

Location Based Online Ticket Application

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Abstract — one of the biggest challenges in the current ticketing facility is “QUEUE” while buying our suburban railway tickets. In this fast growing world of technology we still stand in the queue for tickets or buy them with smart cards. It is frustrating at times to stand in the queue or when we forget our cards and the balance in smart card is less. Online ticketing is mainly to buy long distance tickets whereas the local train tickets are bought offline and no applications for the same are used on daily basis. Thus, we introduce M-ticket application where Mobile tickets are generated conveniently for users using an application. Online ticket can be bought with just a smart phone application, where you can carry your local railway tickets in your smart phone in a pdf form. To use this application, first you have to install this application in the android device. After installing this application next phase is registration, in this phase you are creating your account with a user_id and a password. Using this user_id & password you sign-in to the application. You recharge your account with certain amount through manually. One can also check his/her balance after a transaction easily. To book your ticket using this application you have to enter source location/station out of the available routes and other details. The server present on that source location will identify and verify your credentials. After that ticket is generated with unique ticket-id & this ticket store into your device in the pdf form. This ticket contains unique ticket-id, time of transaction & name of source and destination. The ticket checker application is also provided to search for the user's ticket with the unique ticket-id from the main server for validating the ticket. Ticket checker put user ticket-id into their application to check user ticket is valid or not. The user application uses the station “WIFI” facility to book your railway tickets. It allows user to book their tickets only in ticket-counter areas. It means that this application not valid outside the ticket-counter.

Index Terms - Android, suburban railway tickets, smart phone application, Ticket Checker application, Ticket Counter.

I. INTRODUCTION

Buying ticket is most challenging now a days, in the current ticketing facility we have to take local railway ticket in queue or use smart card. There are websites for reservation of long journey tickets. Mumbai Suburban Railway carries about 7.24 Million passengers daily. The existing ticketing system is causing a considerable increase in the travel time due to a Major drawback “Long Queues”, which absorbs a significant portion of the travelling time. On an average, a computer spends around 15 minutes in the queue at the suburban booking office windows of Mumbai. ATVMs and CVM machines technologies are already implemented in the Mumbai Suburban Railways. On October, 2007 ATVM technology was introduced in the MSR in order to decrease long queues for tickets. The major drawback with existing ATVM system is the scalability issue. Only 6-7 tickets can be issued per minute through ATVM. Another issue with the system is the cost of installing the machine. Each machine

costs around 17500INR excluding the maintenance costs which vary according to the usage intensity.[1]

Keeping all the problems discussed in mind, we decided to go one step further by having a system where the suburban ticket will be in the pdf format. The aim of our system is to ease the suburban ticket issuing system. This will help people to easily book the suburban tickets without any problems. With our application any number of tickets can be issued as it involves use of mobile phones for buying ticket. Our online ticket can be bought with just a smart phone application, where you can carry your suburban railway tickets in your smart phone in pdf form. First user has to install this application in your android mobile phone. After installing this application next phase is registration in this phase you are creating your account using user_id & password. Using this user_id & password you sign-in to the application. You recharge your account with certain amount through manual recharge at ticket counters or through your debit cards. You can also check balance transactions easily. To book your ticket using this application you have to enter destination place and your source place is located by server. After that ticket is generated with unique ticket-id & this ticket store into your application in the pdf format. This ticket contains unique ticket-id, time of transaction & name of source and destination. Along user application the ticket checker application is also provided to search for the user's ticket with the unique ticket-id in the main server for checking purposes. Ticket checker put user ticket-id into their application to check user ticket is valid or not.

The user application uses the station “WIFI” facility to book your railway tickets. This application allows us to book our tickets only in ticket-counter areas. It means that facility of buying ticket is not allowed outside the Wi-Fi range. With our application the cost of hardware only includes installation of server and routers.

II. LOCATION BASED ONLINE TICKET APPLICATION

A. What is LOCATION BASED ONLINE TICKET APPLICATION?

This application deals with the development and implementation of a smart-phone application to buy the local railway tickets which is simple and easy to use. This application uses the station “WIFI” facility to book your railway tickets based on location.

It allows us to book our tickets only in ticket-counter areas. In this application ticketing information of the user is stored in the smart-phone.

B. Existing System

The current railway ticketing reservation system is human dependent. We have to take local railway ticket in queue or using smart card.

Ticket booking process is time consuming because we have to stand in queue to book our ticket and this is very hectic process. In case of smart card process, It Non reliable if we lose our smart cards.

C. Proposed System

The main aim of the proposed system is to reform the current season ticket booking process (Ticket) for local travelling. I.e. with the help of this application travelers will able to book tickets and buy pass through their mobile using Wi-Fi connectivity. User can manage its account by viewing its account balance so he/she can recharge it to avail uninterrupted service.

It can also keep track of most recent tickets and pass bought. This is an effort towards queue less ticketing system and make passengers utilize their time which they waste awaiting in the queue.

D. System Architecture

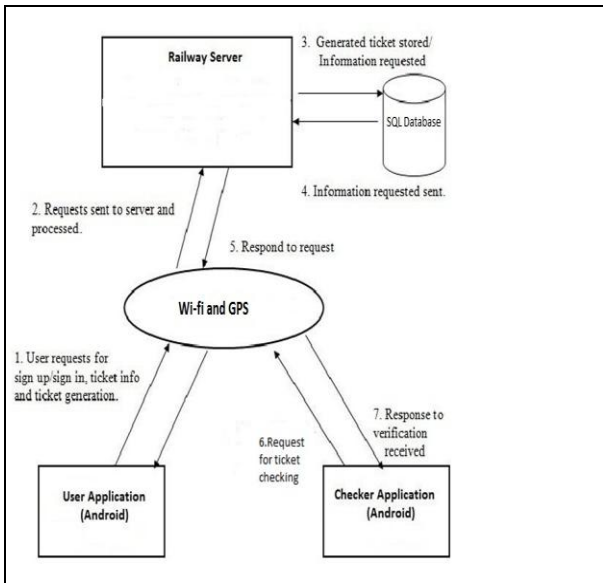


Fig 1. Proposed System Architecture

III. WORKING

1. Registration Details

The installation of application starts from personal information. It gathers the customer information such as name, mobile no., e-mail, password and this entire information will be stored into database, shown in Figure 6.

2. Login Page

During login into this system we required to enter the mobile no. which is used as a username and password, shown in Figure 7.

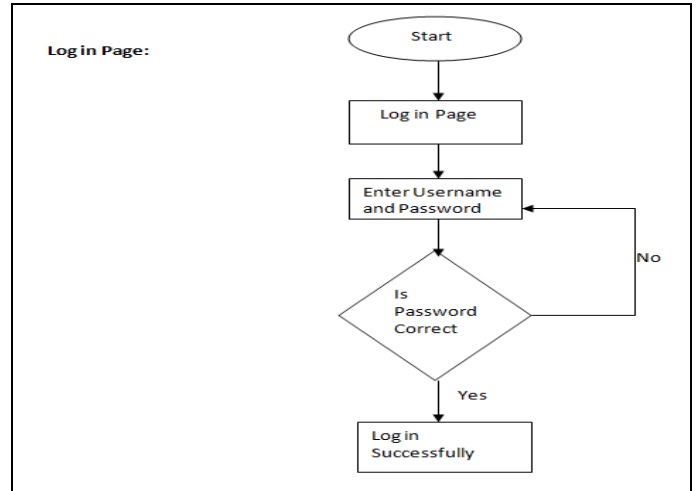


Fig 2. Use case diagram for login page

3. Buying tickets and pass

In this system during buying ticket source station is automatically detected and user required to enter destination, class, no. of child and no. of adult tickets, ticket type is also choose by user like return or single. After entering this entire information user also checks the fare.

In this system during buying pass source station is automatically detected and user required entering destination, class and passing duration. After entering this entire information user also checks pass amount.

The user can also take extension of existing pass, in this destination of an existing pass becomes source when user wants to take extension ticket of the pass, shown in Figure 10 and Figure 11 respectively.

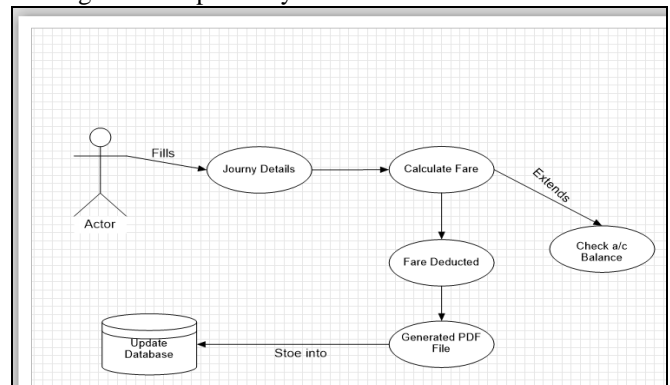


Fig 3. Use case diagram for login page

4. Ticket generation in PDF format (PDF generation)

When user buy ticket/pass, pdf file of ticket/pass is generated. This pdf file contains the information about journey, timestamp, user_id, transaction_id. Ticket PDF shown in Figure 13.

5. Ticket Checker Application

Ticket Checker application is used to verify user ticket/pass using transaction_id given on pdf file. Shown in Figure 15, Figure 16 and Figure 17 respectively.

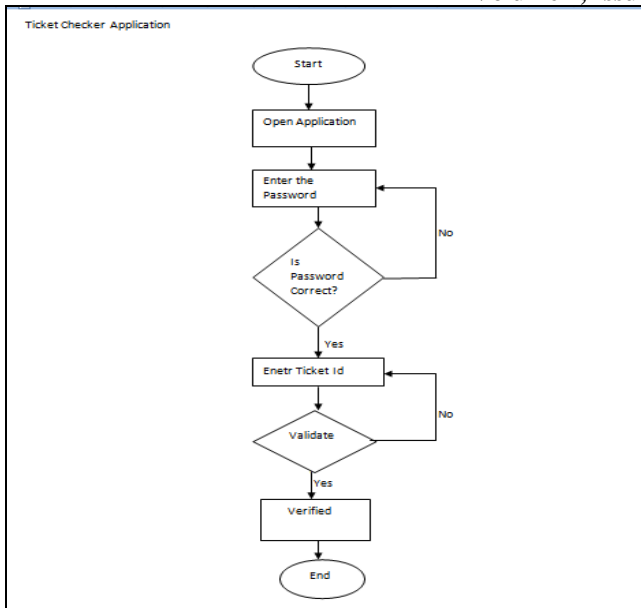


Fig 4. Use case diagram for Ticket Checker Application

IV. SYSTEM ANALYSIS

Functional Requirements

A. Customer Requirements

The current railway ticketing reservation system is human dependent. Time consuming when it comes to ticket booking process.

This application is to bring convenience in buying local railway ticket using smart phone. This system deals with the development and implementation of a smart-phone application to buy the local railway tickets which is simple and easy to use.

B. User

Our system is to develop an android application which will serve as a medium for users to buy a ticket to travel through local railways and also reduces time taken to start the journey by avoiding long queues.

V. INTENDED USE

A. Expectations

The application should reduce the time required for buying ticket and keep the user data and transaction data secure.

Challenges

The Application should be designed in such a way that even common man should be able to understand the process of buying ticket without any ambiguity.

B. System Requirements

The software requirements identified for developing the application are JDK 1.7, Eclipse and APACHE TOMCAT as server.

a. Software Requirements

1. Eclipse

Eclipse is a multi-language software development environment comprising a workspace and an extensible plug-in system. It is written mostly in Java. It can be used to

develop applications in Java and, by means of various plug-in, other programming languages. This plug-in mechanism is a lightweight software component framework. In addition to allowing the Eclipse Platform to be extended using other programming languages such as C and Python, the plug-in framework allows the Eclipse Platform to work with typesetting languages like Latex, networking applications such as telnet and database management systems. The plug-in architecture supports writing any desired extension to the environment, such as for configuration management. Java and CVS support is provided in the Eclipse SDK, with support for other version control systems provided by third-party plug-ins. The Eclipse SDK includes the Eclipse Java development tools (JDT), offering an IDE with a built-in incremental Java compiler and a full model of the Java source files. This allows for advanced refactoring techniques and code analysis. The IDE also makes use of a workspace, in this case a set of metadata over a flat file space allowing external file modifications as long as the corresponding workspace "resource" is refreshed afterwards. [2]

The stable version of Eclipse used is Eclipse Juno 4.2. This version eclipse offers features like code recommendations, JDT Enhancements, others. [2]

2. Windows OS

Microsoft Windows is a series of graphical interface operating systems developed, marketed, and sold by Microsoft. The most recent client version of Windows is Windows 8. To develop the application Windows 7 or higher is required. [3]

3. WAMP Server

WampServer is a Windows web development environment. It allows you to create web applications with Apache, PHP and the MySQL database. It also comes with PHPMyAdmin and SQLite Manager to easily manage your databases. WampServer installs automatically (installer), and its usage is very intuitive. You will be able to tune your server without even touching the setting files. [4]

b. Hardware Requirements

- Intel Pentium 4 processor or higher.
- Minimum RAM of 512mb.
- Free disk space of 16GB or more.
- 1024 x 768 resolution monitor.

A. Technology

Java

Java is a programming language first released by Sun Microsystems back in 1995. It can be found on many different types of devices from smartphones, to mainframe computers. You can use it on your desktop PC and even on the Raspberry Pi. Java doesn't compile to native processor code but rather it relies on a "virtual machine" which understands an intermediate format called Java byte code. Each platform that runs Java needs a virtual machine (VM) implementation. On

Android the original VM is called Dalvik. Google has also started previewing its next generation VM called ART. The job of these virtual machines is to interpret the byte code, which is really just a set of instructions similar to the machine code found in CPUs, and execute the program on the processor. The VMs use a variety of technologies including just-in-time compilation (JIT) and ahead-of-time compilation (AOT) to speed up the processes. [5]

Android

Android is a mobile operating system that is based on a modified version of Linux. It was originally developed by a start-up of the same name, Android, Inc. In 2005, as part of its strategy to enter the mobile space, Google purchased Android and took over its development work. [6]

VI. RESULT

a) Ticket application

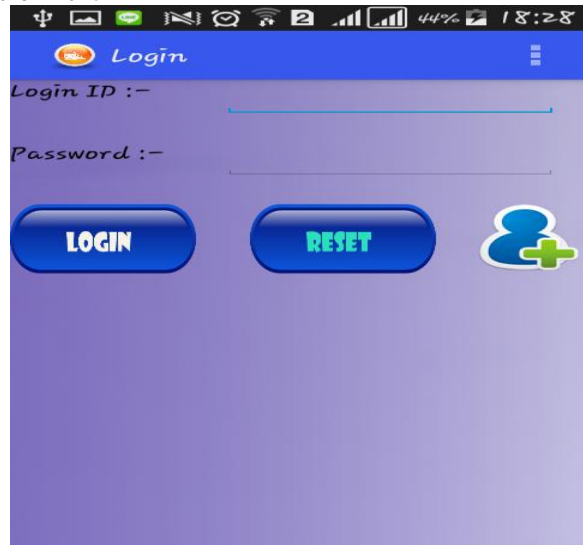


Fig 7.Login Page

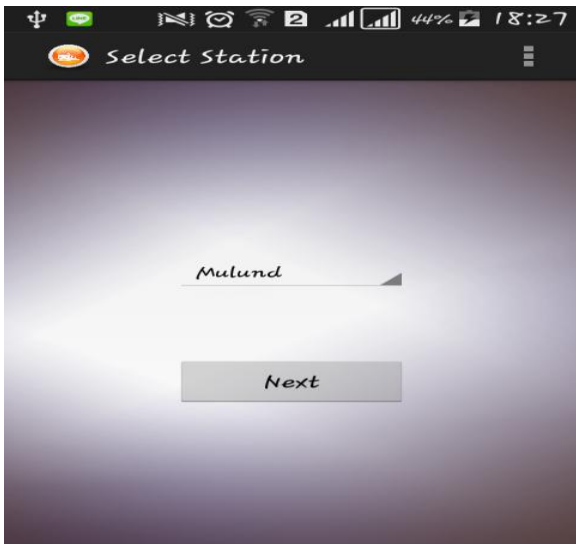


Fig 5.Station Selection



Fig 8. Home Page

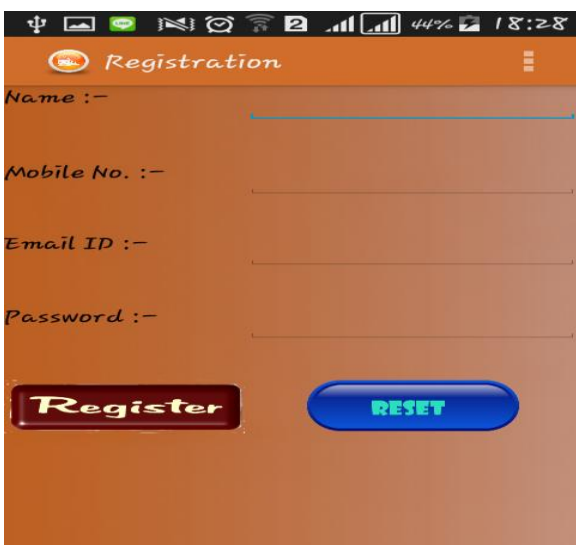


Fig 6. Registration Page

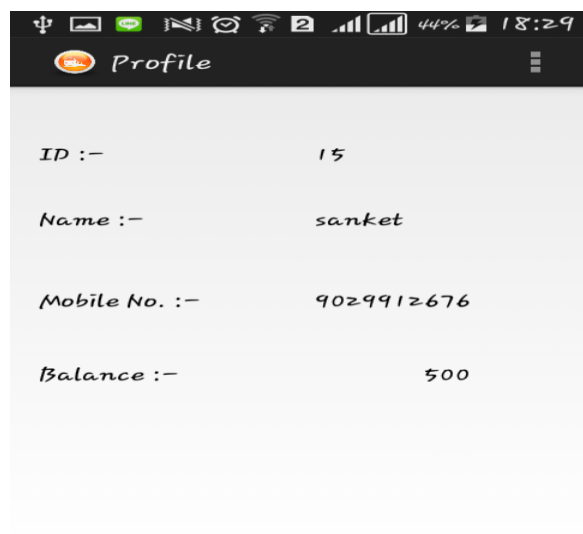


Fig 9. User Profile

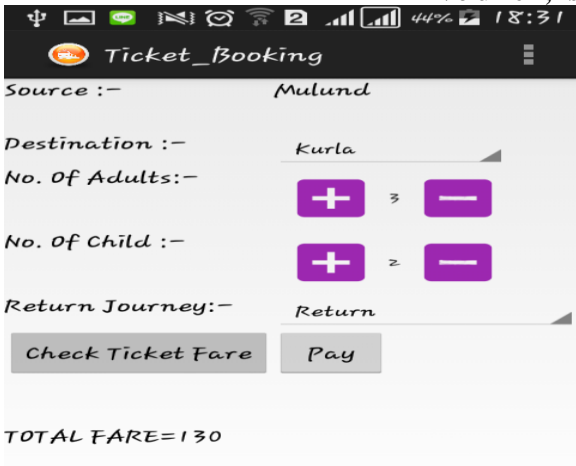


Fig 10. Buy Ticket

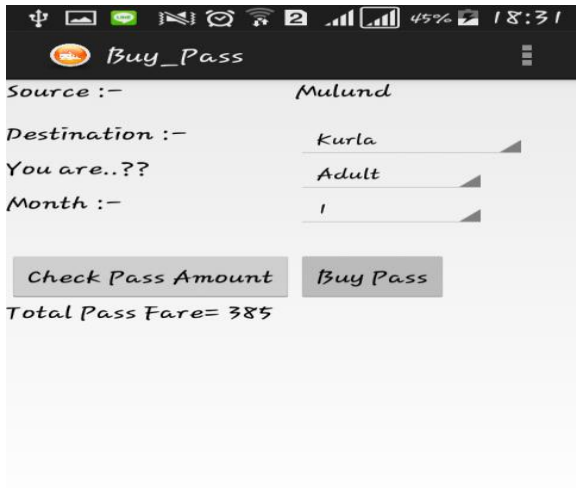


Fig 11. Buy Pass

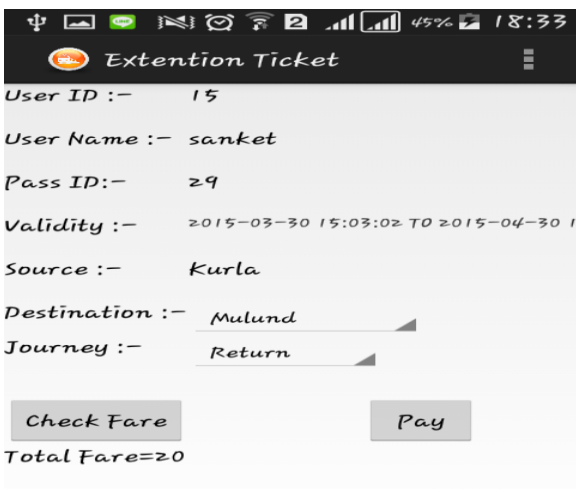


Fig 12. Extension Ticket

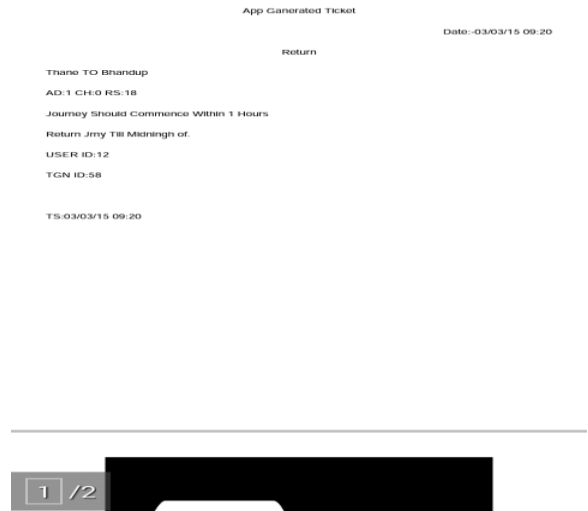


Fig 13. Ticket PDF



Fig 14. Ticket Transaction History

b) Ticket Checker Application

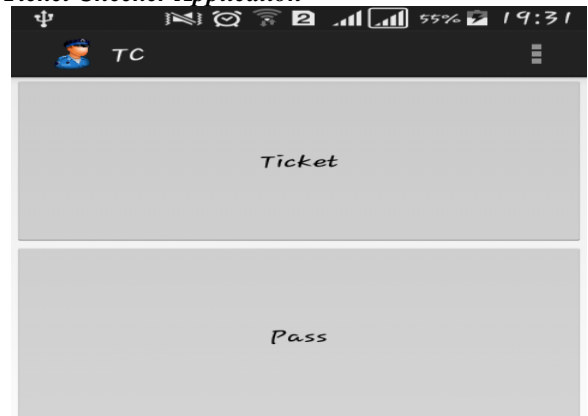


Fig 15. Main Page

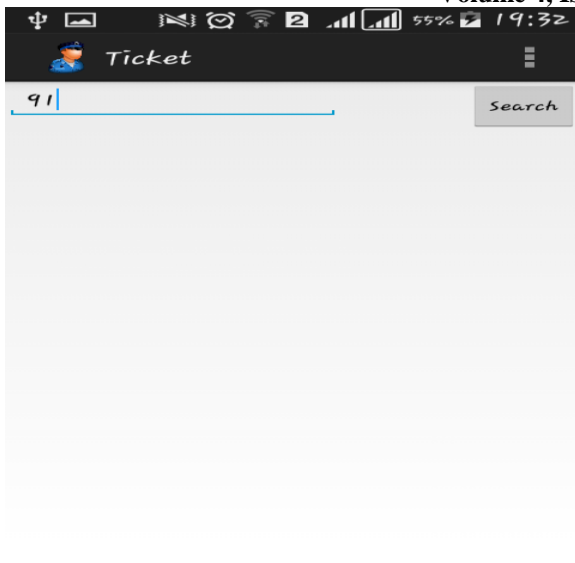


Fig 16. Search_id Page

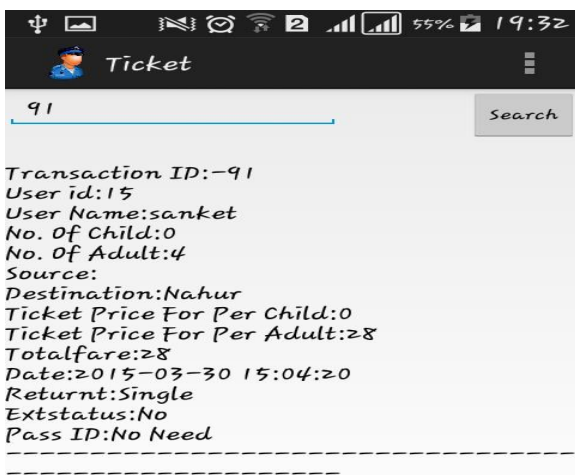


Fig 17. User Ticket Validation

VII. CONCLUSION

Eradicates the need to stand in a queue to take ticket. By integrating the use of mobile applications, you are keeping the event green. Improved customer experience – It's interactive and in real time.

VIII. FUTURE ENHANCEMENTS

For better performance in future of the application online transaction can be used to recharge the user application account.

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