

Digitized Ration Products Distribution Using Android Application

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Annotation: Ration cards are official documents issued by the state governments in India to every household that is eligible to purchase subsidized food items (rice, sugar, wheat etc.) and fuel (kerosene) from the Public Distribution System (PDS). The process to avail these items is complex nowadays due to excess crowds in ration shops. To overcome this difficulty, a mobile application has been developed. The food items can be ordered online, and a set of time slots will be provided. One of the Time slots and dates should be chosen to collect the displayed items. The payment is made either by direct mode or Online mode. It also includes a “Free Home Delivery” service for senior citizens. It also avoids material latency by providing an equal distribution of items. Specific individual vendors keep up with each area. Thus, the public authority receives a message about the utilization of grains by individuals.

Key words: Smart card, Ration products, Time slot, Android application.

Introduction

India holds the second spot in the populace. The Public Distribution System (PDS) in India has encountered extreme change from the proportioning plan presented at the hour of the Second World War to a huge public well-being project to ensure food security for the country's residents [4-12]. The public conveyance framework is an administration supported chain of shops which have the obligation of circulating fundamental food and non-food wares to the unfortunate groups of India at exceptionally low costs. Different broad overviews directed by India make the ID of unfortunate families [13-19]. Any individual who is a bonafide resident of India can apply for the Ration Card. Minors, for example, youngsters under 18 years, are remembered for their folk's cards. Notwithstanding, a person over 18 can apply for a different apportion card. Under PDS, the government offers fundamental products at fair and fixed costs. It helps in reducing the destitution level of India [20-25].

Toward the start, the government offered various things like palm oil, ghee, iodized salt and so on through PDS. Be that as it may, the public authority offers a fair cost in the ongoing situation a couple of oats, lamp oil, wheat, sugar, and rice [26-35]. At present, India has over 5,50,000 proportion stores all around the nation, making it the significant dispersal framework on the planet. Homegrown products will be dispersed to individuals consistently [36-65]. The greater part of the proportion of retailers enjoy fake exercises and forestall the merchandise contacting the financially tested individuals. Apportion retailers will likewise refresh the exchanges, wrongly assuming it is continued physically [66-75].

Literature Survey

The current regular apportionment dissemination framework has essential issues [76-81]. Businesspeople commonly enjoy falsification by giving proportion under bogus names, in the names of ineligible individuals, dead individuals, and copy names from different regions [82-101]. Likewise, retailers will more often than not show counterfeit amounts of merchandise accessible in the shop to more significant position individuals. To stay away from these issues, R. Santhana Krishnan et al [1]. proposed the IOT based savvy proportioning framework, which consequently administers the fundamental products to authentic cardholders in the wake of checking the cardholder details. A fingerprint confirmation plot is utilized to forestall unapproved access. Here, unique mark particulars calculation is utilized to get a picture of the finger utilizing an optical examining process [102-115]. The relative's subtleties are gathered and put away in the data set. Raspberry pi cross-checks the acquired unique mark with the finger impression accessible in the data set. After validating the client's legitimacy, presently, the framework is prepared to dispatch the items according to their prerequisite. A DC engine performs the dispatching system [116-121]. DC engine is utilized to turn ON and OFF the valves for programmed dispersal of rice, sugar and oil. Water driven valves are utilized here to control the speed of an actuator [122-135]. This is performed by managing the stream rate. Apportioning the oil to the cardholder is utilized [136].

M. Aishwarya et al [2]. has proposed an Automatic apportionment material administering framework which utilizes the RFID (Radio recurrence recognizable proof) and GSM (worldwide framework for versatile) that replaces the proportion card with an RFID tag. The client brings the RFID tag into the RFID peruser to get materials [137-145]. Then the regulator checks the client code and subtleties which are put away in the regulator information base, and confirms the secret key. When the client's confirmation is done, the client needs to enter the necessary material through the keys given [146-152]. The administered subtleties will be put away in the information base when the material is apportioned to the client. Toward the month's end, the amount of proportion material administered by every one of the clients will be shipped off the public authority server through GSM innovation [153-167].

R. Kurinjimalar et al [3]. has proposed a Smart programmed Ration card utilizing a webpage. It shows every one of the subtleties on the site page about the buyer because of the chronic number. Currently, the data is signed up for the public authority proportion site, which speaks with the microcontroller that integrates the inserted framework [168-171]. And afterwards, it shows the choice to pick the language, items, and kilograms and affirm the required cost for the items. It will want to pull out the merchandise; if an equilibrium is effective, the framework will be constant to deduct the sum for required products. Assume the equilibrium is wasteful [172-181]. The framework shows lacking equilibrium, and the interaction will close down naturally. The individual subtleties with the ledger are connected with the public authority site. Each card has a chronic number to speak with the microcontroller, which shows the subtleties totally with accounts [182-189]. It has an expected expense for the objectives brought by individuals, and the cost will be moved consequently to the public authority account. The specialists collected alongside the servomotor assists with driving the necessary amount of results of proportion merchandise for the individual and the purchaser to get the affirmation SMS naturally through GSM [190].

Limitations of Existing system:

- PDS suffers from nearly 61% error of exclusion and 25% error of inclusion of beneficiaries and also cramped environment, bribery.
- The benefit of PDS does not reach the needy poor sections of society.
- Before ration items collection, the authorized person needs to go through the verification phase every time.
- Inaccurate quantity of goods, manual work, low processing speed, large waiting time, and redundant data.

- The dealer sells ration items at increased rates in the market.

Proposed System

We proposed this application for the Online Ration System to overcome the problem of the existing ration system. In this application, the food items can be ordered online, and the payment can be made through the online payment system. By using the online system, the user can view all items that the government provides and receive them without any manual operations. Dealers will update the subsidized products via the application. Users can view and select the products based on their requirements. Once the payment is completed successfully, a set of time slots will be provided. One of the time slots should be chosen. The time slot and date to collect the items will be displayed. The food items should be collected on the respective date and time slot. It avoids material latency by providing an equal distribution of items. Illegal activities in the FPS can be greatly reduced by this method. It also includes a “Free Home Delivery” scheme for senior citizens (figures 1 and 2).

Advantages:

- User-friendly.
- Access to authorized persons only.
- Reduce corruption, bribery and black marketing.
- Completely crowd-free near the ration shop.
- Useful in providing transparency to both government and consumers.

Methodology

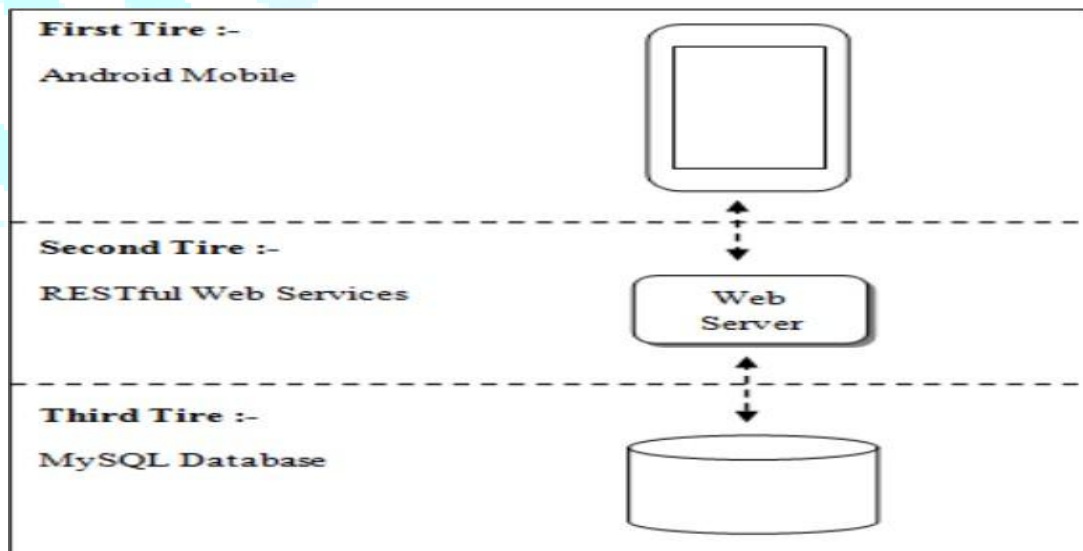


Fig. 1: Methodology

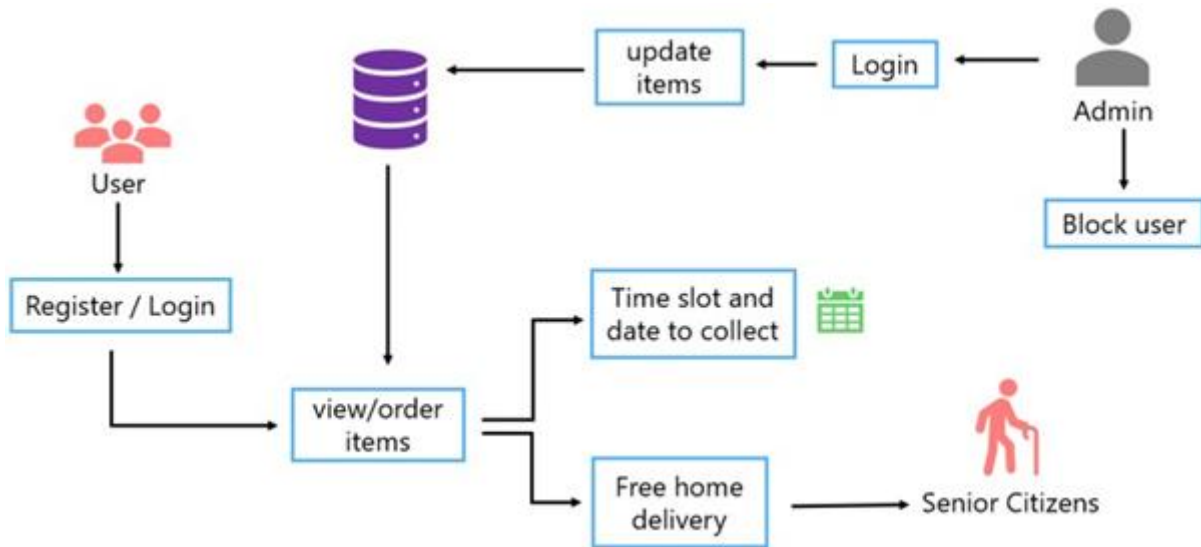


Fig 2: Architecture design

The Usage of Case Diagram

An UML use case frame is the fundamental kind of system/programming necessities for another item program youthful. Use cases decide the ordinary approach to acting (what), not the particular system for getting it moving (how). Use, not set in stone, can be shown in both text-based and visual depictions (i.e., use case frame). A fundamental thought of direction case showing is that it helps us with arranging a structure from the end client's perspective. It is a strong methodology for granting system direct in the client's terms by demonstrating all somewhat evident structure lead. A usage case frame is typically essential. It doesn't show the detail of the usage cases. It summarizes a piece of the associations between use cases, performers, and system. It doesn't show the solicitation in which steps are performed to achieve the targets of every usage case (Figure 3).

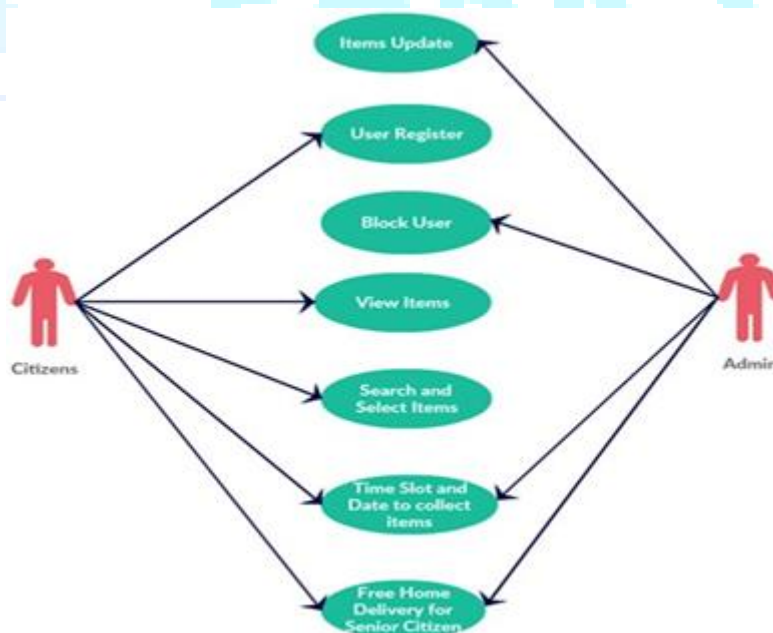


Fig.3: Use Case Diagram

There are five modules in this system:

- Admin module
- Login Module
- User Module
- Time Slot module
- Home Delivery Module

Admin Module:

In this module admin usually updates the daily stocks and checks the user activity. Admin monitors the ration shop activity and user requirements. The admin blocks the user if the user is not active for a particular period or doing illegal activities.

For blocking users – Hashing Techniques.

Login Module:

In this module, the user can register by giving the information in the application for signing up, and the admin can login directly by entering credentials. Without login, the user can't view the items or any other details in the application.

User Module:

After registration, the user can log in and view the available items in this module. Then the user can select the items they want. After selection, time-slots and dates will be allocated for the user. And Senior citizens are eligible for free home delivery schemes.

Time Slot module:

In this module, after the user selects the available items, the time slots and dates will be allocated. Users can choose a convenient time and date and then visit the ration shop to collect the items at an allocated time slot.

For time slot booking – Round Robin Algorithm.

Round Robin(RR) planning calculation is essentially intended for time-sharing systems. It is a CPU booking calculation where each interaction is cyclically allotted to a proper time allotment. Each process is given a fixed time to execute. i.e, time cuts (otherwise called time quanta) are allocated to each interaction in equivalent segments and roundabout requests, taking care of all cycles without need.

Home Delivery Module:

In this module, senior citizens are provided with a special “Free Home delivery”. The home delivery man delivers the products to the Senior citizens above 60.

Results

By implementing this proposed work, transparency is achieved, and therefore, there is a reduction in corruption. Initially, the cardholder registers for the application by entering their details. Then, it will be automatically registered in the database connected to the application. After seeing the product details, the customers wish to reserve the time slots. The customer can make the payment online. Then, he/she will go and get the required product at the reserved time. Also, a free home delivery system has been implemented for senior citizens (figures 4 to 9).

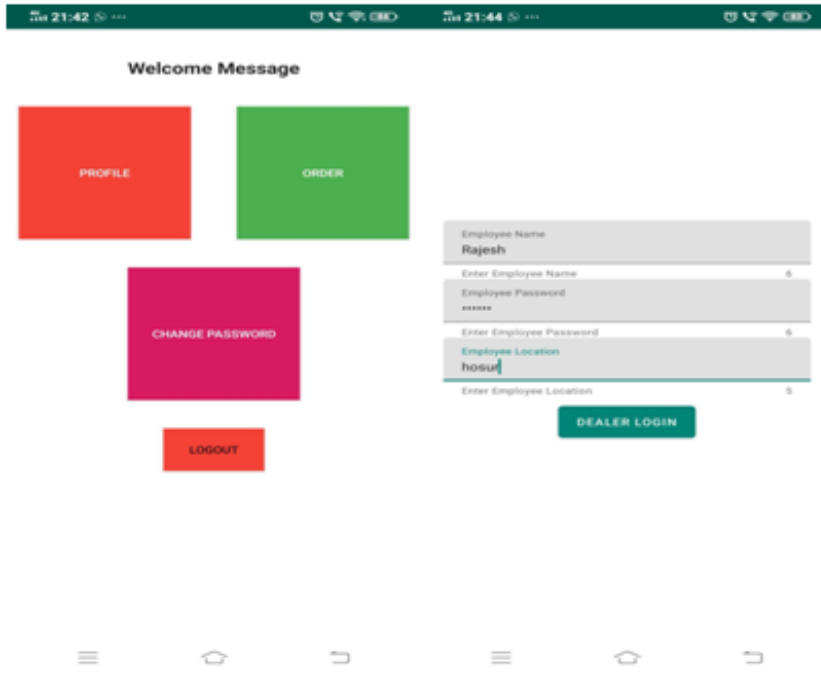


Fig 4: UserHomePage



Fig 6: Time slotPage



Fig 7: HomePage



Fig 8: UserRegisterPage



Fig 9: User Login page

Conclusion and Future Scope

In the current PDS framework, there is one more issue of inconsistency in opening shops and bogus declarations of deficiency in food grains. Before apportioning assortment, the approved individual requirements to go through the confirmation stage each time. These downsides are overwhelmed by our system. The individuals can arrange their proportion items straightforwardly through this application. The proposed framework can maintain a strategic distance from defilement and tackles numerous such issues, including payoff and dark showcasing. Through carrying out this framework, one can additionally improve this framework by associating the information logging framework with the cloud to keep an incorporated stock across the nation. The conveyance cycle can be computerized utilizing a brought together server; thus, the public authority offices contact individuals properly. With certain adjustments, this application can be utilized for robotized medication apportioning moreover.

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