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Unreserve Ticket Booking System (E-UTS)

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Abstract—The evolution of the “SMART CITY” initiative all over the world, the need for enhancement in Transport and communication is much required. This application uses QR-code for providing security to the generated ticket. This paper also analyses what will be the future advancements and implementations of the system. Thus, this proposal will show how this system can be executed and will benefit everyone with the help of the research and survey. The online QR Based ticket generation system has its database centrally located which is accessed through an Application Programming Interface (API). The Railway reservation system involves three main actors the database, online operator and a database scheduler. The database scheduler updates the database. One of the core functions of the inventory management of railway reservation systems is the inventory control. Inventory control steers how many seats are available for the booking in the unreserved section.

Keywords:- Android Application, XML, Java, Google Map

I. INTRODUCTION

The UTS mobile application is available for both Windows and Android mobile operating system platforms. To access features of UTS application the user needs to register first with username, mobile number, city, train type, class, most frequently traveling five routes from source to destination. If the user successfully registered the Home page will consist of menus like Book ticket, cancel the ticket, booking history, Rwallet, profile, show ticket and log out options. In order to utilize this facility, the user needs an internet connection. At the first time, the R-Wallet will have zero balance the user needs to refill amount in the wallet by using any UTS counter or through recharge operation. Following is the screenshot of the UTS App. Indian Railway is India's third largest human transport system over which 2 core passengers travel daily all over India. Indians ranked second in the world in mobile usage, android and SQLite database can help to make public transport more efficient and secure. SQLite database can be used to store the information of passengers which enables retrieval and efficient processing.

The reason for using an android application is that it enables easy design of GUI and connectivity to the backend of the system. Keeping the fact into picture that majority of Indian Mobile users are android users this application can scale itself to a larger extent. It provides an ease of booking the

general compartment ticket for passengers at his/her convenience such as sitting at home or while being on the way to the station. The payment for the travel is done at the destination station using the Wi-Fi, where user after reaching the subsequent destination station connects with the destination stations network using mobile Wi-Fi, then the QR ticket will be scanned at the exit gate where the destination will be defined then fair amount for the travelling will be directly deducted from the users M-Wallet and text message will be sent to the users mobile

The authenticity of ticket confirmation can be checked by Ticket Collector straight away from the application instead of going in the traditional way again which can reduce the black marketing of tickets as the system has been digitized.

Once the user clicks book ticket option the following menu display which is depicted in .

1. Quick booking - These features allow the user to book advance and current ticket faster as compared to previous booking method because in the menu the information's are already entered by the user.
2. Normal booking- Every time you have to enter the necessary information about the booking of the ticket from source to destination.
3. Railway pass- This feature allows you to book the monthly pass also known as a season ticket.
4. Platform ticket-These features allow booking platform ticket for the passenger's train.

The project aims at development of an Android based unreserved ticket purchase through smart phones in which customers are required to register on the server for getting access to the application and get the unreserved tickets, upon registration, each user has an account which is essentially the gateway for the customer to get the tickets. The account contains comprehensive information about the username, password for the user which is for authentication purpose, Email ID and user Contact Number etc. Travelling Ticket Examiner (TTE) is the second main part in the application, the TTE is required to login using a username and password that are specially given by the Indian Railway Authorities.

Once TTE Logs in, he has access to all the tickets pertaining to that train and he cannot modify any data but he can only check the tickets for authenticity. TTE can retrieve all unreserved tickets for that particular train that was stored

automatically in the database at the server end. 1) What makes InsTrain different from IRCTC Ticket Booking app. 2) Usage difference between InsTrain and IRCTC Ticket Booking app 3) How to avoid fake/illegal tickets? • InsTrain is dedicated only to unreserved category railway tickets whereas IRCTC Ticket Booking app includes all the coaches except for the unreserved coach. • The difference is that the booking portal for InsTrain will be open for 24 hours but for a particular train it remains open till last minutes of departure time. But if you checkout IRCTC Ticket Booking app the portal is closed few hours before trains departure. To avoid fake tickets all the registered ticket numbers are stored in a database. The database is made accessible to ticket checking master so that he/she can check the database for legal tickets.

II. LITERATURE REVIEW

[1] This paper focused on Android application for ticket booking and ticket checking in suburban railways" gives an insight of booking tickets and receiving the ticket in an encrypted form of QR code through an SMS. But this would not be possible as SMS does not facilitate the sending of images, rather data in the form of texts only can be sent through an SMS. The proposed idea overcomes this error as it generates the QR code on the application screen from which the screenshot could be taken if necessary

[2] The passenger have to stand in the queue to get the ticket in the unreserved category. The emergency traveller cannot have to time to stand in the queue to get the ticket while the train departure time. In the existing system due to non-availability of a central server the railway and the agents suffered unwanted delays in ticket generation and payments. In the existing system integration of different train on a single platform was not met. With the advent of the railway ticket generation using QR Code for the unreserved category these flaws can be overcome

[3] The evolution of "SMART CITY" initiative all over the world, the need for enhancement in Transport and communication is much required. The Euclidean distance or Euclidean metric is an ordinary straight line distance between two points in Euclidean space. The Euclidean distance between points P and Q is the length of the line segment connecting them (PQ), the distance (d) is given by the Pythagorean formula. In the proposed system the one dimension Euclidean distance is being used. A metric is established in one dimension by fixing two points on a line, and choosing one to be the origin. The length of the line segment between these points defines the unit of distance and the direction from the origin to the second point is defined as the positive direction.

[4] Software development is a complex procedure concerned with many aspects of the proposed system and use cases involved in it. The conventional method follows development of such software application through Software Development Life Cycle (SDLC). Now system design is the second stage of the mentioned cycle. The API works by obtaining the location parameters such as longitude and latitude of both source and destination. This API is embedded in project.

III. EXISTING RESEARCH

The existing Passenger Reservation System comprises of two broad reservation outlets, one at the railway reservation counters, another being the online reservation system. The prevalent reservation system at counters comprises of the model, where the passenger (or authorized representative) submits the

reservation/cancellation requisition form to the concerned railway employee (for example, booking clerk). In return, the concerned railway employee enters the data from the requisition form into the system and gives away the reserved/cancelled ticket to the passenger on receipt of fare. Passengers while travelling, shows the ticket and ID card when asked for, which are verified by the concerned railway personnel (ticket examiner, for example). Only in case of Tatkal ticket reservation, ID cards are verified in the reservation counters itself. In the online reservation system, the passenger needs to create an account entering all personal information (Name, Address, Age, Sex, Contacts etc.), thereby entering journey details and making necessary payment. On the payment confirmation, the ticket details are received by the passenger (in SMS/E-mail etc.). The passenger produces this SMS/Printout of E-ticket along with Identity card to the Ticket Examiner during journey.

Basically, the existing Passenger Reservation system is not comprehensive in the field of identity verification of all the passengers, travelling in train. Also a large overhead is handled every time in feeding the personal details (for example: Name, Age, Sex) of all passengers and details of applicant (for example: Name and Address of applicant, Phone Numbers) to the system. This overhead gets multiplied further, even when the same passenger is booking another ticket just after the previous one with just the journey details as different (as in the case of frequent travellers). Also these data are not linked to each other. Due to huge time consumption in data processing and entry, long queues are often noticed in reservation counters.

Regarding the identity verification of passengers travelling in the train, passengers are required to produce their ID cards with tickets, when asked for. But as seen in most of the cases, only one passenger per ticket (consisting of maximum 6 passengers) shows the ID card on demand and is allowed to travel successfully by the Ticket Examiner. The identity verification of journey, Train number, Class of travel etc.) is to be manually entered into the system. And then with receipt of the fare, the ticket can be handed over to the passenger.

Now this new model is to be discussed with respect to E-ticketing system. In this model, the passenger seeking reservation will enter the portal of Indian Railways. In the user interface, the passenger needs only to enter the UID. As soon as the UID is entered, the UID itself feeds the railway database with all personal information obtained from the UIDAI database by virtue of interdatabase query services. Then a One Time Password (OTP) is generated and is sent to the mobile number registered against the UID. That OTP is to be entered into the system within a stipulated time, after which the OTP expires. With this OTP from the registered mobile number, the identity of the passenger is verified. After this verification, the passenger can enter the journey details and proceed for payment and receipt of ticket. Also, once a passenger books a ticket using E-ticketing system, the corresponding UID and registered mobile number information is saved in the portal. Next time the user needs to book a ticket, he can simply send SMS from his registered mobile number. In reply, the portal sends the necessary connected information already saved in the system (name, UID etc.) which can be verified by the user. If satisfied, the user can proceed further with interactive SMS and the ticket gets booked. Provisions would be there where the ticket charges are directly debited from a Bank Account connected to the particular UID.

IV. SCOPE OF THE PROJECT

The main scope of the project is to provide certain facilities which are used by the passengers in railway sector. While travelling, passenger should face the following kind of issues. 1. Passengers only get the e-ticket for Reserved Compartment 2. No way to get the e-ticket for urgent journey 3. E-ticket Booking is based on the Availability 4. There is no guarantee for e-ticket 5. Security service is less while travelling 6. Medical Emergency service is less while traveling. Today's transportation system still uses the smart card and token system. Also, people need to stand in queues for long hours. Therefore, user needs a smart system which provides real time information of trains/metro and gives an easy way to purchase a ticket. So, we proposed a new android application which overcomes the disadvantages of the current transportation system.. Smart phones that support Android application, to provide certain facilities for passenger in railway travel. By using this application Passengers can get their e-ticket for General/ Unreserved compartment and platform and also order their food prior to or while travelling. And also this application provides the notification to the passengers ten minutes ahead of arrival at destination. This system will have the provision to alert the specific authorities in case of any medical emergency and security related issues while travelling. This paper mainly focused for passenger satisfaction and fulfillment of traveling and it is flexible and portable. Risk of carried cash loss is avoided Payment convenience and easy management of purchases, utility bill and similar financial transactions. Enables exact payment with reduced transaction cost.

Financial transactions are secured and authenticated, for which a proper record is maintained to increase tax base and facilitate better tax compliance. The less the cash is used, the lesser the money laundering and thus helps in economic growth of country with better transparency in tax compliance.

Digital transaction has led to restrain in corruption and flow of black money, as every transaction requires approval of bank and its authentication. Digitalization has somewhat reduced the economy required to print paper currency notes and its transportation.

V. SYSTEM ARCHITECTURE

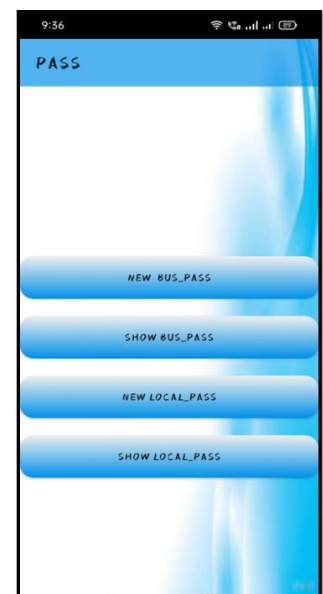
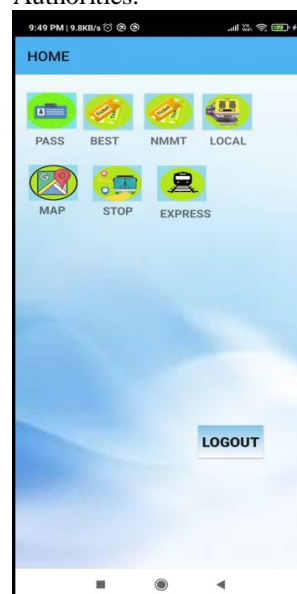
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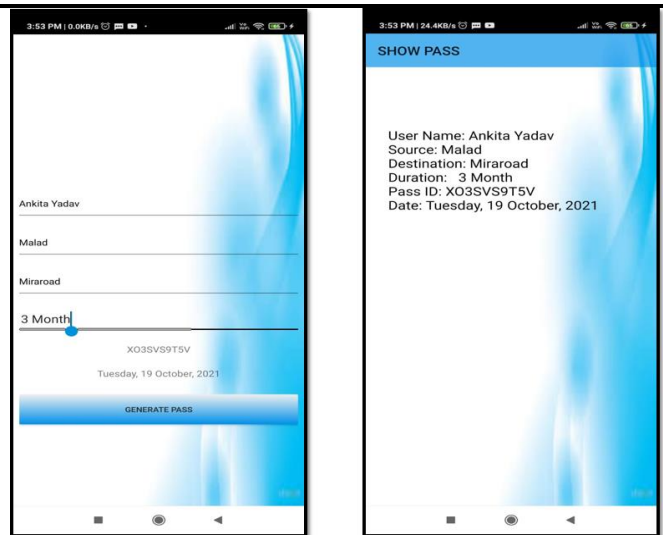
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VI. IMPLEMENTATION

Android is one of the fast growing technology. It is being used vastly around the globe nowadays. Android powers hundreds of millions of mobile devices in more than 190 countries around the world. Android gives us a world-class platform for creating apps and games for Android users everywhere, as well as an open marketplace for distributing to them instantly. Android also gives us tools for creating apps that look great and take advantage of the hardware capabilities available on each device. Java is a computer programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA), meaning that code that runs on one platform does not need to be recompiled to run on another. It automatically adapts our UI to look its best on each device, while giving us as much control as we want over our UI on different device types. Designing the visual part and temporal behavior of GUI is an important part of application programming in the area of human-computer interaction. It enhances the efficiency and ease of use for the underlying logical design of a program. This is the first page of the application for user as well as TTE. User can enter the login and password and enter the application. If the user is new he can choose SignUp button and create a new account. A red font saying TT at the right bottom of the page is the option for TTE to login to their pages in the application. This option should be strictly used by TTEs only. the page where a user is allowed to search for trains. The user has to do is enter the source and destination value and hit Find Train. Train number entry is optional. A list of available train will appear below the search options. User can select any train from the list and get a ticket for it. Number of tickets option will appear in the next page i.e. and the payment option can be found in the same page itself. Success Page appears once the payment for requested tickets are done. Success page contains a unique confirmation number



Once the TTEs logs in successfully he should enter the train number he's going to check. By doing this he retrieves all the generated tickets for that particular train and stores it in his local database. By doing this TTE can easily check the tickets as the searching speed from the local database is comparatively faster than external database.

VII. ANALYSIS MODELING

System Analysis

- SOFTWARE REQUIREMENTS:

Operating System Android Emulator, Window
IDE :Android Studio

Database : SQL server,Python

- HARDWARE REQUIREMENTS:

Pentium Speed - 1.1 Ghz,

RAM - 2GB,

Hard Disk - 80 GB,

Key Board - Standard Windows Keyboard,

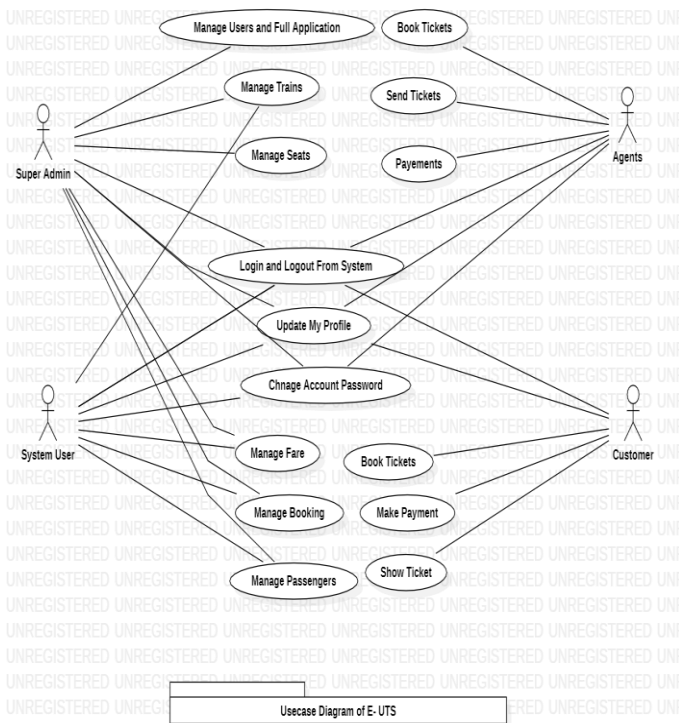
Mouse - Three Button Mouse ,

Mobile - Android Mobile

All the aspects of the proposed system will be covered in this chapter in the diagrammatic manner and provides the detailed manner of the system.

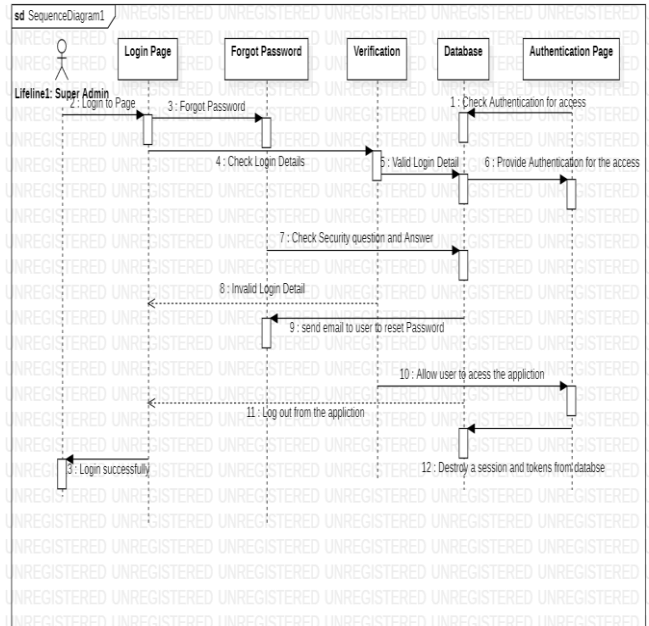
Use Case Diagram

Use case diagrams are valuable for visualizing the functional requirements of a system that will translate into design choices and development priorities. Use case diagram is a diagram that shows a set of use cases and actors and their relationships. These diagrams are central to modelling the behavior of a system, a subsystem or a class. We use them to model the use case view of system. Use case diagram make systems, subsystems and classes approachable and understandable by presenting an outside view of how those elements may be used in the context. A use case diagram is a dynamic or behavior diagram in UML.



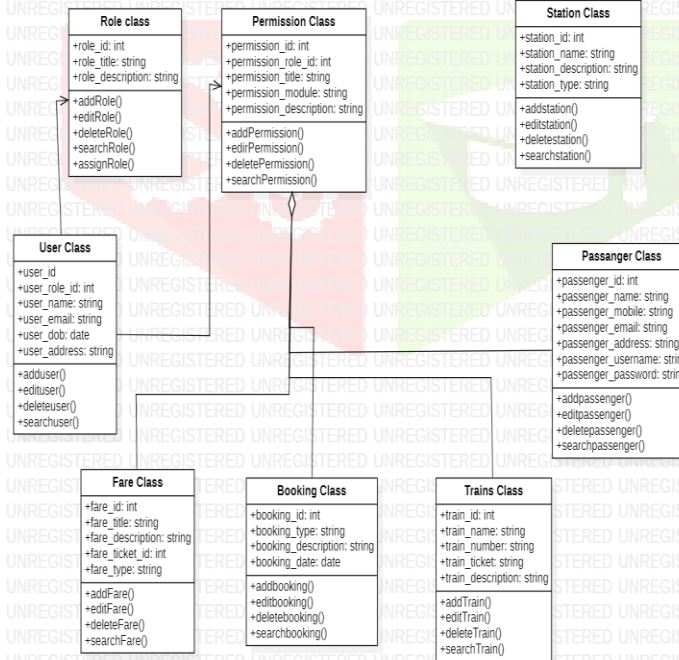
Usecase Diagram of E-UTS

complex sequence diagram in few clicks. Besides, VP-UML can generate sequence diagram from the flow of events which you have defined in the use case description.



Class Diagram

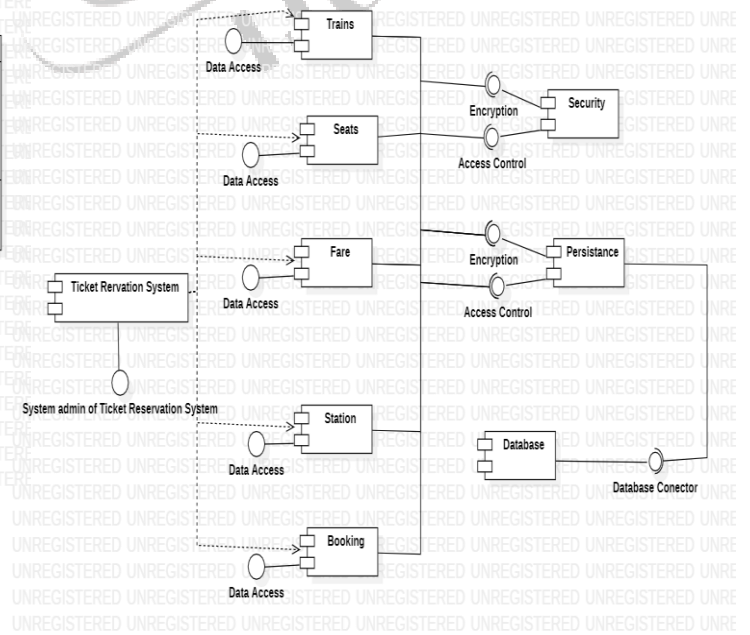
The class diagram is a static diagram. It represents the static view of an application. Class diagram is not only used for visualizing, describing and documenting different aspects of a system but also for constructing executable code of the software application. The class diagram shows a collection of classes, interfaces, associations, collaborations and constraints. It is also known as a structural diagram.



Component Diagram

A component diagram, also known as a UML component diagram, describe the organization and wiring of the physical components in a system. Component diagrams are often drawn to help model implementation details and double-check that every aspect of the system's required function is covered by planned development.

In the Unified Modelling Language, a component diagram depicts how components are wired together to form larger components and or software systems. They are used to illustrate the structure of arbitrarily complex systems. Component diagram demonstrates the connection between various components and between frontend and backend.



Sequence Diagram

A sequence diagram simply depicts interaction between object in sequential order i.e. the order in which these interactions take place. We can also use the terms event diagrams or event scenarios to refer to a sequence diagram. Sequence diagrams describe how and in what order the objects in a system function. The Sequence Diagram models the collaboration of objects based on a time sequence. It shows how the objects interact with others in a particular scenario of a use case. With the advanced visual modelling capability, you can create

VIII. CONCLUSION AND FUTURE WORK

Rail transport is a commonly used mode of transportation in India and the rail network traverses the length and breadth of the country.

The proposed system addresses the issue of unavailability of the Online General Ticket Booking through IRCTC.

Although this System has been made available in the handful zones of railways such as Mumbai Suburban Railway, but this proposed handy application is targeted to reach out to a larger section of population enabling them with the provision of Instant Booking of General Tickets. Initially they can be tested for the certain metropolitan cities which have a good amount of crowd travelling on a daily routine. If proven to be successful among them, this can be extended to a larger scale to cover the railway zones of almost entire country.

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