

Android Application for Integrated Travel Transport System

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Abstract: *With the advancement of technology, new software and devices are being developed to ease man's work. Waiting for ticket in long queues is a time consuming process. Some people use the Automatic Teller Vendor Machine(ATVM)card i.e. smart card to buy ticket but it also has long queues for buying ticket. If people forget to take their card or they do not have balance in their card they will have to stand in queue. The operating system, Android, has led to great increase in use of mobile phones. Today almost all of the work can be carried out through phone. The Android application eases the task of buying travel tickets. People can buy their travel tickets for the three modes of transportation (Bus, Train, Airlines) using just a smart phone application. Integrated travel system is an android application which is used to book the travel tickets in online.*

Index Terms: *Android, railway ticketing, QR- code, etc.*

I. Introduction

In the past few years there were more advancement in the field of technology but there was no application to book the tickets based on the availability of the three main modes of transportation which is railway, bus and airlines. 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. In this system, the time scheduling for the bus, train and airline to book the tickets will also be developed easily. This time scheduling will show the travel dates, source, destination and fares for the three modes of transportation to book the tickets. This application integrating bus, train, airlines networks to find availability of seats based on the interest of the traveller. The important point to be noted is that this application uses only a single server for all the three modes of transportation. Saving the information in database ensures easy retrieval and security. Also the ticket checker is provided with a ticket checking application to validate ticket either by QR code or by searching ticket details in database.

Every Android application starts with a great idea, but translating that idea into actions requires some planning. Every Android application relies heavily on design patterns. In the past few years there were more advancement in the field of technology. But there was no application to find the ticket for availability of three department like railway, bus and airline. 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. M-ticketing (Mobile Ticketing) was introduced 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 was in the e-ticketing facility. But nowadays people are using smart phones, tickets can be booked easily.

All the ticket booking that can be viewed in a single application using mobile. The main purpose of this application is that it decreases time to search tickets in the website. Once the user registered in this application using mobile, can directly log into the application.

II. Related Work

Android application uses Global Positioning System to detect passenger travelling from any source to any destination. It can help the governmental organisation to identify thefts, robbers travelling through trains or metros. As soon as passenger gets down from the train or metro his or her ticket will be automatically deleted from his smart phone. So the ticket cannot be reused. It suggests a user friendly automated ticketing system which will automatically deduct the passenger's fare according to the distance travelled as well as detect the passenger's identification. It also deals with the identification and ticketing of the passengers sitting in the train [1].

Online Reservation System Using QR Code based Android Application System [2] proposes the new Seat Allocation system considering the advantage of QR code image that contains information about ticket and passenger info in form of 2D. Moreover, authentication seat allocation checking by TTR is done using another android app for TTR which verifies QR code information with the database and reduces the burden of TTR. Through this application is to make journey of waiting list passengers more convenient in Indian Railway.

The ticket can be bought easily anytime, anywhere and ticket will be present in the customer's phone in the form of "Quick Response Code". GPS facility is used for validation of the ticket at the source and deletion at the destination. The information for each user is stored in a CLOUD database for security purpose which is

unavailable in the current suburban railway system. Also the ticket checker is provided with an application to search for the user’s ticket with the ticket number in the cloud database for checking purposes [3].

III. Architecture

Passenger gets login and fill the journey details. Passenger information is stored in the customer details database. After scanning the journey details, the availability of the seats will be verified in the corresponding transport database. If the status is available, tickets will be booked and the payment details are stored in the relevant banking database. Once the payment is completed, the tickets will be generated in the passenger’s smart phone. Otherwise tickets will not be generated.

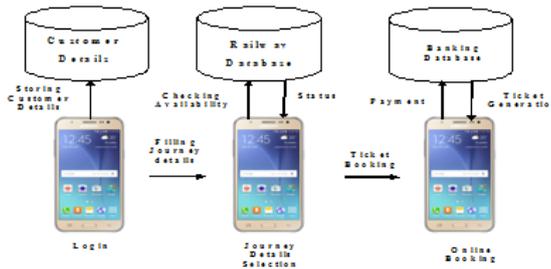


Fig 1: Ticket Generation

Fig1 represents the architecture of the ticket generation. SQLite is the most widely deployed database engine, as it used today by now by all standard browsers, operating systems and embedded systems. Several computer processes or threads may access the same database concurrently. Several read and write accesses can be satisfied parallel. A write access can only be satisfied if no other accesses are currently being serviced.

Instead of entering the details all the time when booking a ticket a QR code facility can be added which will reduce the redundancy of work done by the user. When the user for the first time enters his details a corresponding QR code is generated for him which cannot be used by others. So whenever the user wants to book the ticket he need not enter the details instead give the source, destination and number of seats previous to the payment.

QR CODE:

A QR code is any code that users find on most of any items that they buy from the store. QR codes have come a long way and now that they are integrated into the online world it’s a true phenomenon. Fig2 is the description of the QR code. It makes searching for online products, shopping and buying much easier. Now, users are going to use it for buying tickets. Creates an image in real world and acts like a web link for the smart phones. It actually grabs the code scans the item and goes online searches for the item which then give users so many details about the product. The user gets specific details as per user choice and reviews about the product that have been just scanned from the scanner. When user scans a QR code a magazine, a newspaper or wherever the iPhone or Android will to go to a website where the user will find much of promos, coupons, maps and many more information. QR codes now are used in a much broader context, including both business tracking applications and convenience-oriented applications aimed at mobile phone users, to open a Uniform Resource Identifier (URI), or to compose an e-mail or text message. Users can generate and print their own QR codes for others to scan and use by visiting one of several paid and free QR code generating websites or applications. It has then become one of the most-used types of two-dimensional barcode.

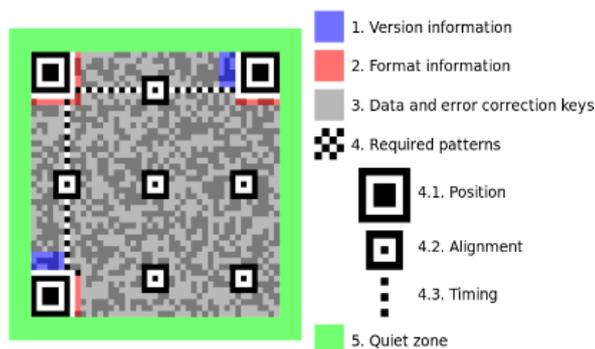


Fig 2: Structure example of QR code

A. Encryption: Encrypted QR codes, which are not very common, have a few implementations. An Android application, for example, manages encryption and decryption of QR codes.

B. Encoding: The format information records two things: the error correction level and the mask pattern used for the symbol. The mask patterns are displayed as a grid that is repeated as necessary to cover the whole symbols. Modules corresponding to the dark portion of the mask are inverted.

C. Risks: Malicious QR codes combined with a permissive reader can put a computer's contents and user's privacy at risk. This practice is known as "attagging". They are easily created and can be affixed over legitimate QR codes.

IV. Proposed System

Android Application For Integrated Travel Transport System consists of the following modules.

- a. User details
- b. Planning details
- c. Ticket availability
- d. Availability of booking details
- e. Person details
- f. Payment gateway
- g. Confirmation details

A. User Details: In this module, the work starts during the first time installation of our application. Fig 3 is the login screen it gathers the basic customer information like first name, last name, date of birth, city, state etc., and it will be stored into user mobiles, SQLite database. So every time when the user buys the ticket this customer information is also sent to the mobile for security purpose.

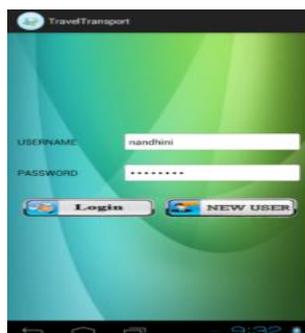


Fig 3: Login screen

B. Planning Details:

A Plan details module is needed to fill the journey details like Starting place, Boarding place, date, time, ticket type, Number of tickets. Fig 4 is the journey planner in which a person can fill his journey details in mobile itself and hit the search button.



Fig 4: Planning the journey

C. Ticket Availability:

This module contains availability of three (bus, train, airline) tickets. Fig 5 is the checking of availability in three modes of transportation. When the user enter from, destination, date, time automatically check the availability. It will show the ticket availability and here after choose the booking ticket.



Fig 5: Checking the availability

D.Availability Of Booking Details:

Once the user books the ticket type, if bus is chosen then the types of ticket booking like Volvo a/c, setc, ordinary bus, and like train, or if u choose airline like types of airways like(jet, spice, etc) it will show the type of ticket which is depicted in fig 6.

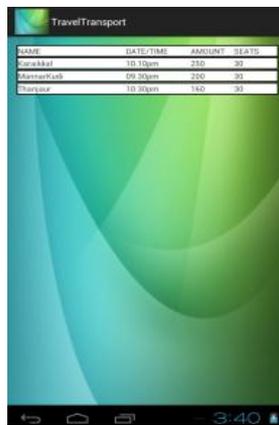


Fig 6: Availability of booking

E.Person Details:

The customer should be able to register the name, contact no, email id, adult seat allocation address it contains the summary details.Fig 7 is the registering screen to register the first time users of this application.



Fig 7: Registering screen

F.Payment Gateway:

This module automatically redirects you to payment gateway to buy any tickets online. Fig 8 is the payment gateway screen.For this the ticket can be bought using credit cards or debit cards and net banking by entering that details manually.

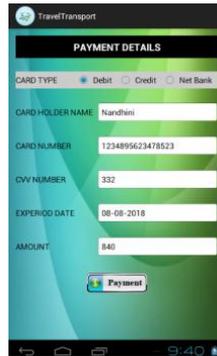


Fig 8: Payment details

G.Confirmation Details:

The admin lists out the confirmation message through mobile. It is very useful to show the ticket easily. Finally the confirmation of booking is done which is depicted in fig 9.

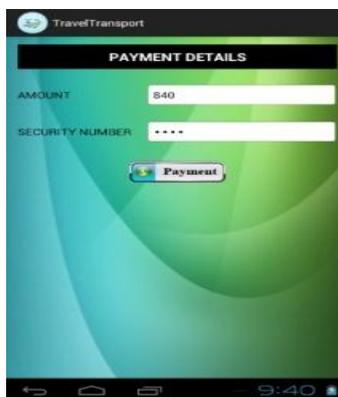


Fig 9: Confirming the details

V. Implementations

Generally implementation of the software is considered as the actual creation of the software. Since system design stage usually suggest that the interface, data and actual output are created, the implementation stage brings them all together.

Once the three different types of designs are complete, it is time for the developers to put place them together. Although it has been tested while the designs were created, it is the final construction of the designs as they are combined by the project manager or the assigned developers.

From this point, developers have to stand with what they work for. In the previous stages, developers can freely make some changes in their software design plans simple because it is still in the designing phase. In this stage however, there is no going back as everybody's effort will now be tested.

The project manager or the supervisor will take a responsible role during this stage since the project manager decides when to get them all together. In systems design, project managers oversee the project. Since they have practically seen everything about the project, they know when the correct time is to get them all together.

It is not all about getting them all together that is important. It is also the time during which developers have the first glimpse of their actual work making it a perfect moment for evaluation. During this time, developers become users as they try out the software to determine if it is up to their expected performance and output.

This stage becomes an important phase of the project since it will be the first time that bugs and errors in the system are determined. Of course everyone has been working on the plans and design for sometimes and their familiarity guarantees they have created something as planned. However, bugs will always be there since each design is created.

VI. Results

Finally the ticket is generated which is stored in the server database and client database which is the mobile. When it needs to be checked by the TTR it is scanned or checked manually.

VII. Conclusion

A mobile ticket application is developed for Android 1.5 using Java, SQLite, MySQL, and XML on the server side which can change the way people buy their tickets in future. This kind of ticketing application can be applied to any kind of transport system. This android app is one of the huge application to buy 3 modes of transport tickets through android mobile. Time Trains will also be available that ease the user to allot his time accordingly to reach the station. Hence a huge problem of buying tickets has been solved with this new application.

VIII. Future Implementation

This application can be enhanced in the future by connecting it with a person's google account, so that if the mobile has been stolen unfortunately, then with the help of the mobile phone's google location the lost mobile can be tracked very easily. This in-turn prevents the misuse of this application by a third person.

References

- [1]. Dongare Babar Nivangune, "Android Application for Ticket Reservation with GPS as Ticket Validation", International Journal of Emerging Research in Management & Technology ISSN: 2278-9359 Vol-3, Issue-3
- [2]. OmprakashYadav , "Online Reservation System Using QR Code based Android Application System", ISSN 225 03153 , Volume 4, Issue 12, December 2014.
- [3]. Kharwadegujarkar, "Smartphone Application for Railway Ticket Reservation and Validation Using Mobile Network" , IJCSMC, Vol. 3, Issue. 10, October 2014, pg.393 –397.
- [4]. ArwareDumbare , "Location Based Online Ticket Application."ISSN: 2277-3754 Volume 4, Issue 9, March 2015.
- [5]. Jerry ZeyuGao, "Understanding 2D-BarCode Technology and Application in M-Commerce-Design and Implementation of A 2D Barcode Processing Solution", IEEE 31st Annual International Computer Software and Application Conference 2007.
- [6]. Damon Oehlman and Sebastian Blanc (2011) " Pro Android Web Apps develop for Android using HTML5, CSS3 & JavaScript "- Apress Publications.
- [7]. Dave Smith and Jeff Friesen's (2011) " Android Recipes A Problem Solution Approach" - Apress Publications.
- [8]. Jeff" JavaJeff" Friesen's (2010) "LearnJavafor Android Development" - Apress Publications.
- [9]. Lauren Darcy and Shane Conder (2010) " Sams Teach Yourself Android Application Development" - Sams Publications.
- [10]. Mark Murphy's (2011) " Beginning Android 3" - Apress Publications.
- [11]. Reto Meier (2009) " Professional Android Application Development" Wiley Publishing Inc.
- [12]. developer.Android.com Website
- [13]. Shawn Van Every's (2009) " Pro Android Media developing Graphics, Music , Video and Rich Media Apps for Smartphone's and Tablets" - Apress Publications.
- [14]. Wallace Jackson's (2011) "Android Apps for Absolute Beginners"-Apress Publications.
- [15]. Wei -Meng Lee (2011) " Beginning Android Application Development" - Wiley Publishing Inc.