Automation of Unreserved Ticketing For Indian Railway

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Abstract
The passenger flow in the Indian Railway system is multiplying day by day. The existing general ticketing system is causing a considerable increase in the travel time due to "LONG QUEUE" at the ticketing counters, which absorbs a significant portion time. On an average, a passenger spends minimum 10 minutes in the queue at the General ticketing windows. In this proposed system we aim to provide an additional option by use of Smart Phone services.
InsTrain: Instantaneus Train Ticketing is to ease the way of ticketing for the general compartments and is an android application where our railway ticket can be bought with just a smart phone and you can carry your unreserved general railway tickets in your smart phone as a soft form
Keywords *: InsTrain, TTE*

1. Introduction

In the modern days number of people travelling on train is increasing at a higher rate. The travel price/fare and the comfort provided by train is what attracting the travelers most. In the existing system in Indian Railway, booking tickets for reserved category say for sleeper, 3AC, 2AC, First Class etc are made easy.

Our proposed system is an android application named **InsTrain**: Instantaneous Train Ticketing which is developed taking into account the importance of one's time and energy spent on purchasing of general unreserved tickets at the counters. This project proposes a system where an individual can get a ticket for unreserved compartment just sitting at home or on the way to the railway station. This also reduces number of accidents caused in Indian railway platforms. Normally such incidents are in the recent times.The system also provides a page TTE (Ticket Travelling

Examiner) where checking can be done with ease than the traditional way of checking.

1.1 Benefits

- Saves Time
- Reduces the human effort.
- Save paper, Go Green
- Crowd around the booking counter reduces

2. Description

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.

3. System Design

A software product is a complex entity. Its development usually follows what is known as Software Development Life Cycle (SDLC). The second stage in the SDLC is the Design stage. The objective of the design stage is to produce the overall design of the software. The design stage involves two sub-stages namely:

- High-Level Design
- Detailed-Level Design

In the High-Level Design, the proposed functional and non-functional requirements of the software are studied. Overall solution architecture of the solution is developed which can handle those needs

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3.1 Process Flow

The process flow of InsTrain is indicated in Figure 3.1. The application front end can be observed as the User and TTE. All the requests to query the database are generated from User and TTE nodes.

As we can observe there are four different entities

- User and TTE – users of the application

- Web Server – Handles the requests and retrieves the desired values from Database

- Php – Hypertext Preprocessor, a server-side scripting language.

- Database – Stores the information about the Users, TTE, Tickets etc

When a request is raised from the users end, the request is caught by the web server. The answers for those requests have to be retrieved from the database. In order to communicate with the database, web server uses a server side scripting language i.e. php. With the help of php, web server retrieves the answers for the requests raised by the users and posts it onto the users window.
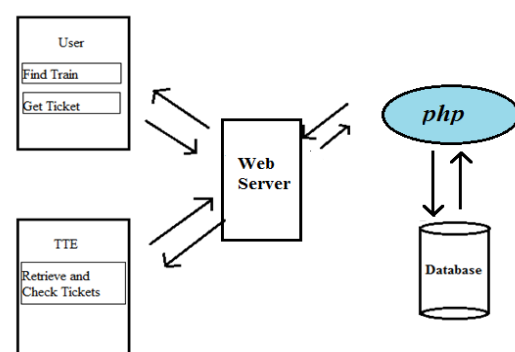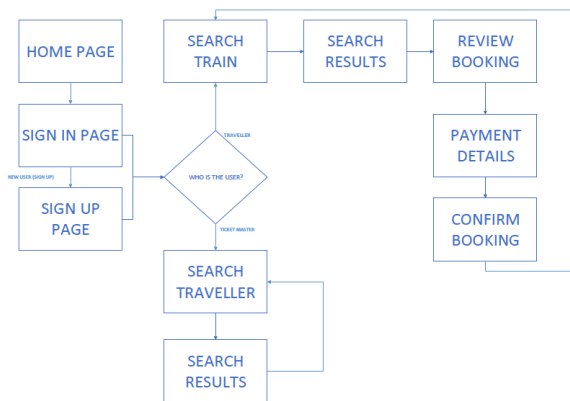

Figure 3.1 Process Flow

3.2 Context Flow Diagram

Figure 3.2 Context Flow

Figure 3.2 shows the Context flow of the system. When a user enters the application, he is provided with the SignIn/Signup page. If the user is a registered user, he can just enter the username and password and proceed with the application. If user is not a registered user then he must register to the application. Once the user authentication is completed, he is provided with the option to search for the train, select the suitable train, review the train and get the ticket for the train using his banking account.

The same application contains the second part which can be only used by TTE(Travelling Ticket Examiner). The TTE will retrieve the tickets and check for the authenticity of the tickets.

3.3 Java and Android

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.

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. 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.

4. GUIs

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.
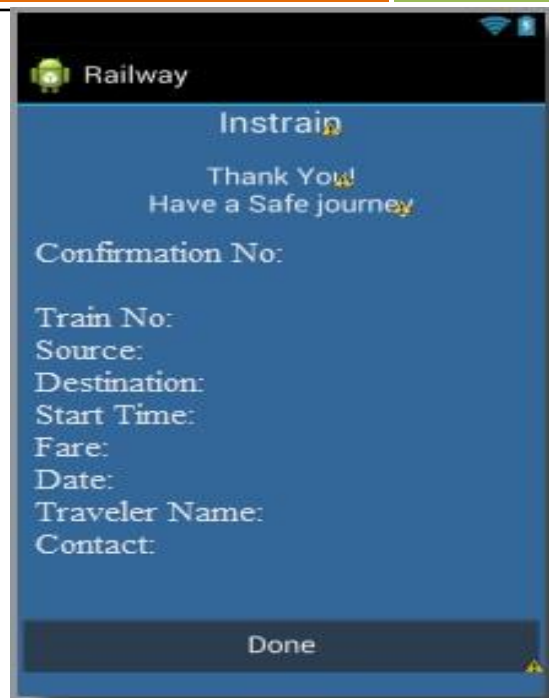
4.1 User GUIs

Fig 4.1 Login Page

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.

Fig 4.2 Find Train Page

Figure 4 shows 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. Figure 5 and the payment option can be found in the same page itself.

Fig 4.3 Review page

Fig 4.4 Success Page

Success Page appears once the payment for requested tickets are done. Success page contains a unique confirmation number as shown in the figure 4.4.

4.2 TTE GUIs

       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.

Fig 4.5 Retrive Page

References

[1]. Bowman, M., Debray, S. K., and Peterson, L. L. 1993. Reasoning about naming systems. .

[2]. Ding, W. and Marchionini, G. 1997 A Study on Video Browsing Strategies. Technical Report. University of Maryland at College Park.

[3]. Fröhlich, B. and Plate, J. 2000. The cubic mouse: a new device for three-dimensional input. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems

[4]. Tavel, P. 2007 Modeling and Simulation Design. AK Peters Ltd.

[5]. Sannella, M. J. 1994 Constraint Satisfaction and Debugging for Interactive User Interfaces. Doctoral Thesis. UMI Order Number: UMI Order No. GAX95-09398., University of Washington.

[6]. Forman, G. 2003. An extensive empirical study of feature selection metrics for text classification. J. Mach. Learn. Res. 3 (Mar. 2003), 1289-1305.

[7]. Brown, L. D., Hua, H., and Gao, C. 2003. A widget framework for augmented interaction in SCAPE.

[8]. Y.T. Yu, M.F. Lau, "A comparison of MC/DC, MUMCUT and several other coverage criteria for logical decisions", Journal of Systems and Software, 2005, in press.

[9]. Spector, A. Z. 1989. Achieving application requirements. In Distributed Systems, S. Mulle