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E-Ration Management System

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ABSTRACT

The E-Ration System is a project developed using C#.net and SQL Server, aimed at transforming the existing manual ration shop system into an efficient and automated system. The manual system currently relies on human resources to maintain stock distribution records, balance stock details, and handle transactions, which leads to issues such as time consumption, salary hikes, and corruption.The proposed E-Ration System addresses these issues by leveraging technology to streamline the entire process. The system provides cardholders with the convenience of receiving notifications about the availability of stock items and the date of distribution. Based on the distribution date, the system enables token registration for cardholders, effectively managing the queue and allocating shopping timings. This eliminates the need for cardholders to stand in queues for hours, reducing time wastage and inconvenience.Furthermore, the E-Ration System automates processes such as stock item quantity tracking, pension calculation, member count management (including adding or deleting family members), automatic age calculation, shop opening and closing time display, and modification of personal information. The system also provides special time allocation facilities for physically challenged people, ensuring accessibility and inclusivity.The E-Ration System eliminates the need for maintaining hard copy records, simplifies the process of changing personal information in ration cards, and improves communication by notifying cardholders about distribution dates. The system also benefits stock providers by reducing crowding and making the process more efficient.Overall, the E-Ration System aims to eradicate the challenges of the manual ration shop system by leveraging technology to provide a streamlined, efficient, and user-friendly solution for cardholders and stock providers alike.

I. INTRODUCTION

The ration system, also known as a Public Distribution System (PDS), is a government-led initiative to provide essential food commodities at subsidized prices to eligible beneficiaries. The ration system aims to ensure food security and alleviate poverty by making basic food items, such as grains, sugar, and cooking oil, available to economically weaker sections of the society.

The ration system typically involves the issuance of ration cards to eligible households, which entitle them to purchase specified quantities of food items from designated ration shops or fair price shops. These ration cards are usually categorized into different types based on the economic status of the beneficiaries, such as Below Poverty Line (BPL), Above Poverty Line (APL), and Antyodaya Anna Yojana (AAY), among others.

The ration system is typically managed by the government or local authorities, who are responsible for procuring, storing, and distributing food items to ration shops. Ration shop owners are responsible for verifying the eligibility of beneficiaries, maintaining records of transactions, and distributing the allocated quantities of food items to cardholders.

The ration system plays a crucial role in ensuring food security and providing nutritional support to vulnerable sections of the society. However, manual management of ration shops can be time-consuming, prone to corruption, and inefficient. Therefore, the digitization of ration shops, such as the proposed "E-Ration System" project, can help streamline the process, improve transparency, and enhance the overall efficiency of the ration distribution system.

II. LITERATURE SURVEY

The concept of using technology to digitize and streamline the ration distribution system has gained significant attention in recent years. Several studies and research papers have explored the potential benefits and challenges of implementing an E-Ration System or similar digital solutions. The literature survey for the project "E-Ration System" includes a review of relevant research articles, papers, and publications related to ration distribution systems, digitization, and related technologies.

1.Digitalization of Public Distribution System Challenges and Opportunities

This study discusses the challenges and opportunities of digitizing the Public Distribution System (PDS) in India, including the need for automation, reduction of leakages, transparency, and efficient management of ration shops. The paper highlights the potential benefits of using technology, such as mobile applications and biometric authentication, to improve the transparency and accountability of the PDS.

This research project presents an E-governance model for the Public Distribution System in India, which includes an online portal for cardholders, a mobile application for beneficiaries, and a back-end system for government agencies. The paper proposes an integrated system for stock management, cardholder registration, token generation, and biometric authentication to improve the efficiency and transparency of the PDS.

2.E-Ration System for Efficient Distribution of Food Grains

This study proposes an E-Ration System to overcome the challenges of the manual ration distribution system, including time-consuming processes, corruption, and lack of transparency. The paper discusses the design and implementation of a web-based system that enables cardholders to register for tokens online, receive message notifications, and shop during allocated timings, while also providing stock management and reporting functionalities for ration shop owners.

3.Automation of Public Distribution System Using Smart Cards

This research article presents a smart card-based system for automating the Public Distribution System, including stock management, token generation, and beneficiary authentication. The paper proposes the use of smart cards with embedded microcontrollers and biometric authentication to improve the transparency and accountability of the PDS.

Based on the literature survey, it is evident that digitizing the ration distribution system has the potential to overcome the challenges of the existing manual system, improve transparency, reduce leakages, and enhance the overall efficiency of the distribution process. The proposed "E-Ration System" project can leverage technologies such as C#.net and SQL Server to develop a user-friendly and technology-driven solution for managing ration shops, benefiting both the ration shop owners and cardholders.

III. PROPOSED SYSTEM

The proposed system, "E-Ration System," is an automated solution developed using C#.NET and SQL Server that aims to overcome the challenges of the existing manual ration shop system. The proposed system leverages technology to streamline the stock distribution process, improve transparency, and enhance the overall efficiency and effectiveness of the ration shop system.

In the Proposed System, the employee can access the system for ration at any time and it is easy for them to use. This system enrolls each transaction automatically in to the database and the database is created using Sql server.

The proposed system allows stock providers to update stock availability information online, which can be accessed by cardholders. Cardholders are notified through in the system about the availability of stock items and the distribution dates, eliminating the need for them to physically visit the ration shop to check for stock availability.

The proposed system enables cardholders to register for a token online, based on the distribution dates. This helps in avoiding overcrowding at the ration shops and ensures that cardholders can shop for their stock items in an allocated time slot, reducing waiting times and inconvenience.

System Modules

- Employee Module
- Card Holders Module

Module Description :

Employee Module

The Employee Module is designed for the authorized employees of the ration shop system. It includes the following functionalities:

a) Create Employee

In this module we develop to create a new employee in create new employee page where Employee ID, shop Number, Password, Employee Name and Address details are collected for Registration purpose. Then the employee can able to login into the system by entering the Employee Id, Shop Number and Password.

b) Shop Opening/Closing Time Management

After logged into the system the Employee sets the time of the shop. This module displays the opening and closing times of the ration shop, allowing employees to set and update shop timings as per the operational requirements.

c) Member Management

Employees can add or delete family members in ration cards, modify personal information. The Employee should enter the details of Card Number, Card Type, Shop Number, Name, Father/Husband Name, Members, Date of Birth, Age, Address, Image, Aadhar Number, Password and then add the card holder details.

d) Stock Management

This module allows employees to manage stock items, including updating stock quantities, tracking flood relief items, and monitoring stock availability for distribution.

e)   Token Management

Employees can manage the Token received from the Card Holders. Employees can view the pending tokens and allocate the date and time for the received tokens, so that the card holders will be intimated and they can visit the shop according to the given date and time to avoid wasting time in queue and rush.

f)   Pension

The employee can also add Pensioners details by entering the Card Number, Name, Aadhar Number, Account Number, and Pension Amount.

g)   Add Relief Fund

The employee can also add Relief fund details to the card holders by entering the details of Card number, Name, Aadhar Number, Fund Name, Account Number, Fund Amount.

Card Holders Module

The Card Holders Module is designed for the registered cardholders who are eligible for ration distribution. It includes the following functionalities

a)   Shop Opening/Closing Time Display

Once after logged in into the system the card holders can view the Shop Opening / Closing Time which is been updated by the Employee in the system.Which makes the card holders to convenient and save their time

b)   Token Registration

Cardholders can register for tokens based on the distribution dates set by the ration shop. Tokens are allotted based on a first-come, first-served basis, allowing cardholders to secure shopping timings. Token booking can be done by entering the Card number, shop number, item, price/kg, Quantity and Amount details. Once the required quantity is entered the amount is automatically calculated and displayed so that the card holder no need to calculate the amount. Additionally if the card holder enters the Quantity which is more than that is available then it gives the warning message also mentioning the Quantity Limit Exceeded.

c)   Token Schedule

In the module the card member can able to see the status of the token which they registered. Once the card holder makes the registration the status is shown as Waiting and once the employee approves and fix the time, the date and time is displayed accordingly to the card holder.

f) Stock Availability Information

Cardholders can view online stock availability information, including the remaining quantities of various stock items, including flood relief items.

IV. SYSTEM REQUIREMENTS

System Requirements

Hardware Requirements:

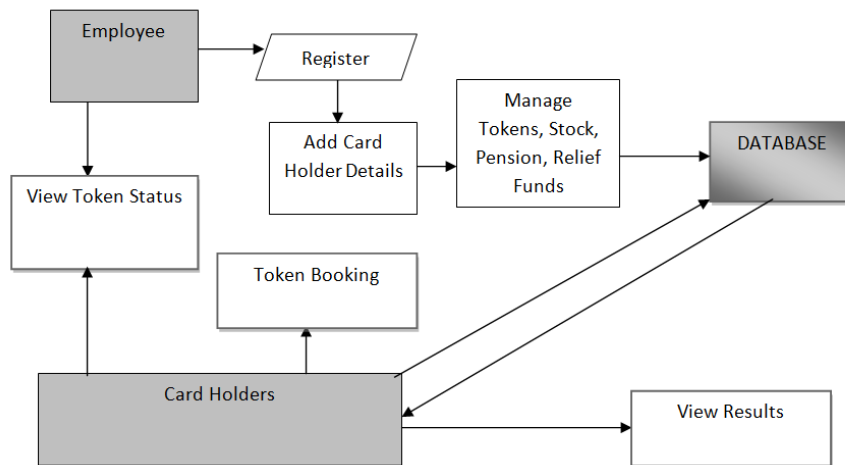- System   : Pentium i3.
- Hard Disk   : 80 GB.
- Floppy Drive   : 1.44 Mb.
- Monitor   : 15 VGA Colour.
- Mouse   : Logitech.
- Ram   : 2 GB

Software Requirements:

- Operating system   : - Windows XP/7/10.
- Coding Language   : ASP.NET, C#.NET
- Data Base   : MS SQL SERVER 2005

V. ARCHITECTURE DIAGRAM

VI. CONCLUSION

In conclusion, the proposed "E-Ration System" developed using C#.NET and SQL Server aims to streamline and digitize the existing manual ration shop system, addressing the limitations of time-consuming processes, corruption issues, and difficulties faced by card holders. The project includes modules for Employee and Card Holders, with features such as stock item management, pension calculation, member count, age calculation, shop opening and closing time display, and modification of personal information.

Through the implementation of the proposed system, several advantages can be achieved, including improved efficiency in stock distribution, reduced corruption, time savings for card holders, simplified record-keeping, and special time allocation facilities for physically challenged individuals. The system also incorporates relief fund management for efficient handling of flood relief operations.

Based on the literature survey, it is evident that digitization of the Public Distribution System (PDS) has been a topic of research and discussion, with various studies highlighting the challenges and opportunities of implementing electronic ration systems. The proposed system builds upon existing research and aims to address the limitations of the manual system by leveraging technology for improved operations.

VII. FUTURE WORK

In Future, The process to apply for ration card has been facilitated to great extent but now a days this process is online which comes as blessing for the applicants who hate standing for long time in queues for filling the application form and then go to the office again to know the status. The network of the ration shops is spread all over in India to provide food security to the people. This distribution of food and fuel is fully controlled by the government. But it has so many limitations. Most of the ration shopkeepers keep fake ration cards with them. Due to availability of all ration items these items are present with the ration shop dealer so he can falsify the records and use the items to sell in the market loosely. The dealer then does not provide these ration items to the customers. Many a times people are not aware that the items have arrived in the shop. The dealer then sells these items in increased rates in the market. In this way, in the current situation we are facing problem due to lack in transparency. There is no such good system yet developed through which government gets message of usage of grains by the people. Hence, we have proposed an e-ration card management system which is based on RFID technology and biometric authentication technology that replaces traditional ration cards.

VIII. REFERENCES

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