



# International Journal of Advanced Research in Computer Science and Software Engineering

Research Paper

Available online at: [www.ijarcsse.com](http://www.ijarcsse.com)

## Urban Railway Ticketing Application

Sadaf Shaikh, Gayatri Shinde, Mayuri Potghan, Tazeen Shaikh, Ranjeetsingh Suryawanshi.

Department of Computer Engineering, TCOER,  
Pune, India.

**Abstract**— *The challenges which are faced currently in the ticketing system mainly comprises of the formation of "Queues" for buying the tickets for metros. Even though, as there has been a tremendous expansion in the field of technology, we still buy the tickets with oyster & octopus cards for transportation through metros, stand in queues which is a long, cumbersome and inconvenient process as time requirement is more and also losing or theft of cards proves to be uneconomical. This project deals with the development and implementation of a smart-phone application to buy the urban tickets which is simple and easy to use. Our ticket can be bought with the help of a smart phone application, where your urban railway tickets can be carried in your phone in the form of a Quick Response code. The ticketing information of the user is stored in the database. It uses the smart phones facility to validate the ticket and delete it automatically after a specific interval of time once the user has reached the destination. The ticket checker can scan the user's ticket with the help of a scanner in the checker application and check in the database if the ticket is valid. The customer application consists of personal information gathering, buying ticket, pin-code validation, generating QR code and storing it into cloud database. Payment can be done through prepaid services, i.e. if the user agrees to proceed then the equivalent 'amount' of the ticket will be deducted from the balance of the mobile no. Other payment gateway will be using credit cards to pay for the ticket. After payment, QR code is generated on server side, saved in the database and also sent back to the user mobile and saved in the application's memory which serves as a ticket for the user. The checker application is to validate the ticket by scanning the QR code obtained by the user and searching in the railway database to check whether the user has bought the ticket.*

**Keywords**— *Android, Cloud Database, MySQL, Quick Response Code*

### I. INTRODUCTION

In the past few years, technology has expanded to a huge extent and also is being utilized in the field of transportation services. Smart phone technology is being used for decision making of the routes, for location based services and for data collection. There have been advances like e-ticketing, m-ticketing, various cards usage for metros but these advances have had their own drawbacks due to which the need for a more enhanced system is necessary.

We propose an android mobile application to buy the urban tickets where you can carry your urban railway tickets in the form of Quick response code which will be saved in the smart phone. For example, if you need to book a ticket from your office to travel from the nearest metro station to your destination then this app comes in handy where you can have access to ticket booking process with just a touch away on your smart phone. This app uses the smart phones to validate the ticket and delete your ticket once the user has reached the destination which is done automatically after certain interval of time. In advancement to this the ticket checker can validate the ticket with a checker application provided to check if the ticket is valid by scanning the QR code and checking in the cloud database if the ticket is valid. The application consists of all the details regarding the schedules of train, the routes taken by the trains with their source and destination places and the cost/expenditure that will be required to reach the destination. The payment can be done directly through the application after booking the ticket and as soon as the payment is done, ticket is generated on the server and sent to the user in the form of QR code. The payment gateways provided will be through credit cards or through prepaid services. The ticket is also stored in the database so that the checker application can cross check from the database if the ticket is valid. The data provided by the user in this app would be saved in the database.

### II. BACKGROUND STUDY

[1] In the past few years there were more advancement in the field of technology. Considering department of railway, e-ticket facility was introduced where users browse through a governmental website and book their long journey railway tickets which can be printed out after confirmation to show it to the checker when needed. After few months a new technology called M-ticketing (Mobile Ticketing) was introduced where customers messaged to the web portal through mobile phones after which a complete web page was downloaded to the users mobile phone where users can do the same booking process as it was in the e-ticketing facility. In the foreign countries, the use of Oyster cards & Octopus card has become mandatory during travel. But we face inconvenience and suffer if we forget our travel cards and we stand in the Queue for our local suburban tickets, which is where m-ticketing; e-ticketing was unable lay their 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 the urban tickets and carry your urban railway tickets in your smart phone as a Quick response code. [2]

Mobile devices like smart phones are emerging in the field of transportation services where technology is being used for data collection, location based transportation services and decision making when it comes to travelling. [3]Comparatively study with QR code which gives the idea about how QR code is more efficient than RFID and barcode systems. Which will be compared in parameter such usability cost, executions, requirement, appearance etc. For example, it will decrease the cost of scanner and decoder to verification. QR code is visible on any surface. [4] Feature of QR codes which will contain more information than barcode QR code stores several dozen to hundred times more information. QR code will handle all type of data. It contain up to 7089 character can encode. [5] Survey of how increasing number of people who are using QR codes in many application.27% of peoples are using QR codes who are in 18-34 years. From the survey we got approximately US [19%], UK [15%], Germany [14%], France [12%] which will be surveyed in 2011-2012.[6]How to encoding and decoding the QR code. Steps involved in encoding the QR code 1.input data will be encoded in efficient mode and forms bit stream.2.bit streams divides in code words.3.codewords divided in blocks.

### III. PROBLEM DEFINITION

The current railway or metro ticketing reservation system is human dependent, time consuming when it comes to ticket booking process and non reliable as well if we lose our octopus or oyster cards. The objective of our project is to develop an android application which will serve as a medium for students/employees/anyone to book a ticket to travel through metros or locals. 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 apps include the ticket booking process. Moreover the tickets booked on websites have to be saved and printed so as to been shown at the time of boarding. Whereas our app differs as it would not only book the ticket but also save the ticket in the form of QR code. This QR code can be scanned through other mobiles and saved as well which can be shown to the ticket checker for validation. This makes the entire process very easy. The data about the ticketing and personal information will be securely stored onto the database. 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

#### A. Architecture

It is actually a cloud based application. In which data will be saved in cloud database using web services. It includes following steps:

Step 1: The work here starts during the first time installation of our application where the user has to sign up. During sign up the basic customer information like first name, last name, date of birth, mobile no, city, 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 accordingly. 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.

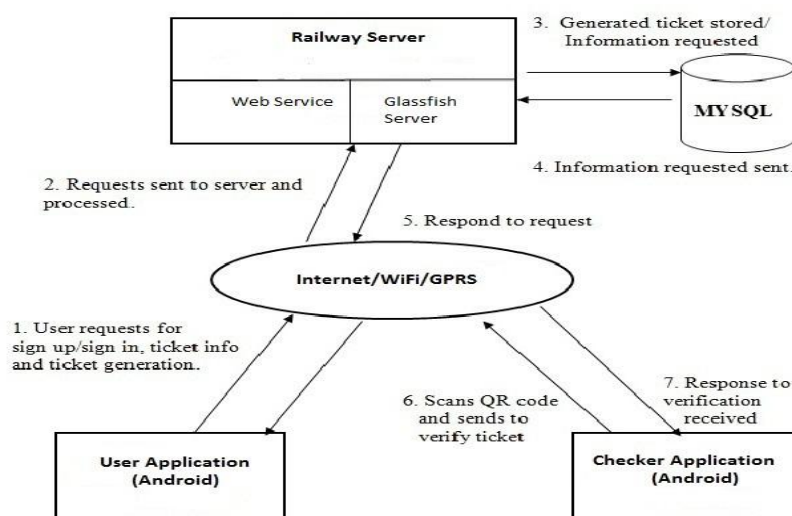


Fig. 1 System Architecture

Step 2: The user selects source, destination, and number of tickets and choice of switches of stations. Then the user is directed to the payment option. Payment can be done through prepaid services, i.e. the balance of the mobile no will be displayed along with the cost of the ticket and if the user agrees to proceed then the equivalent 'amount' of the ticket will be deducted from the balance of the mobile no. The user can also use credit card for paying fare for the ticket. The

received information will be hosted by the glassfish server and helps to queue the incoming information. Web services will use SAAS (Software As A Services) 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 is generated on server side, 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.

**B. High Level Requirements**

TABLE I

SR No.	Requirement Name	Requirement details
1	Mobile application	Sign in, sign up, view information, buy, download, cancel
2	Checker application	Scan and verify
3	Web Services	Responsible for authentication, location retrieval, payment processing, ticket confirmation and validation, QR code generation and validation, deletion of data, update data.

**V. CONCLUSION**

Our proposed application will be feasible for use in the work environment as well as for family and friends. Also it will be user friendly and can be used with ease by the novice users as well as professional users. The proposed application will be used for the process of booking a ticket for travel through local trains or metros. It will group together the information regarding the travelling options between various stations along with their timings and fares. This application will be innovative in its own aspect as it will minimize the dependency of user on the devices. This app will combine a number of functionalities into one, so the user need not download a number of applications for having access to information regarding ticketing process or booking a ticket.

The plus points of the applications are as follows:

- 1) It eliminates paper! More and more users are listing sustainability as an important component of the app and no printed tickets are required.
- 2) It has massive sponsorship opportunities – sponsors will appreciate the large exposure.
- 3) It eliminates the need to visit various websites to access information about train schedules and also eradicates the need to stand in a queue to book a ticket. By integrating the use of mobile applications, you are keeping the event green.
- 4) Improved customer experience – It's interactive and in real time!

Thus what we are seeing is a significant force that could potentially change the entire transportation industry.

**REFERENCES**

- [1] Karthick.SI, Velmurugan, 'Android Suburban Railway Ticketing with GPS as Ticket Checker', IEEE International Conference on Advanced Communication Control and Computing Technologies (ICACCCT), pp. 63-66, 2012.
- [2] Yi-Chang Chiu, 'Emerging Trend in Using Smartphone Technology for Transportation Research', Special Issue for International Journal on Transportation Science and Technology (IJTST), 2012.
- [3] Hitoshi Susono, Tsutomu Shimomura, 'Using Mobile Phones and QR Codes for Formative Class Assessment', Current Developments in Technology-Assisted Education, 2006.
- [4] Jeff" JavaJeff" Friesen's, "Learn Java for Android Development" - Apress Publications, 2010.
- [5] Lauren Darcey and Shane Conder, "Sams Teach Yourself Android Application Development" - Sams Publications, 2010.
- [6] Mark Murphy's, "Beginning Android 3" - Apress Publications, 2011.
- [7] Reto Meier, "Professional Android Application Development" Wiley Publishing Inc., 2009.
- [8] Satya Komatineni, "Pro Android" - Apress Publications, 2009.
- [9] Shawn Van Every's, "Pro Android Media developing Graphics, Music, Video and Rich Media Apps for Smartphones and Tablets"-Apress Publications, 2009.
- [10] Wallace Jackson's, "Android Apps for Absolute Beginners", Apress Publications, 2011.
- [11] Damon Oehlman and Sebastien Blanc, "Pro Android Web Apps develop for Android using HTML5, CSS3 &JavaScript "-Apress Publications, 2011.