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An Study Analysis of Enhancing Mobile Application of Public Ration Distribution System for Smart City

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Abstract- ***The present study was aimed to make it easy for all the people to get the goods of government ration shop The research approach was provide a mobile application to get a information about the ration shop. This mobile application contains several dynamic user interfaces and database. So once they are register this mobile application then they continuously get a notification about the government ration shop product distribution.***

Index Terms- ***Easy Access Goods Availability Status; Quick Response Code; Load Sensor; Transparency Between Government (Admin) And Consumers; Digitize Web Application.***

I. INTRODUCTION

In India, Every resident can get clear updated information regarding various departments in a single mobile application. It's a boon to all the women folks which is hassle-free. How good it is to get all the information from Ration. To start with the app the user how to register or sign-in the app. For registration, the user have to fill in the following details such as Name, Phone Number, Email Id, Address, Pin code, Password, Confirm Password. This application allows user to setup their own password which helps in protecting every individuals data and privacy. It also has an option to sign-up into your own profile. In case of forgotten your password, you can also reset your password by entering your registered mobile number followed by one time password verification to that Phone Number. Next page has got options for selecting the departments as per user's requirements.

The ration card is mainly used for purchasing subsidized foodstuffs an. It also provides connection with government database. The present ration card distribution system has many drawbacks such as inaccurate quantity of goods, manual work,low processing speed, large waiting time, and redundant data.Many times shopkeepers also indulge in forgery by providing ration under false names, in the names of ineligible people, dead people, and duplicate names from other areas. Shopkeepers also tend to show fake quantities of goods available in shop to higher authority person. Hence there is a need to improve our current corrupt ration distribution system.

II. RELATED WORK

Corruption is a major issue in today's fast growing world.That's why there are many researchers had contributed and come up with a different solution in order to avoid corruption. Ration distribution system in India mainly helps BPL category people by supplying them with food grains, kerosene, LPG, sugar, etc. At relatively cheaper rate. This system works in different levels.Registered shopkeepers get ration from government dealers. At different levels quantity information and other transaction details are maintained separately. All this work is done manually. Every family is provided with a ration card which is in simple paper diary format. This ration card includes each family member's name, age, gender and relation with family head.

III. RESEARCH PROBLEM

A re-experimental study to evaluate the effectiveness of product distribution in ration shop. The existing system have time complexity in distribution. The Officer get frustration and get confuse to provide a product or bill.When user gives their fingerprint on biometric then how much ration is allocated to their family is display then voice recognition is activated and they take their ration according to assign for their family by government. Ration card generation officer have the permission of ration card creation, enroll thumb, add and remove members of family activity are performed.

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IV. METHODOLOGY

To optimize recommendations. To engage user. To ensure the system is accessible To get the product's information before visiting ration shop. To get the information about the product distribution.

- Data Collection: In this method we need to collect what are the needs of the user. Real-time Data Integration: In this method implement the datum into our Mobile Application.
- Deployment: After complete the testing method and all are the methods are finished with specific parameters and user needs it was ready to deployment. Survey the user from the ration shop what are their needs. After finishing the survey we decide to how to implement their needs to successfully are fulfil their needs. Perform an Implementation. Testing. Testing was successfully executed then deployed. In a Ration Shop System, the collection of data plays a vital role in ensuring the efficient distribution of subsidized food items to eligible beneficiaries. Here is a summary of the typical data collection process in such a system. 1.
- Beneficiary: Registration The process commences with the registration of eligible beneficiaries. This involves gathering demographic details such as name, age, address, family size, and income information. This data helps determine the eligibility criteria for receiving subsidized food items. 2.
- Issuance of Ration Cards: Once registered, beneficiaries are provided with ration cards that serve as proof of eligibility. These cards contain unique identification numbers and may be categorized based on economic status or family size to determine the quantity of subsidized items they are entitled to receive.
- Information Updates: It is crucial to periodically update beneficiary information to account for changes such as migration, births, deaths, or alterations in income status. This ensures the accuracy of the system and prevents the misuse of benefits.
- Transaction Records: Every transaction at the ration shop, including the distribution of subsidized items to beneficiaries, is recorded. This includes details such as the quantity of items distributed, date, beneficiary's ration card number, and any additional remarks. 5. Monitoring and Evaluation The data collected from the ration shop system is utilized for monitoring and evaluating the effectiveness of the distribution process. Authorities can analyze trends, identify bottlenecks, and make informed decisions to enhance the system's efficiency. 6. Data Security and Privacy Due to the sensitive nature of the collected data, robust security measures must be in place to safeguard beneficiary information from unauthorized access or misuse. Overall, an efficient data collection process in a Ration Shop System is crucial for ensuring a transparent, fair, and efficient distribution of subsidized food items to those who are eligible.

IV. ESTABLISHING INFRASTRUCTURE

The first step is to set up the necessary infrastructure, including computer systems, network connectivity, and software applications capable of capturing and processing real-time data. This may involve deploying point-of-sale (POS) devices equipped with bar-code scanners or RFID readers at each ration shop to track inventory and transactions. Integrating with Central Database [1]. The local systems at each ration shop are connected to a centralized database where real-time data is stored and managed. This enables seamless communication and synchronization of data between the shops and the central authority responsible for monitoring and oversight. Recording Transactions [2]. Software solutions are implemented to record transactions as they happen, capturing details such as the quantity and type of subsidized items distributed, beneficiary information, date, and time stamp. This data is immediately updated in the central database, providing a real-time view of stock levels and distribution patterns. Ensuring Authentication and Authorization Authentication mechanisms are put in place to ensure that only authorized personnel can access and update data in the system. This helps prevent unauthorized access and tampering with records, maintaining data integrity and security.

Monitoring and Alerts [3] Real-time monitoring tools are utilized to track key metrics such as inventory levels, transaction volumes, and compliance with distribution guidelines. Alerts can be configured to notify authorities of any anomalies or deviations from

expected patterns, enabling timely intervention and corrective action. Data Analytic s [4] and Reporting Data analytic s tools are leveraged to analyze real-time data and generate insights that inform decision-making. This may include identifying trends, patterns, and areas for improvement in the ration shop system.

V. USER INTERFACE DESIGN

User Interface (UI) design refers to the process of creating visually appealing and user-friendly interfaces for software applications or systems. The main objective of UI design is to enhance the user experience and satisfaction. In the case of ration shops, UI design plays a crucial role in ensuring that beneficiaries can easily access and utilize the services provided. There are several important factors to consider when designing the UI for ration shops Simplicity and Clarity The UI should be designed in a simple and easy-to-understand manner, even for users with limited literacy or technological proficiency. Clear and intuitive navigation paths should guide users through the different functionalities of the system. Accessibility It is important to make the UI accessible to all users, including those with disabilities. This involves considerations such as providing alternative text for images, ensuring sufficient color contrast for readability, and offering keyboard navigation options. The UI should prioritize the most relevant information and features for users. For example, beneficiaries should be able to quickly find information about available food grains, their entitlements, and nearby ration shops. Consistency Consistency in design elements such as layout, color scheme, and typography helps create a cohesive and familiar user experience. This consistency should be maintained across all interfaces and platforms used by the ration shop system.

VI. FEEDBACK AND CONFIRMATION

The UI should provide clear feedback to users when they perform actions such as submitting a request or completing a transaction. Visual cues, such as progress indicators or success messages, help users understand the outcome of their actions. Mobile- Friendly Design With the increasing use of mobile devices, it is important to design the UI for ration shops in a way that is responsive and optimized for mobile viewing. This ensures that beneficiaries can access the system conveniently from their smartphones or tablets. The UI should incorporate security measures to protect user data and ensure the confidentiality of sensitive information. This includes implementing secure login procedures and encryption protocols.

VII. TESTING

Testing is an essential part of software development that involves systematically evaluating the functionality, performance, and usability of a software product to ensure it meets the specified requirements and performs as expected. Here are some key aspects of testing in software development.

VIII. REQUIREMENTS ANALYSIS

Testing starts with understanding the requirements and objectives of the software product. This includes gathering user stories, functional specifications, and other relevant documentation to establish a baseline for testing. Test planning involves defining test objectives, identifying test scenarios, and developing test cases based on the requirements and user stories. Test planning also includes determining the testing approach (e.g., manual vs. automated testing), allocating resources, and establishing timelines for testing activities. Test execution involves running the test cases against the software product to verify its functionality and performance. This may include functional testing to validate individual features, integration testing to ensure different components work together seamlessly, and performance testing to assess the software's responsiveness and scalability under various conditions. During test execution, defects or issues may be identified that need to be addressed by the development team. Defect tracking involves documenting these issues, assigning them to appropriate team members for resolution, and tracking their status until they are resolved. As changes are made to the software throughout the development process, regression testing ensures that existing functionality remains intact and unaffected by these changes. Regression tests are rerun periodically to detect any regressions or unintended side effects introduced by new code. User acceptance testing involves validating the software against user requirements and acceptance criteria.

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IX. WORK FLOW

- Registration of District Admin.
- Login to District Admin to register Taluk Admin, distribute ration, Allocation of ration according Taluk, list ration card, collection of payment.
- Login to Taluk Admin for registration of Ration card Registration Office (RCRO) and Ration Shop (RS), distribute ration to shops, see ration stock, list ration card.
- After all this RCRO created by Taluk Admin they register new ration card, list ration cards, edit ration card, add/remove family member.
- After registration of RCRO the user gives their thumb for authentication using bio metrics and stored in database.
- Login the ration shopkeeper to distribute ration to user.
- Then user verifies ration card Id and thumb id, if both matches it proceed to take the allocated ration.
- It displays all the information like ration card Id, Card type, and assigned ration.
- Then users speak whatever ration they want through voice recognition and that will update in database.

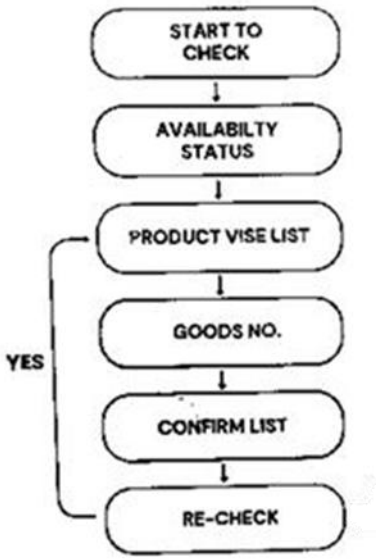

Fig: Work flow chart

X. EVALUATION

In the context of ration shops, evaluation involves the assessment of various aspects of their operation, effectiveness, and impact on beneficiaries. This evaluation can be carried out by government agencies, nongovernmental organizations, There are several key aspects that need to be evaluated when it comes to ration shops: The accessibility of ration shops needs to be assessed to ensure that they are conveniently located and easily accessible to beneficiaries, particularly in remote or under-served areas.

- Availability of Commodities: The availability of essential commodities such as rice, wheat, and sugar needs to be evaluated to ensure that ration shops are adequately stocked to meet the demand of eligible beneficiaries.
- Quality Control: The quality of food grains distributed through ration shops needs to be monitored to ensure that they meet prescribed standards and are safe for consumption.
- Transparency: The transparency of the distribution process needs to be evaluated to ensure that beneficiaries are not subjected to discrimination or unfair practices, and that there is accountability in the system.
- Efficiency: The efficiency of ration shop operations needs to be assessed in terms of distribution processes, inventory management, and utilization of resources to minimize wastage and maximize the reach of subsidized food grains.
- Impact on Beneficiaries: The impact of ration shops on beneficiaries' food security, nutritional status, and overall well-being needs to be evaluated to ensure that they are effectively addressing the needs of the target population.
- Deployment: Deployment in software creation refers to the process of releasing a software application or system into a production environment where it can be accessed and used by end users. It involves preparing the software for installation, configuring the necessary infrastructure, and ensuring a smooth transition from development to production. The following are the key steps involved in the deployment process:
- Environment Setup: The deployment environment, including servers, databases, and networking infrastructure, must be set up and configured to support the software application. This may require provisioning hardware resources, installing

operating systems, and configuring network settings.

- Software Packaging: The software application is packaged into a deploy-able format, such as executable files, installation packages, or container images. This packaging process may involve compiling code, bundling dependencies, and preparing configuration files.
- Configuration Management: Configuration settings for the software application, such as database connection strings, API endpoints, and environment- specific parameters, must be managed and configured appropriately for the deployment environment.
- Testing: Prior to deploying the software into production, it undergoes testing to ensure that it functions correctly and meets quality standards. This may include functional testing, integration testing, performance testing, and user acceptance testing. A deployment plan is created to outline the steps and procedures for deploying the software into the production environment. This plan includes considerations such as deployment order, rollback procedures, and communication strategies. Deployment Execution The software is deployed into the production environment according to the deployment plan. This may involve uploading files to servers, running installation scripts, configuring settings, and verifying the success of the deployment.
- Monitoring and Validation: Once the software is deployed, it is important to monitor its performance and validate that it is functioning as expected. This may involve to monitoring the system logs and to analyzing performance metrics, and addressing any issues that arise.

XI. RESULTS

This mobile application contains several dynamic user interfaces and database. So once they are register this mobile application then they continuously get a notification about the government ration shop product distribution.. It also has an option to sign-up into your own profile. In-case of forgotten your password, you can also reset your password by entering your registered mobile number followed by one time password verification to that Phone Number. Next page has got options for selecting the departments as per user's requirements. This application also increase the user's usability.

XII. OUTCOMES

- To help public to get there ration easily
- To provide voice recognition
- Also provide bio metrics for authentication
- SMS notification on mobile
- Stock maintenance in distribution center
- Food security while generating the bill

XIII. CONCLUSION

The implementation of an enhanced recommendation scheme for online ration shops offers, numerous benefits. Increased customer satisfaction. Improved efficiency in resource allocation. Enhanced user experience and we can have better management of Ration distribution system. Government can have indirect check on availability of the ration to the beneficial .It is transparent and has control over prizes of some commodities in open market. Dealers will be not able to keep fake ration card with them. Our system will help to modernize the traditional ration distribution and also compact the corruption.

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