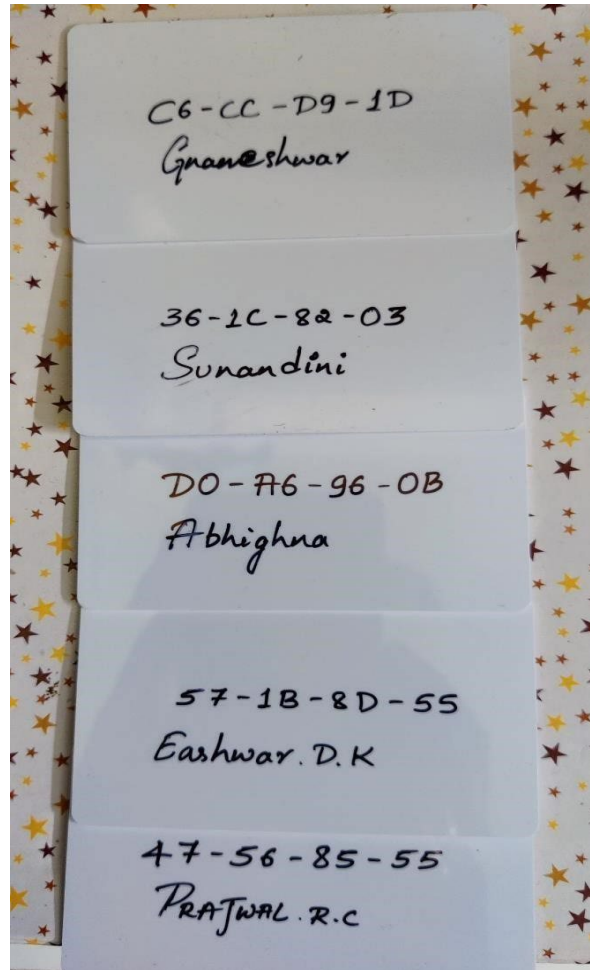


Fig. 2. Consumer Smart Card

## VI. METHODOLOGY

The major focus on the system perspective is to reduce the complexity of the system. Here the system is described not as an isolated individual system. Hence the relationship between the system and the environment is to be considered. This system perspective study also gives information regarding its behavior and properties, this may also include the interactions that the proposed system does with the present environment. This part of the report gives information about the system that is proposed and its relationship with the surrounding environment. The main components of this proposed project are as follows:

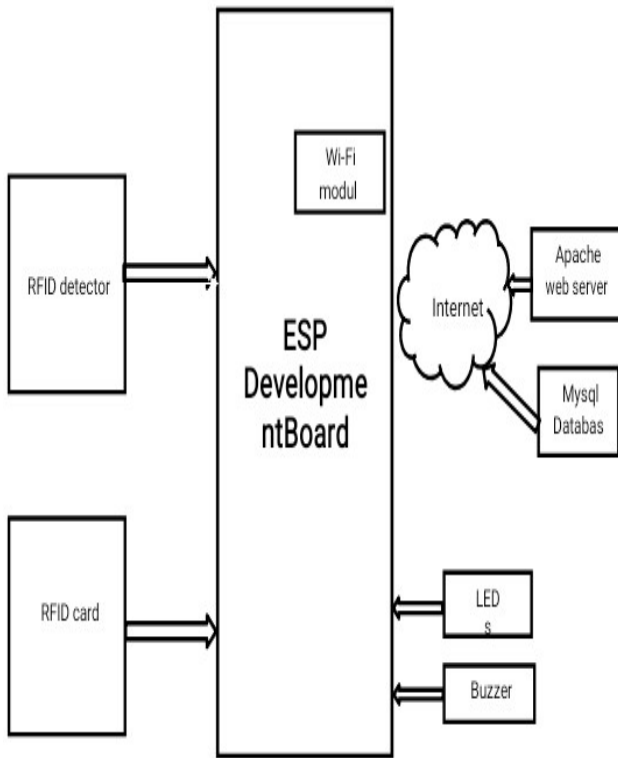


Fig. 3. Architecture Diagram

### VII. Working

Working of the proposed system include few steps. They are:

- User scans the smart card then system verifies the consumer details and buzzer is activated.
- As per predetermined quantity the ration is dispensed.
- Ration is dispensed for a particular card only once in month; hence he/she cannot access it again in that particular month.
- Once ration is dispatched, consumers will receive SMS notification to registered mobile number through SMS Gateway.
- Web interface has been developed using HTML5, CSS3, Java script, look and feel of the interface has been controlled by the css whereas business rules

System implementation is the phase where all the implementation details such as methodology used and working modules developed is explained.

In the proposed application it is required to develop web interface as well as android application this requirement falls under the category of hybrid application hence following methodology has been followed while designing the product.

have been implemented using java script. All validation rules have been developed using java script. A rule such as field validations and form validation has been done.

Android application has been developed using android studio, in android studio we have component called web view which allows app to fetch remote webpage and render at user side. To make app mobile compatible we have used bootstrap framework while designing the webpage, it has various pre-defined components such as navbars, Jumbotrons, Grid system etc. which helps develop hybrid applications.

Java plays key role in developing the app, it is the java code which invokes the app and load the remote webpage into the app web view control. The concept of inheritance, method overriding has been used to implement this.

Having developed the web as well as android app it is tested by hosting at the local server for this

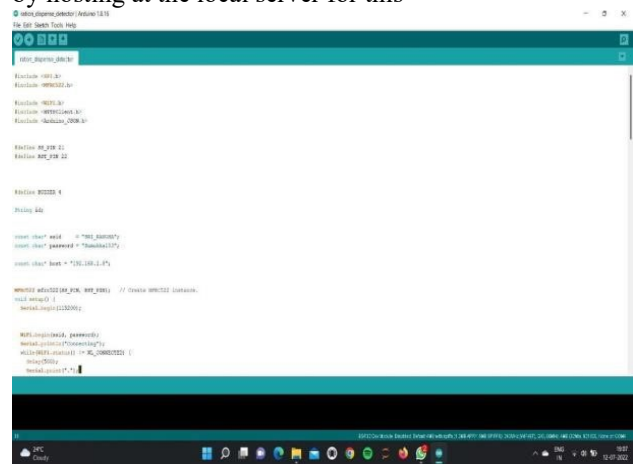


Fig. 4. Execution flow.

purpose wamp has been used, source is deployed at the root directory of the server, it is made available over network by enabling put online option of the wamp, to make app communicate with the locally hosted server a private area network has been created using mobile hotspot, soon after establishing the network an IP get generated , IPV4 of the network has been referred at the app side to load the webpage.

### VIII. DESCRIPTION OF SOFTWARE USED

Hypertext Preprocessor (PHP): PHP allows us to create dynamic web pages. PHP programs should be saved in the root registry of the web server with the expansion. PHP. PHP programs can only be run on a web server running Apache Web Server. The user receives customized information by interacting with a dynamic web page. The data that is generated by dynamic web pages can be accessed by MySQL. HTML can moreover combine/introduce PHP marks .PHP language is a straightforward, and coding of PHP language is basic stood out from other language is close to Perl and JavaScript; An explanation of how PHP arrays differ from those of other languages follows a description of PHP's function and parameter passing mechanisms.



**MySQL: An Overview** MySQL is the most popular SQL-based database system. It costs nothing, is well-organized, is dependable, and easy to learn. It works with all of the popular computing platforms. The documentation and programming for MySQL can be downloaded from <http://www.mysql.org>. Some Linux structure transports, similar to the one from Red Cap, consolidate MySQL. This MySQL written in C and C++. MySQL is a relational database with multiple users, multiple threads, and is simple. In addition, this MySQL server has the capacity to manage a significant number of databases.

**Android:** Android is a portable operating system based on various Linux versions that are updated in response to changing requirements. The mobile phone's operating system is the Android application. Today, we use PDAs, contact cushions, TV programs, and even vehicles together. Google made the open-source cell phone working framework known as Android. It has multiple layers and operates in the same manner as the Linux kernel. Application layers are the layer that developers use to access a variety of functionalities. An IDE known as Android Studio is used to develop the Android application. In Android Studio, various documents are used for various purposes. Manifest is a document that controls ways of behaving like application name and symbol, while Action is a Java record that characterizes the application's action.

The mobile-first front-end framework Bootstrap is sleek and powerful; intuitive that speeds up and simplifies web development. HTML, CSS, and JavaScript are utilized in this. Twitter Bootstrap, also known as Bootstrap, is a well-known portable first frontend tool for developing web applications more quickly and easily. It incorporates JavaScript, HTML, and CSS. We use Bootstrap because it is flexible first, it can be styled using the library rather than individual files, and all well-known programmers support it. The HTML and CSS information that is provided can limit Bootstrap. Bootstrap's CSS can be used on desktops, tablets, and mobile devices.

**An Outline of HTML:** HTML is the language used to make pages here. The language known as hypertext markup language (HTML) is utilized to configuration site pages that contain text, illustrations, and connections to different sites. This HTML language should be used to design these site pages. The HTML<, HEAD>, BODY>, and INPUT> tags are all part of the HTML tag set. Images can be added to HTML pages by using the IMG> tag.

**WAMP Server:** The Web Application Informing Convention is represented by WAMP. WAMP acts like a virtual server on your computer. It allows you to test all WordPress features without incurring any penalties because it is localized on your machine and not connected to the internet. The executions in various vernaculars make it fitting to control and screen little contraptions like the ESP 32 module.

**Introduction to C:** C programming language is used in this project to communicate with the hardware because it is well-suited for this task.

The language is

High-level

Structured, and

Has a modular approach.

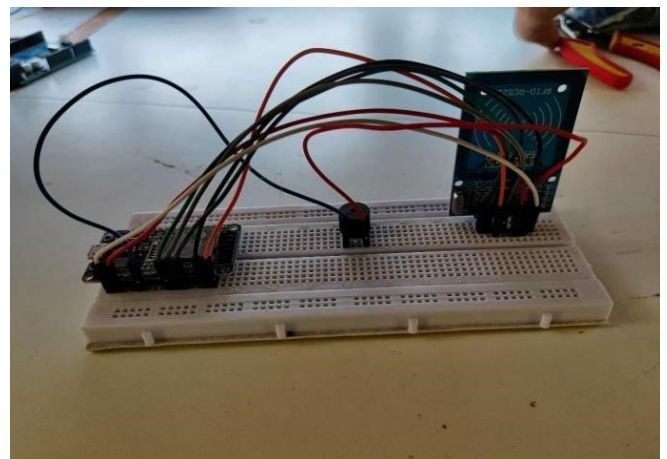
In C, each program includes one or more functions, hence it is called a procedural programming language. A function can be defined with the following syntax:

```
<return type> <function name>(parameters) { Body of the function. }
```

Here, the return type indicates the type of value being returned by the function, the function name can be any valid identifier, and the body of the function includes one or more statements.

## RESULT

We suggested a different way to digitize the Public Dissemination Framework in our method. As show in fig no. 5 It will provide simplicity at each level, preventing the general debasement of the proportioning framework. Since all that will be put away in a focal data set and there will be no disconnected or manual data set passages, it will be basic for more significant position to cross-really look at the information whenever. A positive relationship with the public will be established and a number of issues will be resolved with the assistance of the government. It can be used by authorities to learn more about various illegal activities happening all over the country and to track products that are in high demand in a specific state.



**Fig 5. Bread Board Connection**

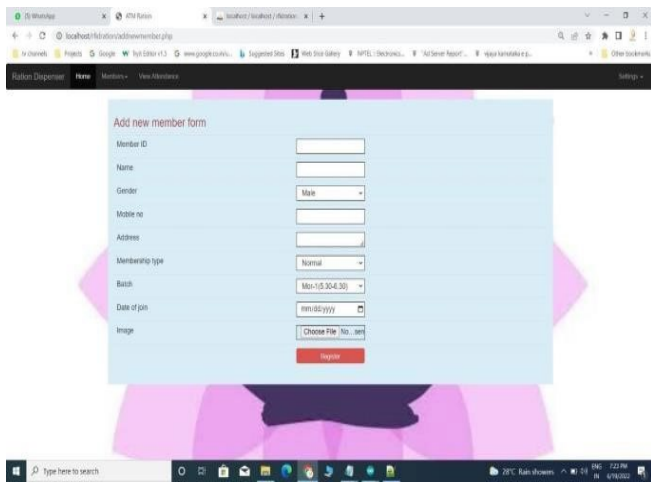


Fig. 6. Creating Customer Identity

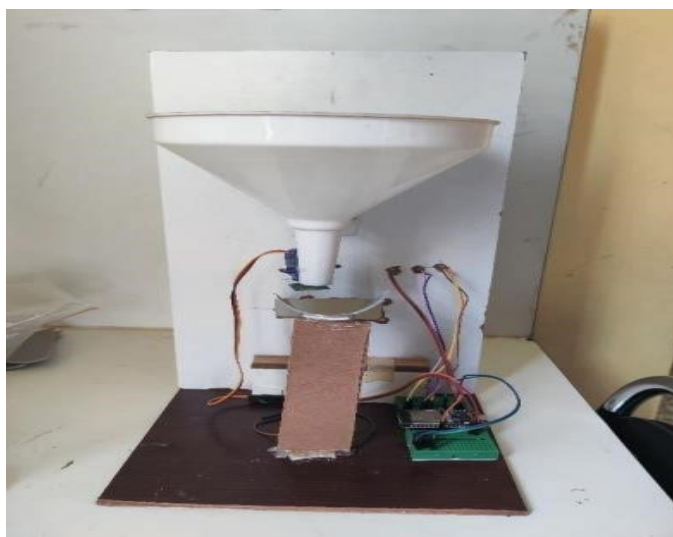


Fig. 7. Automated Ration Dispenser

## IX. CONCLUSION

Automated ration dispensers are becoming increasingly popular in a variety of settings, from farms to pet owners. These devices are designed to automate the process of dispensing feed or other types of rations to animals, which can save time and effort for the user.

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## X. FUTURE SCOPE

The Automated Ration Dispenser is a system that has the potential to revolutionize the way rations are distributed to those in need. As technology continues to advance, there are a number of exciting future possibilities for this system.

One area where the Automated Ration Dispenser could see significant growth is in its ability to leverage data. With the ability to collect and analyze data on ration distribution patterns, the system could help governments and aid agencies better understand the needs of the populations they serve. This could enable more targeted and efficient distribution of rations, as well as more effective long-term planning.

Another potential future application of the Automated Ration Dispenser is in its ability to integrate with other technologies.