



Smartphone Application for Railway Ticket Reservation and Validation Using Mobile Network

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Abstract— This paper deals with the android application for ticket reservation and validation using mobile tower network. One of the major challenges in the current ticketing facility is buying ticket standing in the queue. Our application provides the facility for buying the tickets online. Our ticket can be bought with the help of Smartphone application where your railway tickets are carried in your phone in the form of quick response code. The ticketing information of the user is stored in database. It uses the Smartphone facility to validate the ticket and delete it after specific interval of time once the user reaches the destination. This application also includes the automatic fine deduction facility if the user tries to extend the journey. Also the ticket checker is provided with the checker application which is used for the validation of the ticket.

Keywords — Android, Cloud database, MySQL, Quick Response Code

I. INTRODUCTION

Technology expanded to a huge extent and also is being utilized in the field of transportation in past few years. Few years before E-ticketing came into existence and passengers used to register through it and buy tickets after which months before came a new technology called as M-ticketing where the customer messaged to the web portal through mobile phones after which the user can do the same booking process. But we face inconvenience and suffer if we forget our travel cards and we stand in the queue for our tickets ,which is where m-ticketing-ticketing was unable to lay there foot marks. As a solution to these issues an android mobile application can be made which will comprise of all the functionalities where one can buy tickets and carry your railway tickets in the Smartphone as a quick response code. Users' ticket information is stored in a cloud data base for security purpose which is missing in the present system. This system provides the ticket checker with checker application to search for the users' ticket with the ticket number in the cloud database for checking purposes. Here QR code serves as the ticket to the user. A QR code is a type of matrix bar code first designed for automotive industries. If suppose the users display is being damaged and not able to scan the QR code due to other reasons like battery failure we have another failsafe option to check the ticket by searching the ticket database with the users ticket number for validation purpose. In the past few years there were more advancement in technological field through which it is very easy to buy the tickets for user.

Considering the department of railway, e- ticket facility was introduced where user browse through a governmental website and look their long journey railway tickets which can be printed out after confirmation to show it to checker when needed. Mobile device like smart phones are now emerging in the field of transportation services where these technology is being used for data collection, location based transformation services and decision making when it comes to travelling. Comparatively study with QR (quick response) code which gives the idea about how QR code is more efficient than bar code system.

Following are the steps involve in QR code,

- 1) Input data will be encoded in efficient mode and form bit stream.
- 2) Bit stream divide in code words.
- 3) Code word divided in blocks.

II. LITERATURE REVIEW

SR.NO	TITLE	AUTHOR	YEAR	DESCRIPTION
I.	Urban railway ticketing application.	Sadaf Sheikh, Gayatri Shinde, Mayuri Potghan, Tazeen Shaikh.	Jan 2014	They proposed application such as Android, cloud database, MySQL, QR code which will be used for the process of booking a ticket for travel through local trains or metros.
II.	Android application for local railway ticketing using GPS validation	Snehal Kalbhor , Ashwini Mangulkar , Mrs. Snehal Kulkarni	March 2014	They proposed the various techniques for buying metro tickets or local railway tickets through their Smartphone application and introduced ticket checker.
III.	Android application for ticket reservation with GPS as ticket validation.	Tushar Dongare, Akshay Babar.	April 2014	They provided various techniques for buying tickets through their Smartphone application through GPS facility of android mobile so that passenger can easily get the list of station and he can easily buy tickets.
IV.	Railway ticketing using GPS in Metropolitan city.	Ramadevi. K, Murugan. S, Bharath. S	May 2014	They proposed a mobile ticket application developed for android in which user procure ticket in future.
V.	Android railway ticketing with GPS as ticket checker.	Neha sandikar, rane dipti, sachin panday.	2013	They proposed the various techniques for buying metro tickets or local railway tickets through their Smartphone application and introduced ticket checker.

VI.	A QR code based processing for dynamic and transparent seat allocation in Indian railway.	Manmohan Swarup, Chanchal Sonkar, Vijendra Singh.	2012	They proposed a system through which railway ticket booking is done through website and also from multimedia phones.
VII.	Mobile ticketing system	Wan Husani Wan Hussin,Paul Coulton	2011	They proposed a system in which More consumer are expected to engage in mobile commerce transaction, wider adoption of mobile commerce services.
VIII.	A secure e-ticketing scheme for mobile device with NFC.	Magdalena,macia,jordi	2010	They proposed an e-ticketing scheme with recoverable anonymity as security requirement and also reusability, in order to allow multivariable tickets.

III.PROPOSED SYSTEM

The current railway or metro ticketing reservation system is human dependent, time consuming when It comes to ticket booking process and non reliable. The objective of our project is to develop an android Application which will serve as a medium for students/employees/any one to book the tickets to travel through trains. The main motive of the app is to ease the process of ticket booking by avoiding the hectic process to stand in a queue and book the ticket for the short distance travelling in the trains. There are several applications available in the market giving information about the travelling destinations and their fares. But none of these applications include the ticket booking process. Our application differs as it would not only book the ticket but also save the ticket in the form of QR (Quick response) code. This QR code can be scanned through other mobiles and saved as well which can be shown to the ticket checker for validation. Because of this the entire process is very easy. The data about the ticketing and personal information will be securely stored onto the database. This application also includes the fine deduction system wherein if the user tries to extend its journey the fine would be automatically deducted from his account. Also our app would require the user to create an account so that it can be used by multiple users and would be independent of the devices. The user can log in through any mobile device having the app installed.

IV.SYSTEM DESIGN

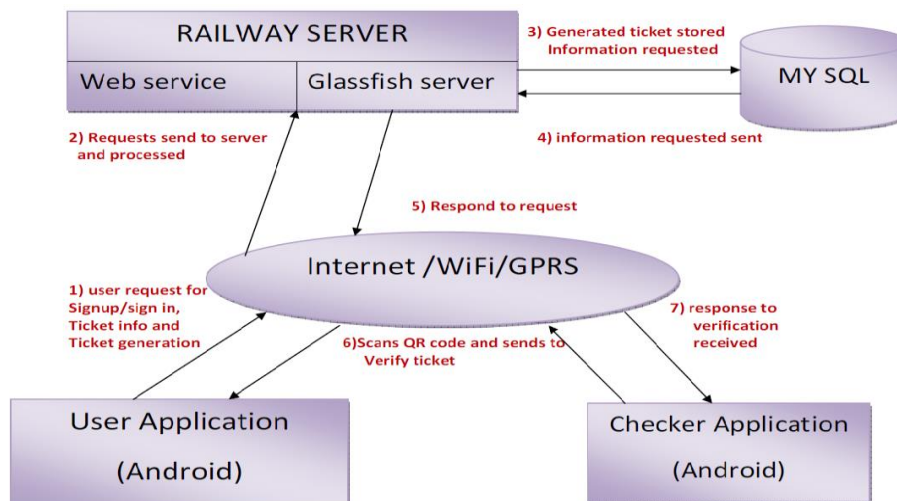


Fig. system architecture

4.1 Architecture

It is actually a cloud based application. The cloud database application is one in which we can save the data in cloud database using web services. Following are the steps which are include in it:

- Step 1:** Hear the work is starts during the first time installation of our application where the user has to sign up. During sign up the basic information of customers like first name, middle name, last name, mobile no, city, date of birth, state etc., will be gathered and it will be stored into MySQL database.
So every time when the user buys the ticket this customer information is sent to the database for security purpose and also the ticket is generated. During sign up the username will be set as the user's mobile number and the password will be as per the choice of the user. On the other hand if the user has an account then he can sign in directly. Thus the user can use different android phones and will not be restricted to only his phone. The above information will be send to server with the help of internet.
- Step 2:** The user selects source, destination, and number of tickets and choice of switches of stations. Then the user is directed to the option which is given for payment. Here the Payment can be done through prepaid services, in this the balance of the mobile number will be displayed along with the cost of the ticket and if the user agrees to proceed then the equivalent 'amount' of the ticket required for booking will be deducted from the balance of the mobile number which is given. The user can also use credit card for paying fare for the ticket. The received information will be hosted b the glassfish server and helps to queue the incoming information. Web services will use SAAS (Software as a Service) for becoming application as platform independent.
- Step 3:** Once the customer hits the buy button a code in the railway server validates the pin number and passwords, if it is successful it saves both the journey details and customer info in the server's MySQL database.
- Step 4:** The code on the server side generates the time of buy and the expiry timing of the ticket; the details are saved in the Railway's MySQL database. Then a Quick Response code (QR code) is generated on server side, and then this QR code is saved in the database and also sent back to the user mobile and saved in the application memory which serves as a ticket for the user.
- Step 5:** In this module the checker will enter the quick response code which will validate and verify the journey details from the railway database, especially the time and date of the ticket.

V. CONCLUSIONS

This application will gather the information regarding the travelling options between stations along with their timing and fares. This application will combine number of functionalities into one. Therefore there is no need to download number of application for booking a ticket. Application saves the huge work for our ticket checkers. It replaces the manual ticket checking process with digital ticket checking process by scanning with Smartphone's. It helps station level security, we can have a hardware device to validate the QR code before the user enters or leaves the station.

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