SMART RATIONING SYSTEM

AVADOOTH JOSHI, COMPUTER ENGINEERING, NEW HORIZON INSTITUE OF TECHNOLOGY AND MANAGEMENT, THANE

SANSKRUTI PAWAR, COMPUTER ENGINEERING, NEW HORIZON INSTITUTE OF TECHNOLOGY AND MANGEMENT, THANE

GANDHALI THAKUR, COMPUTER ENGINEERING, NEW HORIZON INSTITUTE OF TECHNOLOGY AND MANAGEMENT, THANE

GUIDED BY

Mrs. MEGHA GUPTA

Abstract - Public Distribution System is a government patronized chain of shops entrusted with the work of distributing introductory food and non-food goods to the indigent sections of the society at veritably cheap prices. It's also an important element of the strategy for poverty eradication and is intended to serve as a safety net for the poor people whose number is further than 33 Crores and are nutritionally at threat. The current Public Distribution System has several well proved problems similar as lack of translucency, responsibility, poor governance, and poor service delivery mechanisms. Many poor and indigent members of society are left out and a lot of bogus cards are also issued. This leads to increase in corruption. Then, we've proposed a Smart Portion system. The being conventional Portion card system consists of three orders of cards grounded on the stoner's income and the information is streamlined manually which leads to illegal practices. In this system a QR Code is originally generated for each new individual stoner, as a unique identification of that stoner only. The QR Code will contain the entire details of the stoner.

***Key Words*:** Public Distribution System, PDS, QR-code, Corruption, Governance ,cards, prices.

I. INTRODUCTION

In earlier days, people were struggling to get their basic needs. Government started supplying goods such as food grains, kerosene, LPG to public. Shopkeepers were the bridge between food board and the public. Ration goods were obtained from the authorized government dealers and these goods were supplied to the public. Hence the whole process was happening manually. The distribution process was not well organized, and the shopkeepers started indulging in malpractices like inappropriate measurement of goods, illegal sale of goods etc. Even in present days, the deception continues to be the same. Under the PDS scheme, each family below the poverty line is eligible for 35 kg of rice or wheat every month, while a household above the poverty line is entitled to 15 kg of food grain monthly. Government provides a plethora of services for welfare and wellbeing of the citizens particularly those who really need it. But there is a big question mark on the of the needy and identification the efficiency of the distribution process, because of issues like lack of transparency, manual and paper-based work, misuse or duplication of ration cards, ineffective monitoring of the system. To overcome these issues, we propose a web-based system for Public Distribution System using QR-code. Customers will also receive an SMS notification of their successful registration and stock allotted to them. Thus, providing an automated version of the system with smart ration card and ensure smooth, transparent, timely and citizen friendly transactions.

The existing system has several drawbacks. It consists of a ration book for 3 classes. The book is updated manually in line with the acquisition and must be revived per annum. This manual method is tedious and fallacious. The purchasers purchase further products on the names of dead or ineligible folks. The retailers follow forgery by not merchandising the specified number of products and then customers don't get the due amount of grocery. Several efforts square measure being taken to enhance this method.

There are mainly two types of cards:
1. Below poverty line (BPL) cards
2. Above poverty line (APL) cards
3. Antyodaya Anna Yojana (AAY) cards

II. Background

A. What is Android Studio?

Android Studio is the official Integrated Development Environment (IDE) for Android app development. Based on the powerful code editor and developer tools, Android Studio offers even more features that enhance your productivity when building Android apps. Android Studio uses Gradle as the foundation of the build system, with more Android-specific capabilities provided by the Android Gradle plugin. This build system runs as an integrated tool from the Android Studio menu and independently from the command line You can use the features of the build system to do the following:

- Customize, configure, and extend the build process.
- Create multiple APKs for your app with different features, using the same project and modules.
- Reuse code and resources across source sets.

B. Benefits of Android Studio in Smart Rationing System?

Android studio offers faster coding and quick changes can be made without restarting the devices.
Compatible on all android devices.
It is user-friendly.

III. OBJECTIVES

1. To monitor the flow of grocery supply from Government to Public Distributors.
2. To improve the current manual ration Card System by automating it and setting up Central database.
3. To fight Corruption and Fake Ration Cards.

IV. PROPOSED ARCHITECTURE

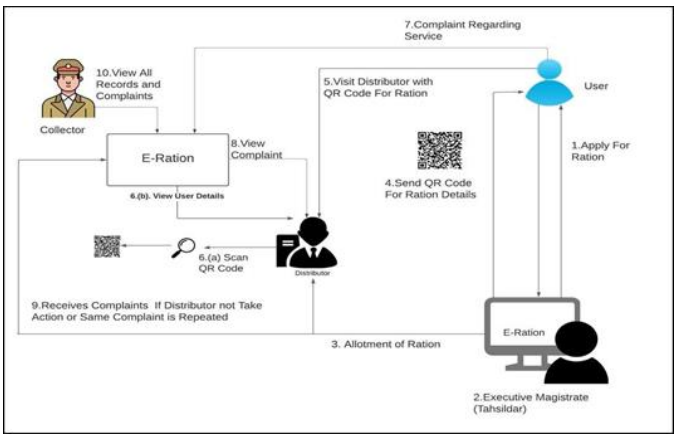

Figure 1. Proposed Architecture

In the proposed system, Administrator will be provided with the Web application for managing users, maintaining their details. Also admin can add the ration shop and manage their details, and can track the ration shops distribution, inventory. So the frauds will also get reduced. Ration shops also can login into system through web application by which , they can provide commodities to user and can view their inventory.
The end-user (consumer) will have application, so they can login and track there commodities provided by government. The first functionality is authentication that involves identifying users who interact with the system using their hand-held devices. Entangled with authentication is the identification mechanism, by device parameters. The second functionality of such a system is maintaining the inventory of ration shops so that the government can easily track the services which are provided by ration shops to consumers.

V. ENTITIES INVOLVED

A. Admin

Admin are the ones responsible for the distribution of the commodities. They are responsible to add a new shop if there is any shop added in different localities, also for the registration of a consumer.

B. Consumer

These are the users of the rationing system, these users are given a QR ode of their own which is a unique identity of every user which includes the information of the user and how much commodity is allotted to that particular user.

C. Shopkeeper

Shopkeepers have a update of the commodities supplied by the government to the shopkeeper. The shopkeeper is responsible for the distribution of the commodities to the user or the consumer.

VI. TECHNOLOGY USED

1. Android Operating System

Android is an operating system for mobile devices such as smartphones and tablet computers. It is developed by the Open Handset Alliance led by Google. Google released most of the Android code under the Apache License, a free software license.The Android Open Source Project (AOSP) is tasked with the maintenance and further development of Android. Android uses the Dalvik virtual machine with just-in-time compilation to run compiled Java code. Android has a large community of developers writing applications ("apps") that extend the functionality of the devices. Developers write primarily in a customized version ofJava. Apps can be downloaded from third-party sites or through online stores such as Android Market, the app store run by Google.

1.Android studio:

Development of Android Application mainly consists of following Packages:

1. Activities:

An *activity* represents the visual representation of an Android application. activities use views, i.e. user interface widgets as for example buttons and fragments to create the user interface and to interact with the user.

2. Fragments:

Fragments are components which run in the context of an activity.

3. Views and layout manager:

Views are user interface widgets, e.g. buttons or text fields.

4. Device configuration specific layouts :

The user interface for Activities is typically defined via XML files (layout files).

5. Content providers:

A content provider provides a structured interface to application data Via content provider your application can share data with other applications. Android contains an SQLite database which is frequently used in conjunction with a content provider. The SQLite database would store the data, which would be accessed via the content provider.

6. Services:

Services perform tasks without providing a user interface. They can communicate with other Android components and notify the user via the notification framework in Android.

7. Intents:

Intents are asynchronous messages which allow the application to request functionality from other Android components, e.g. from services or activities.

An application can call a component directly (explicit Intent) or ask the Android system to evaluate registered components based on the intent data (implicit intents). For example the application could implement sharing of data via an intent and all components which allow sharing of data would be available for the user to select. Applications register themselves to an intent via an intent filter.

Intents allow an Android application to start and to interact with components from other Android applications.

2. Android Development Kit (SDK)

The *Android Software Development Kit* (SDK) contains the necessary tools to create, compile and package Android application. Most of these tools are command line based.

The Android SDK also provides an Android device emulator, so that Android applications can be tested without a real Android phone. You can create *Android virtual devices* (AVD) via the Android SDK, which run in this emulator.

The Android SDK contains the *Android debug bridge* (adb) tool which allows to connect to an virtual or real Android device.

3. Android Development Tools :

Google provides the *Android Development Tools* (ADT) to develop Android applications with Eclipse. ADT is a set of components (plug-ins) which extend the Eclipse IDE with Android development capabilities.

ADT contains all required functionalities to create, compile, debug and deploy Android applications from the Eclipse IDE. ADT also allows to create and start AVDs.

The Android Development Tools (ADT) provides specialized editors for resources files, e.g. layout files. These editors allow to switch between the XML representation of the file and a richer user interface via tabs on the bottom of the editor.

4. Dalvik Virtual Machine :

The Android system uses a special virtual machine, i.e. the *Dalvik Virtual Machine* to run Java based applications. Dalvik uses an own bytecode format which is different from Java bytecode.

Therefore you cannot directly run Java class files on Android, they need to get converted in the Dalvik bytecode format.

5. **ASP.NET**

ASP.NET is more than the next version of Active Server Pages (ASP); it is a unified Web development platform that provides the services necessary for developers to build enterprise-class Web applications. While ASP.NET is largely syntax-compatible with ASP, it also provides a new programming model and infrastructure that enables a powerful new class of applications. You can migrate your existing ASP applications by incrementally adding ASP.NET functionality to them. ASP.NET is a compiled .NET Framework -based environment. You can author applications in any .NET Framework compatible language, including Visual Basic and Visual C#. Additionally, the entire .NET Framework platform is available to any ASP.NET application. Developers can easily

access the benefits of the .NET Framework, which include a fully managed, protected, and feature-rich application execution environment, simplified development and deployment, and seamless integration with a wide variety of languages.

.net Framework:

The .NET Framework is Microsoft's Managed Code programming model for building applications on Windows clients, servers, and mobile or embedded devices. Microsoft's .NET Framework is a software technology that is available with several Microsoft Windows operating systems. In the following sections describes , the basics of Microsoft .Net Frame work Technology and its related programming models.

C# is a language for professional programming. C# (pronounced C sharp) is a programming language designed for building a wide range of enterprise applications that run on the .NET Framework. The goal of C# is to provide a simple, safe, modern, object-oriented, high-performance, robust and durable language for .NET development. Also it enables developers to build solutions for the broadest range of clients, including Web applications, Microsoft Windows Forms-based applications, and thin- and smart-client devices.

2. Microsoft SQL Server

Relational database management:

A relational database management system uses only its relational capabilities to manage the information stored in its database.

Information Representation:

All information stored in a RDBMS is represented only by data item values, which are stored in the tables that makeup the database.

Logical Accessibility:

Every data item value stored in a relational database is accessible by stating the name of the table it is stored in, the name of the column under which it is stored and the value of the primary key that defines the row in which it is stored.

VII. RESULT

This proposed project can provide a safe, secure and efficient way of public distribution system. By using this technique ration shops solves the problem of too much manual process in Public Distribution System (PDS). This proposed project definitely paves way for a corruption reduced India in the future. This new technology gives solution and this work will make a great change in Public distribution system and provides benefit to the government about current stock information and reduce the manpower.

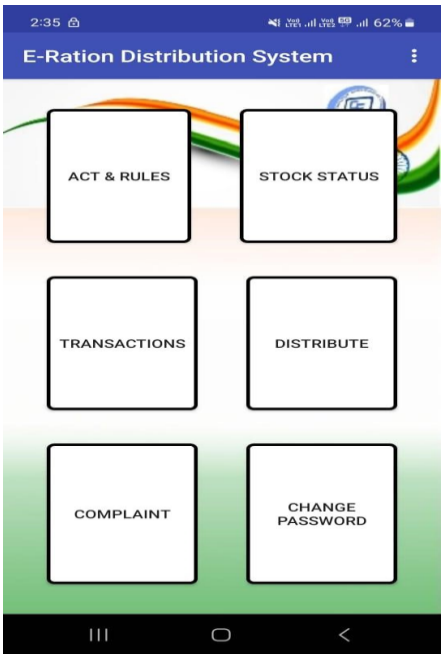

Fig 7.1 Home Screen (Shop Login)

Fig.7.1 Home Screen: This Home Page belongs to Shop Login which includes Act and Rules, Stock Status, Transactions, Distribution Of Stocks to Consumer, Complaint related to the inventory and Change of Password.

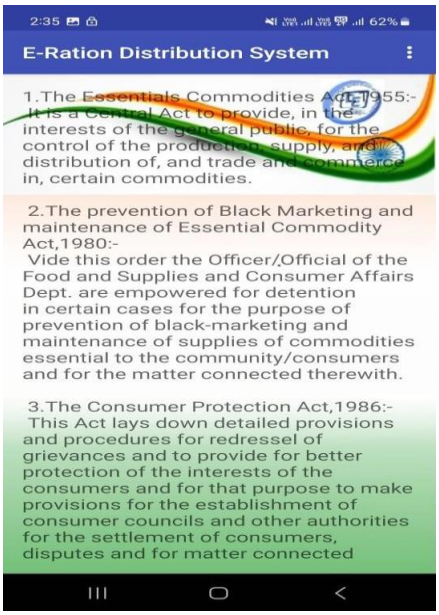

Fig 7.2 Act&Rules (Shop Login)

Fig.7.2 Act and Rules: This page of Act and Rules include Rules related to the Public Distribution System, that are applicable to both shopkeeper and the consumer.

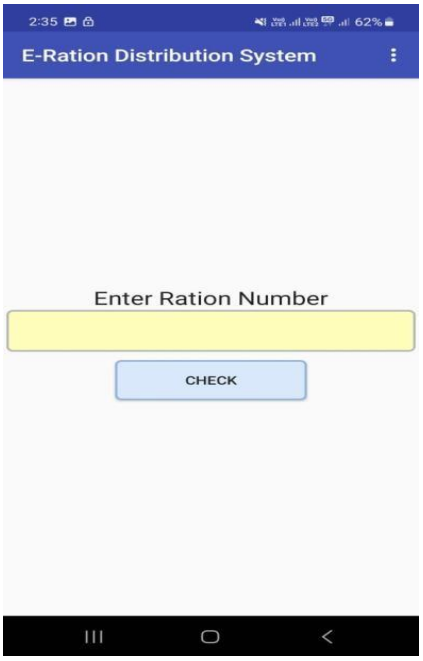

Fig 7.3 Distribute(Shop Login)

Fig.7.3 Distribute : This page belongs to the Shop Login, in which the shopkeeper can enter the Ration Number or Click on the space given which will open a camera to scan the QR code of the consumer ID and can check how much Ration is to be distributed to the particular consumer.

Fig 7.4 Stock Status(Shop Login)

Fig.7.4 Stock Status : This page belongs to the Shop Login, in which the shopkeeper can keep an update of the stocks available in the shop and can distribute it accordingly.

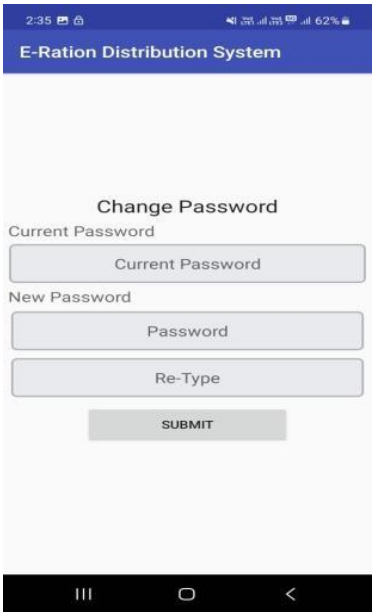

Fig 7.5 Change Password (Shop Login)

Fig.7.5. Change Password: This page belongs to the Shop Login, in which the shopkeeper can change the password, if he forgets the password or needs to change the password incase of any issue.

Fig 7.6 Complaint (Shop Login)

Fig.7.6. Complaint: In this the Shopkeeper can issue a complaint to the admin portal and the admin can keep a track of these complaints and look forward to resolving it.

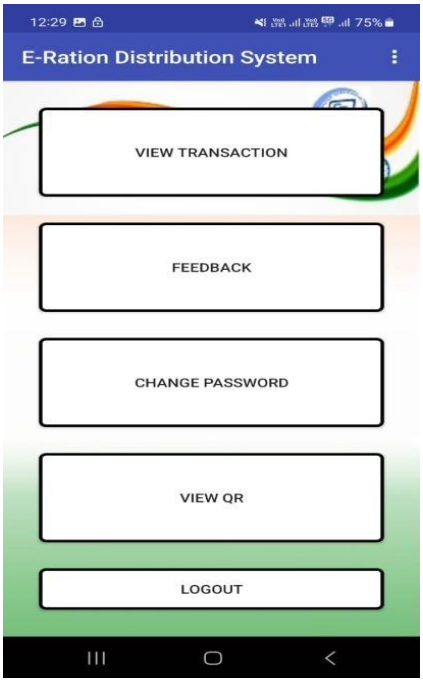

Fig 7.7 Home Screen (Consumer Login)

Fig.7.7 Home Screen: This is a Home Page of a consumer, this page is mostly in a read only format except the feedback form. This Page includes View Transaction, Feedback, Change Password, View QR (this code is generated for every consumer once ID is created).

Fig 7.8 QR-Code (Consumer Login)

Fig.7.8. QR-Code : This Code is generated for every consumer who creates an account into the application. This code contains the details of the consumer and how much grocery is allotted to the consumer.

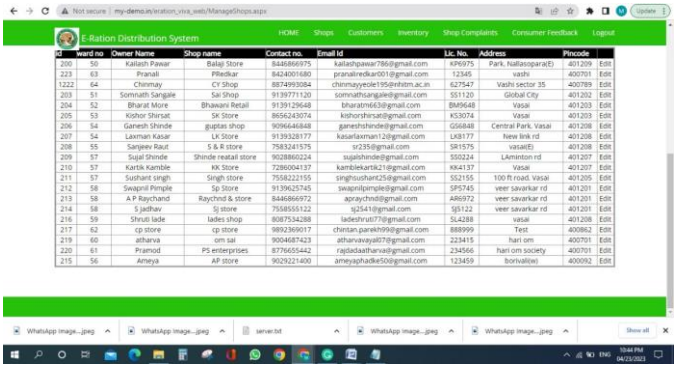

Fig 7.9 Add a Shop Page (Admin Login)

Add a Shop Page (Admin Login) : In this the Admin has the rights to add a shop from every locality. To add a shop in the list things that are required are ID no. , Ward no. , Owner Name, Shop Name, Contact no. , Email I'd, Lic. No, Address, Pincode.

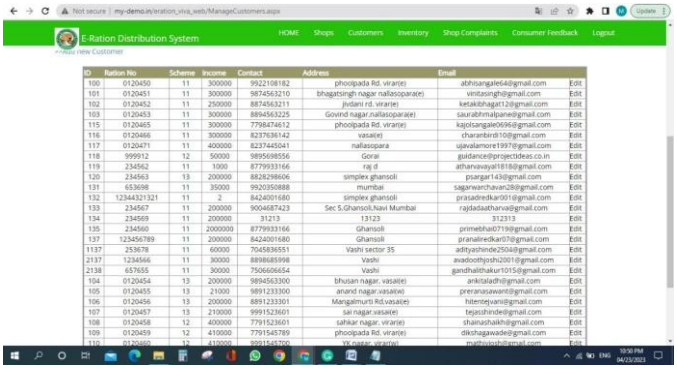

Fig 7.10 Add a Customer Page (Admin Login)

Add a Customer Page (Admin Login) : In this the Admin can add every new customer based on the scheme they belong to I.e Orange, White and Yellow Rationing Schemes. Information needed to add a customer is Ration Number, Income, Contact No., Address, Email address.

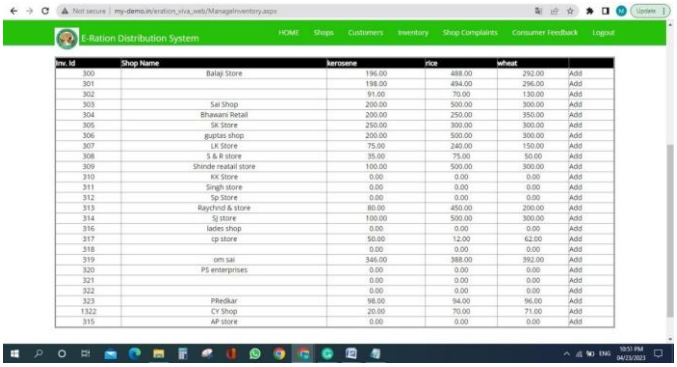

Fig 7.11 Inventory Page (Admin Login)

Inventory Page : In this the Admin can allocate proper amount of grocery to all the shops that comes under the Admin.

VIII. FUTURE SCOPE

As part of future work, we can connect customers' bank accounts to their PDS accounts and make payment online. This will reduce human interference in the transaction process to a great extent. Also, we can work on GPS tracking of the PDS delivery trucks, which would reduce the diversion of PDS commodities, could be very helpful. We can open an online quotation for farmers, providing them with direct contact to government authorities.

We can further enhance the entire system by including biometric identification like voice & face identification to add more security and to give a high-level accessibility, but these additional features may increase the overall cost of the distribution system but yet a powerful approach to make a high level distribution system.

IX. CONCLUSION

This proposed project can provide a safe, secure and efficient way of public distribution system. By using this technique ration shops solves the problem of too much manual process in Public Distribution System (PDS). This proposed project definitely paves way for a corruption reduced India in the future. This new technology gives solution and this work will make a great change in Public distribution system and provides benefit to the government about current stock information and reduce the manpower.

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