

## RAILWAY TICKETING USING GPS IN METROPOLITAN CITY

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### ABSTRACT

It is the android application which is used for buy the railway ticket through mobile using GPS. The client gives the personal information, source and destination and payment information. Here a special code Quick Response code is generated and send to the client. By using the GPS facility in smartphone it provides validation and deletion the ticket. Also the ticket checker provided with a checker application to search for the user's ticket with the ticket number in the cloud database for checking purpose

**KEYWORDS:** Android, SQLite

### INTRODUCTION

In the past few years there were quick development in the field of technology. Railway department also induced into development. Here the 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 the conformation. After a few months before a new technology introduced, it is called M-ticketing (Mobile Ticketing) where customers messaged to the web portal through mobile phones after which a complete web page download to the mobile phone where users can do the same booking process as it as in the e-ticketing facility. And also in foreign countries the use of Oyster cards & Octopus card has become mandatory during travel time. But we suffer if we forget our travel cards and we stand in the Queue to buy our local tickets, which is a place where e-ticketing and m-ticketing was unable lay their foot prints.

Android Railway (AR) ticketing is mainly to buy the tickets which are the most challenging. Our AR ticket can be bought with just a smart phone application, here you can carry your railway tickets in your smart phone as a QR (Quick Response) code. It uses the smart phones "GPS" facility to validate and delete if the user reach the destination in the specific interval of time. User's ticket information is stored in a cloud database for security purpose which is missing in the present system. Also the ticket checker is provided with a checker application to search for the user's ticket with the ticket number in the cloud database for checking purposes.

### THE DEVELOPING IMPORTANCE OF ANDROID MOBILE

It is an open source operating system for a mobile device and also it can be act as a middleware and key application. The tools and API will be provided by the android SDK and it is necessary to start application development on the open source platform of android operating system platform by using the JAVA programming language. Android will have the large number of application developer's community that will extend number of users of android device. Here all the developers use the JAVA programming. After developing the application it will uploaded to the third party sites or online app store such as android market managed by the Google.

As on last year 2013 rating there will be more than 10 Billion applications will be developed and uploaded on the sites. And also the number of users also increased in the year of 2013. Day to day this rating was increased.

### Features

- Application framework is used to enable reuse and replacement of components and tools.
- Integrated browser is fully based on the open source Web Kit engine.
- Optimized graphics powered by a custom 2D graphics library and 3D graphics based on the OpenGL ES 1.0 specification (hardware acceleration optional).
- SQLite for structured and user's data storage
- Media support- It can be support common audio, video, and still image formats (MPEG 4, H.264, MP3, AAC, AMR, JPG, PNG, GIF)
- GSM Telephony (It will fully dependent on hardware)
- Bluetooth, EDGE, 3G, and Wi-Fi (It will be fully dependent on hardware)
- Camera, GPS, compass, and accelerometer (It will be fully dependent on hardware)
- Rich development environment- Here it will including a device emulator, tools for debugging, memory and performance profiling, and a plug-in for the Eclipse IDE units (in parentheses). An exception would be the use of English units as identifiers in trade, such as "3.5-inch disk drive".

### SQLite

SQLite is an android mobile CID-compliant embedded Relational Database Management contained in a small C programming library.

SQLite will implement most of the concepts which is present in the SQL standard, using a dynamically and weakly typed SQL syntax that does not guarantee the domain integrity. In contrast to other database management systems, SQLite is not a separate process that is accessed from the client application, but an integral part of it. SQLite read operations can be multitasked, though writes can only be performed sequentially.

The source code for SQLite is present in the public domain. SQLite is a popular or famous choice for local/client storage on web browsers. It has many bindings to programming languages. It is arguably the most widely deployed database engine, as it is used today by several widespread browsers, operating systems, and embedded systems, among others.

### QR Code

QR code stands for Quick Response code. It is a type of barcode in a matrix manner. It is also a two dimensional code first designed for the automotive industry. Now a days the system has become popular outside of the industry due to its fast readability and comparatively with other it has large storage capacity. The code consists of black modules arranged in a square pattern on white background.

## **SYSTEM DESIGN**

### **Personal Information Gathering**

While we are installing this application this will be a first step of our application. It is used to gather all the basic requirements of the user's that includes name, date of birth, city, state, etc., These information will be stored in a SQLite mobile database. The whenever we buy a ticket this customer information is also sent to the SQL database for the security purpose and used also in the Quick Response code.

### **Ticket Buying**

The second step was ticket buying. Here the user will enter source and destination, class, number of tickets, and type of ticket like return or single etc., then the user will browse through the menu option to choose either online banking option the user choose any of these option it will move to pin code validation module.

### **Pin Code Validation**

If the user or customer clicks this buy button the PHP code will validate the pin code and password in the railway server. If it is successful it saves both journey details and customer information in the railway database of MYSQL database. Then the ticket number and time of buying is generated by the PHP code and the balance credit value is displayed to the user.

### **Generating QR Code**

After the php code generates the ticket number and time of buy the details saved in the MySQL database are sent to Google Chart API engine in order to generate the QR code. Then here all the personal and ticket information are converted into QR codes and sent back to the user mobile as HTTP response and saved in the application

### **GPS Ticket Validation**

In this module the checker role will played by GPS, where when the user buys the ticket, the source geo points, destination geo points, ticket type, expiry time & date are stored in a mobile SQLite database. This module will check the user's current location in accordance with the destination geo points, after which the ticket type is checked and accordingly the ticket is deleted if two is single or updated if type is return.

### **Checking QR Code with QR Reader**

In this module the checker will have QR Code reader system and scan the QR code with the application in order to validate QR code and verify the journey details, especially the time and date of the ticket.

### **Checking with Database**

Unfortunately if the user's 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 user's ticket number for validation purposes.

### **Architecture Description**

Here the structure of system divided into two components

- First the customer application which resides personal information gathering, buying ticket, pin code validation, generating QR code, GPS ticket validation and stored into cloud database.
- Second the checker application is to validate the ticket by entering the ticket number of the user and searching in the cloud database to check whether the user has bought the ticket.

## CONCLUSIONS

This paper we have prepared a mobile ticket application developed for Android 1.5 using Java, SQLite, MySQL, and PHP on the server side which can change the way people buy their tickets in future. This kind of ticketing application we can be applied to any kind of transport system. Our android application is suitable for buy the tickets in metropolitan railway area through android mobile. And also our application saves a huge work for our ticket checkers by GPS validation of tickets and also moving from manual ticket checking process to digital ticket checking process by just scanning with his own android mobile to validate the ticket. station level security we can have Hardware devices to validate the QR codes before the user enters or leaves the station, where the user can have access towards platform after being validated by the hardware device. time trains will be available will also ease the user to allot his time accordingly to reach the station, so in our project we will be using GPS here to find the location of the user and nearby train station to display the train Hence a huge problem of issuing local train tickets has been solved with our new application. Knowing at what arrival timings. Still more advance modification can be a Dynamic display of Train locations by fitting GPS devices in trains to show its location in the Google map display which is available in our application

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