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An Android App for Bullet Trains in INDIA with Seat Selection Facility

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Abstract: Indian railway is developing speedily with introduction of new high speed trains in India. Recently on 4thApril 2016, with the guidance of respected Prime minister of India, Shri Narendra Modi and Indian Railway Minister Mr. Suresh Prabhu has been started a new Semi bullet train "Gatimaan Express" from Delhi to Agra. And soon Bullet train will be running on Indian track from Mumbai to Ahemdabad in upcoming years. This paper introduces you all with an Android Application for Smart phone users which will provide an interactive and smart way of choosing seat in those Semi-Bullet and upcoming Bullet trains in India. The passenger (user) can just check in and enjoy many more exciting features.

Keywords**:** *Bullet Trains, High Speed Rails (HSR), Smartphone, Railway Reservation System (RRS), Android application.*

I. INTRODUCTION

India has one of the biggest railway networks in the world, but as of 2015 it didn't have any kilometers classed as high-speed rail (HSR), which allows aworking speed of 200 km/h or more. But now in 2016 Indian railway have emerged and introduced with India's first High speed Rail (Semi- bullet) train "Gatimaan Express" from Delhi to Agra, with highest speed of 160 Km/Hr. As we all know we are moving toward the vision of digital India which is initiative taken by our honorable Prime Minister of India Shri Narendra Modi. Making Smart cities and civilians smarter is one of the aspects of it. Also Indian Railway Reservation System(RRS) have moved toward online reservation system with emergence of Internet from last two decades.

A. Problem Statement:

In current Indian online railway reservation system, passenger are able to reserve their seat but, isunaware of which seat will be allocated to them before reservation is done. So there should be way for passenger to choose their seat according to their choice.

B. Problem solution:

In this paper we have a proposal of a railway reservation android app especially for high speed rail in India. In this application passengers will be provided with the graphical overview of the seats and coaches of bullet trains. And will be able to choose the seat or book the seat according totheir choice.

II. PROPOSED SYSTEM &IMPLEMENTAION

Our system is based on android operating system which will provide user with an interactive way of choosing the seat in bullet trains. This Smartphone application that will provide users with the graphical overview of the coaches and seating arrangements within the coaches of the bullet trains. Through which passenger will be able to select any seat of his individual choice in any coach all over the train. Here users will see the graphical organization of seats inside the coach in which all the vacant seats will be shown in green color and the occupied seats (which are already booked)will be displayed in red colored.

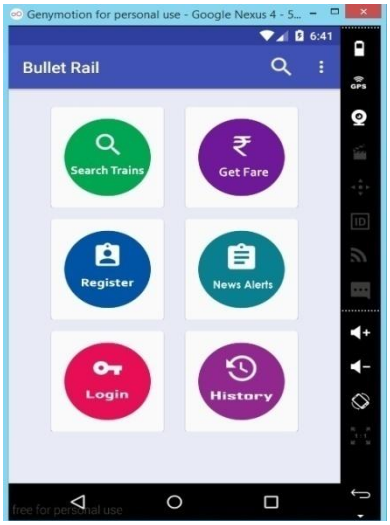

Figure 1: Home screen

Figure - 1 shows the home screen of application. As you can see the home screen compromised of 6 modules. These are:

1) Search train
2) Get Fare
3) News/ Alerts
4) History
5) Register
6) Login

Search Train: In this module user will search the required train and will be able to book the ticket.

Get Fare: This module help user to get the fare of journey in two ways, either by train number or by route of journey.

News / Alert: In this module user can look for recent news and Alerts regarding the trains.

History: In This module user will be able to view his booking history.

Register: In this module user will be able to register with Indian bullet rail Reservation system.

Login: This module will help user to get logged in the application.

Figure 2 shows a search train module. In this module user will feed the information of journey like:

Source: Origination station of journey.

Destination: Destination station of the journey.

Date of journey: The date on which journey is to be commenced.

*Class:*The class of coaches, weather first class or second class according to the comfort level of journey.

Figure 2: Search Train module

There is a swap button available which can be used to swap the source and destination stations. Once the details have been fed, user will click the search button. Upon clicking the Search Button Request will be send to the server, to query the database for the required train available.If everything goes fine and if train is available with requested details. User will be taken to next screen, which shows the list of train available. If train is not available as provided information user will be prompted with an error message that no train is available.

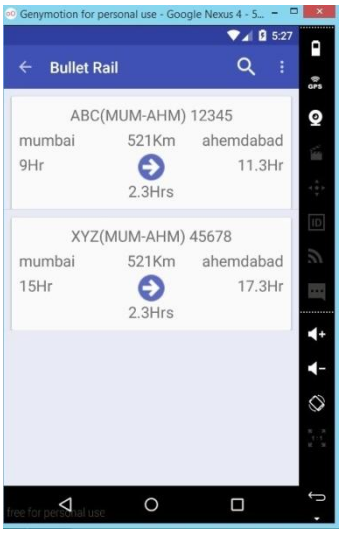

Figure 3: Train List

In figure 3 Train List module shows all the trains requested from the server. It compromises of train details. This compromises of train number, which is a five-digit number. Train name, its source and destination station. Distance of journey. Departure time from source and arrival time at the destination.And total journey time. Here in figure 3 we have two train with same source and destination. But different arrival and departure time.User can select any train according to his choice. As soon he clicks the train from the list. It gets on screen for seat selection.Figure 4 shows the main implementation of system. In this module user can see the information of the train on the top section. Below that is the Coach list (A1, A2, B1, B2, B3). User need to click the coach number to get the seat map for that coach.As you can see there are four rows of seats and a divider which represents the lane for walking in between. There are colors which represent the status of seat:

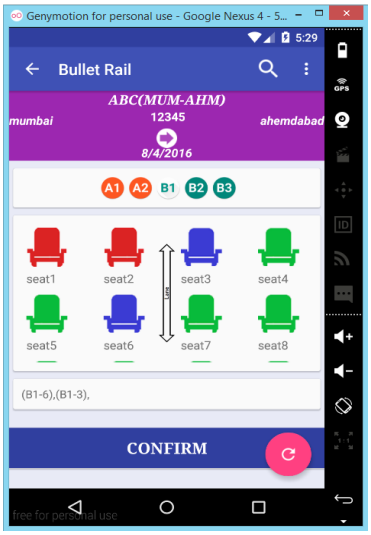

Figure 4: Seat Selection

- Red: It represents the seat is already occupied or reserved.
- Green: It represents the seat is available.
- Blue: It represents the seat which is selected by the user.
- Black: It shows that another user is processing the seat.

In this module user is given a time stamp of 5 minutes to choose his seat otherwise his session is expired; this helps the blocking of seat by a user for long time period.There is refresh button visible which will refresh the seat availability to see if any other seats are available by the user.Finally, user can click on confirm button to conform the seat. It will be redirected to the payment gateway to pay the fare.As soon as user pays the fare, an e-ticket will be generated and will be send to user on his email-id and registered mobile number.

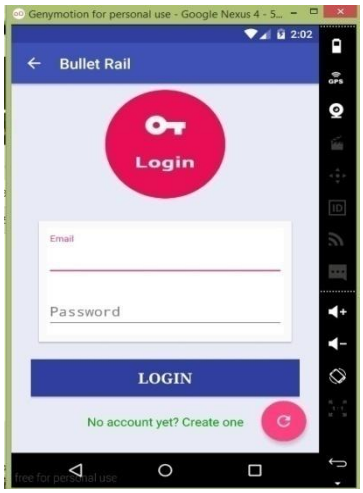

Figure 5: Login screen

- Figure 5 shows the login module, in this module user will enter email and password and click login button to get logged in the application. If user is not registered, there is text where user will clickand user will be redirected to registration activity for registration.
- It is important to login in order to use the entire feature provided by application such as booking seat, see booking history.

The figure 6 shows Registration module. In this module user will be able to register with Indian bullet rail Reservation system.

1. User first enters the personal details as shown in figure 6(a) as follows: name, email, Mobile no, Select Gender, Enter age.
   - 2. User then enter the Document details as shown in figure 6(b): Select the ID proof such as Aadhar card, Voter ID, License, Passport,PAN card.
   - Enter Document number.
3. User then chooses the password.
4. Click on Register button to get registered.

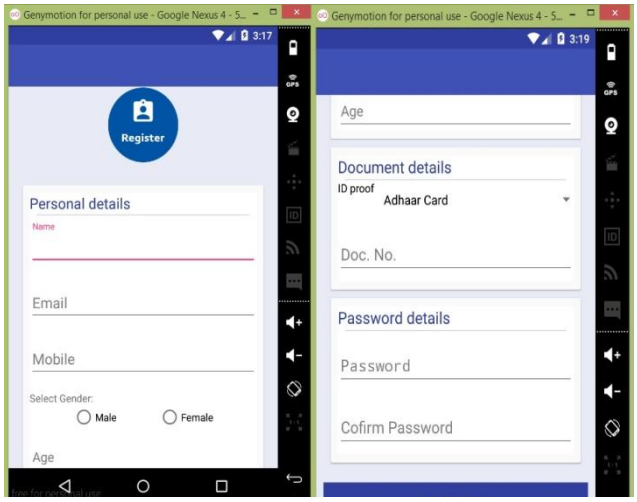

Figure 6(a & b): Registration screen

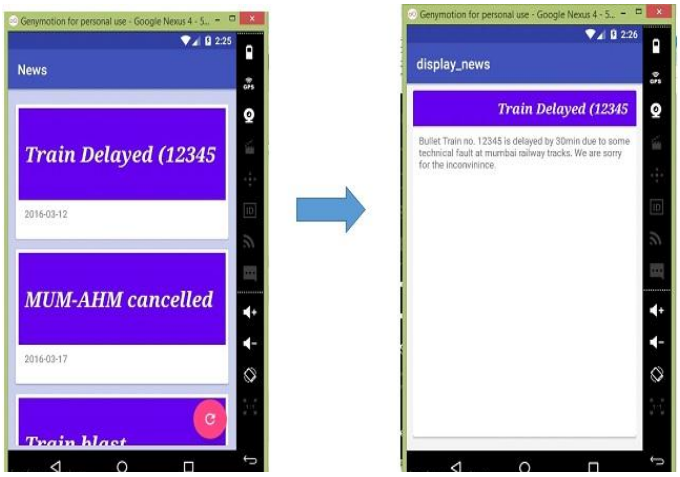

Figure 7: News

In this module user can look for recent news and Alerts regarding the trains. Summary of news can be displayed on card view as shown in figure 7. User will click that card to read the news detail.

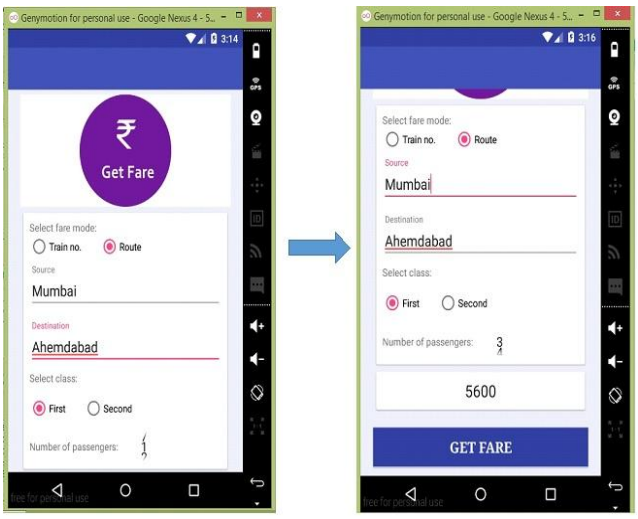

Figure 8: Get fare

Figure 8 shows the Get fare module. It helps user to get the fare of journey in two ways, either by train number or by route of journey as shown in figure 8. If user selects the mode as Train no. then user has to enter train no. If user selects the mode as route, then user has to enter source and destination. Then user selects the class of travelling either first or second and number of passenger travelling. On clicking GET FARE button total fare is displayed.

III. ADVANTAGES

- User canelite seat of his own choice using android application.
- Cool to use and beautiful user interface.
- It is accessible to book the tickets 24*7 hours.
- User can look for recent news and Alerts regarding the trains.
- There will be no time constraint for booking seats in the bullet trains.
- The problem of waiting list is also removed, as passenger will not be able to book the tickets if the no seats are available bullet trains.

IV. DISADVANTAGES

- The system will require Internet connection throughout the process.
- User is given a time stamp of 5 minutes to choose his seat otherwise his session is expired.
- User registration is mandatory for booking tickets.

CONCLUSION

In this paper we provided with an easy and attractive way of getting your seat in Bullet trains in India. This application can completely revolutionize the Ticket booking system of Indian railway. As India is motivating the term “Digital India”, this can be one of the measure step in it.

Future Scope

In Future the Project can be extended by adding some features like anenquiry services. The project is highly scalable and can be extended for use. Also Bullet train will compromise of Wi-Fi facility which can be utilized to provide various other functionality like

- Food ordering using the application.
- Tracing the live Position of Bullet train using GPS.
- We can provide an announcement system within the application which will provide a notification, before the destination station arrives.
- More advanced features can also be added as per requirement.

Acknowledgement

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