Android Application for Ticket Booking using QR-Code

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Abstract— India's population increase day by day, mostly common peoples are depends on the railway locals for travelling to their destinations. Due to increase in travelling passengers by local trains, it is time consuming and frustrated process to buy tickets in a standing queue. To encounter this, the railway has introduced the concept of ATVM cards but losing or theft cards proved to be uneconomical. Our project deals with implementation of a smart-phone application to buy a local railway tickets which is simple and easy to use.The customer application consists of Registration and buying ticket through QR-code.Payment can be done through user's account i.e. if user is agree to buy ticket then the equivalent 'amount' of the ticket will be deducted from the users account. After payment, ticket 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 ticket checker application is used to validate the ticket by entering the serial number obtained by the user and searching in the railway database to check whether the user's ticket is valid or invalid.

Keywords- *Android,SQLite,Quick response Code(QR-code),Mysql.*

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I. INTRODUCTION

In fast forward world of technology everyone is running behind time. Thus the main motivation of technology is to produced a time and cost efficient product. Since mobile phones have become pervasive in our lives. Until now, the use of mobile phones has been limited. Both consumers and marketers have craved for an application that allows them to effectively use the cell phone in their pockets for something more than just calling people, taking spur of the moment photographs and forwarding annoying jokes to each other via SMS. Efforts are being made to develop applications that can use mobile phone as a payment instrument for ticketing. such application will play an even important role in a heavily populated country like India thereby allowing the people to save a lot of time by avoiding never ending queues.

Our ticket can be bought with the help of a smart phone application, where your railway tickets can be carried in your phone. The ticketing information of the user is stored in the database. It uses the smart phones facility to validate the ticket. The ticket checker can asks the ticket serial or ticket number to user and put this number in to our or checker application and check in the database if the ticket is valid.

II. LITERATURE REVIEW

In 2005 the German transport association RMV (Rhein Main-Verkehrsverbund) started a pilot project, where customers could use their NFC enabled mobile phone to purchase tickets. Based on a best price-policy passengers only had to check in/out at a terminal in the bus when they entered or left, in order to receive the cheapest ticket for the route. But the major problem is NFC enabled mobile phones are high costly.[1]

In may 2012 Man Mohan Swarup, AbhiramDwivedi, ChanchalSonkar, Rajendra Prasad, Monark Bag, Vrijendra Singh proposed a system in which the Dynamic Seat Allocation (DSA) system consider the advantage of QR code processing along with one of the standards of wireless communication. their approach is to make fair processing in seat reservation or allocation in Indian Railway.[2]

In January 2014 Sadaf Sheikh, GayatriShinde, MayuriPotghan, TazeenShaikh introduced a android

application in which ticket can carry in the form of QR-code but it is difficult to passenger to understand the buying ticket is correct ornot.Because most of the people are unaware of QR-Code technology.[3]

In march 2014 TusharDongare, Akshay Babar suggested a model which provide 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, but Sometimes GPS signals are not accurate due to some obstacles to the signals.[4]

Finzgar, L.Trebar, M describes the implementation of a system, which enables the use of phones for acquiring electronic public transport ticket. QR codes and RFID tags are used for registering passenger at the beginning and at the end of their journeys. Use of NFC and QR code identification in an electronic ticket system for public transport.[5]

III. PROPOSED SYSTEM

The system we suggest has a Ticket booking system uses Qr-code to book and validates ticket using Andriod mobile phones.

A. Architecture

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 or Email-id 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.

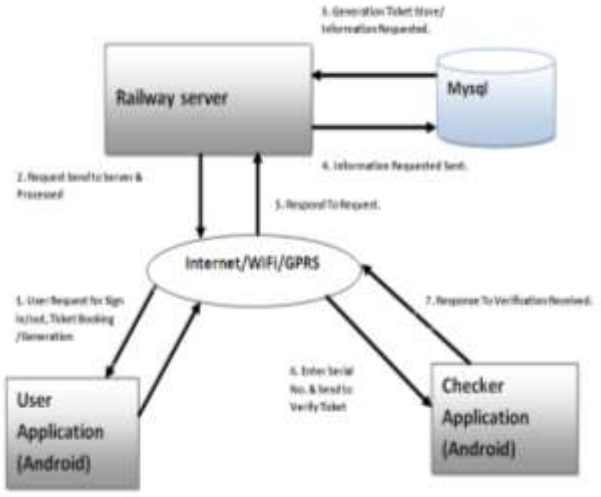

Fig 1. System Architecture

Step 2: The user scan Qr-code for source and select destination, number of tickets, single or return journey. 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.

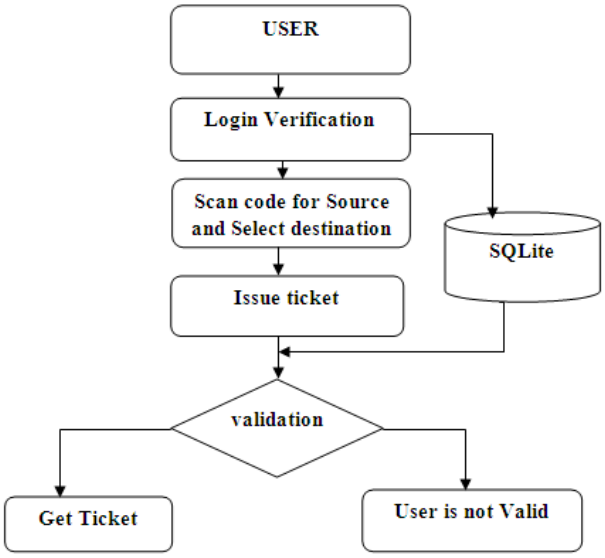

Fig 2. Flow Process of Ticket Booking.

Step 3: Once the customer click 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 Ticket no. 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 Ticket no. which will validate and verify the journey details from the railway database, especially the time and date of the ticket.

B. Architectural Design of system

1. **Hardware Requirements :**

- Minimum requirement is Pentium 4 or AMD or Celeron Processor. All the processors above this configuration would be very well working to go with PHP. So, the processors like Core 2 Duo Processor, Dual Core Processor, Dual core i3, Dual core i5, Dual core i7, AMD Duron, AMD Sempron, AMD Turion, MD Opteron, AMD Phenom 1, Celeron III are recommended.

- Minimum of 512 MB RAM is required and the RAM above this size would be recommended.

2. **Software Requirements :**
   - **Xampp**
   - **PHP**
   - **Android SDK**
   - **SQLite**

2.1 QR-Code :

A QR Code(it stands for "Quick Response") is a mobile phone readable bar code that can store website URL's, plain text, phone number, Email addresses and pretty much any other alphanumeric data. Those little jumbled squares were originally designed for track cars through manufacturing process but today, quick response(QR) code can be found everywhere from assembly line to warehouses.

Think of them as barcodes on steroids, more information in less space.QR codes are 2D barcode that can store more than 4,000 alphanumeric characters in a limited horizontal and vertical space. A traditional linear (1D) barcode can hold roughly 20 horizontal characters. QR codes are also easy to use and can be easily read from any direction with a simple smart phone application or dedicated barcode scanner.QR codes are magical because they can read from any orientation. The squares are position dedication patterns, which allows for 360 degree, stable, high-speed reading.

Fig 3. QR-code

2.2 SQLite :

SQLiteis a relational database management system. In contrast to many other database management systems, SQLite is not a client–server database engine. Rather, it is embedded into the end program.SQLite is ACID-compliant and implements most of the SQL standard, using a dynamically and weakly typed SQL syntax that does not guarantee the domain integrity. SQLite is a popular choice as embedded database software for local/client storage in application software such as web browsers. It is arguably the most widely deployed database engine, as it is used today by several widespread browsers, operating systems, and embedded systems (such as mobile phones), among others. SQLite has bindings to many programming languages.

2.3 Android SDK :

Android software development is the process by which new applications are created for the Android operating system. Applications are usually developedin Javaprogramming language using the Android software development kit (SDK), but other development environments are also available.

The Android software development kit (SDK) includes a comprehensive set of development tools.These include a debugger, libraries, a handset emulator based on QEMU, documentation, sample code, and tutorials. Currently supported development platforms include computers running Linux (any modern desktopLinux distribution), Mac OS X 10.5.8 or later, and Windows 7 or later. As of March 2015, the SDK is not available on Android itself, but software development is possible by using specialized Android applications.

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CONCLUSION

QR-Code technology would be more easily integrated into existing public transport system infrastructures. QR-Code provides all the features which make it a valid technology for mass public transport ticketing: contactless transactions at high speed, stability and simplicity. The proposed solutions based on combinations of standards and technologies using current contactless infrastructures.

Our proposed application will be feasible for novice users as well as professional users.The proposed application will be used for the booking a ticket without standing in queuesfor travelling through local trains and it's easy for ticket checker to check whether ticket is valid or invalid.This android application reduces the manual work of both ticket bookers and ticket checkers. It is basically the transition from a manual to digital system for ticket booking of as well as ticket checking of Local Trains. Thus the problem associated with local train ticket booking as almost solved.

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