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App for Ride Sharing

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Abstract- *Gravitating in the direction of the global trend, India is experiencing rapid urbanization, elucidating that not only will more people be residing in cities, but also that more people will be working and commuting to urban areas more often. The expense of the growing reliance on vehicles contributes to expensive road construction and maintenance, clogged and congested highways, high levels of energy consumption along with its economic and environmental effects, rising air and noise pollution, traffic accidents and socioeconomic inequities that will lead to the disadvantaged considering transport services extremely unaffordable.*

Carpooling is the sharing of car journeys (also known as taxi-sharing or ride-sharing), so that more than one individual rides in a car. We intent on making an Android application that will enable to let people know if vehicles are available for carpool in their desired path and allow them to sign in for it. This will enable people using this application to share expense, not worry about hiring a cab and to make new connections. People having this application on their cell phone with advance facilities can easily carpool with unacquainted people without worrying about security.

Key Words: **Affordable Transportation, Carpooling, Cost Saving, Ride sharing, Transportation Industry**

1. INTRODUCTION

Carpooling is the sharing of car journeys so that more than one person can travel in a same car. In this paper, we are discussing about building a mobile application for sharing rides for outstation locations to share expenses. A rider can request a car by providing his/her preferred start location and the destination of the trip. The rider can also view the cost of the trip, track the driver and pay the driver after the trip. A driver can view all the requests from different riders, select request, and pick up the rider.

Carpooling allows combating:

- The acute problem of traffic on roads these days.
- The increasing fuel prices that add to the misery of daily users of personal vehicles.
- Extensive use of vehicles causes pollution which has adverse effects.

1.1 Reasons to choose Carpooling

1. Save Money: The most obvious reason to choose carpooling is that you will spend less than you would by almost any other way to cover the same distance alone.
2. Greener: Fewer the number of vehicles on the road, lesser fuels used and hence, less pollution. Reduces greenhouse gas emissions and better air quality.
3. Make New Friends: Riding with people gives you an opportunity to meet new people, make new friends and learn different point of views.
4. Lesser Traffic Jams: Fewer vehicles on the road means scarcer traffic.
5. Improves Commuting Options: The rider has the freedom to choose an option that works best for him (better than other methods of transportation).

1.2 Drawbacks of the Current Applications

The existing carpooling apps have the following drawbacks:

1. No safety measures for female ride seekers. Gender of the driver/passengers is not informed at the time of booking. Some sites take social profiles which can increase fake user registration degrading security measures.
2. Most of the existing apps have cash as the only payment method, which requires the riders to produce exact change.
3. Carpooling may lead people with different mindsets and view to travel together and this may sometimes cause unpleasant experiences.

2. SUGGESTED IMPROVEMENTS

- Get the registration details verified to activate the account.
- To ensure safety of the riders: Use OTP for verification; to know it is the right person.

- Implement a feature to add three emergency contacts, who will be updated with the location of the passengers at all times.
- Create an SOS button to contact the police in case of distress/emergency.
- Add a feature to filter out rides as per one's requirements. For example: Female Drivers
- Allow passengers to rate and write review on fellow passengers anonymously. Also allow riders to rate the driver based on speed, abidance of traffic rules etc.

3. DETAILS RELATED TO THE PROPOSED SYSTEM

3.1 Architecture Diagram

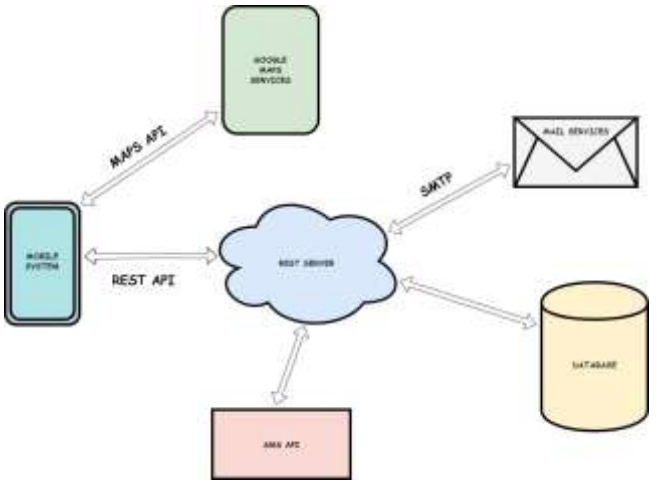


Fig -1: Architecture Diagram for the Proposed System

The REST Server will act as the backbone to the system. The REST API will allow the clients (mobile system) to communicate with the server. By integrating Google Maps into the application, the riders can get a seamless experience owing to the services it provides, including reroutes based on real-time traffic, route overview, turn-by-turn navigation, lane level guidance and voice support. Mail and message services are used to send OTPs for authentication and verification.

The database stores all information provided during registration. It is used for authentication during each login. The data can be synced across all clients in real-time.

3.2 Information Architecture Diagram

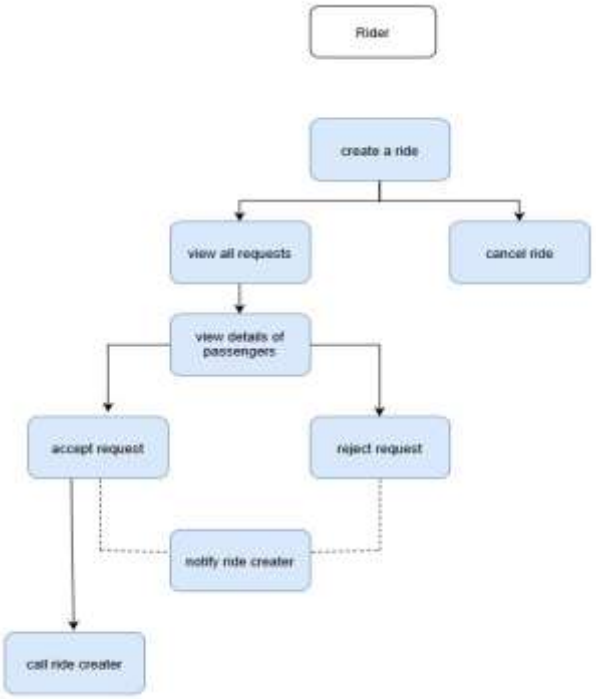


Fig -2: Information Architecture: RIDER

The rider can see all the rides that are going to the place he wishes to go and can view details of the ride creator. The rider can send a request to the ride creator, if he opts to travel with the ride creator. Once the request is sent, the ride creator is notified.

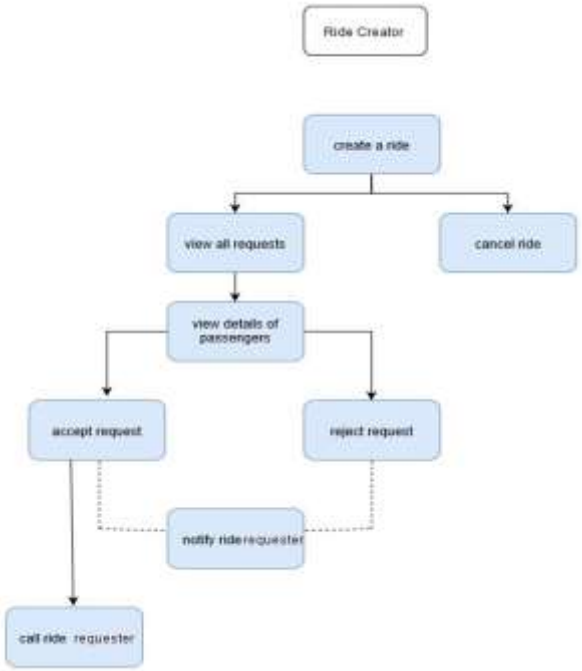
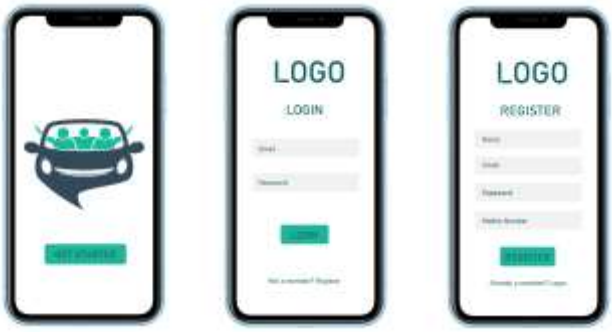


Fig -3: Information Architecture: RIDE CREATOR

The ride creator can view requests that have been made to his particular ride and choose to accept or reject requests based on the seats available and details of the requesting passengers.

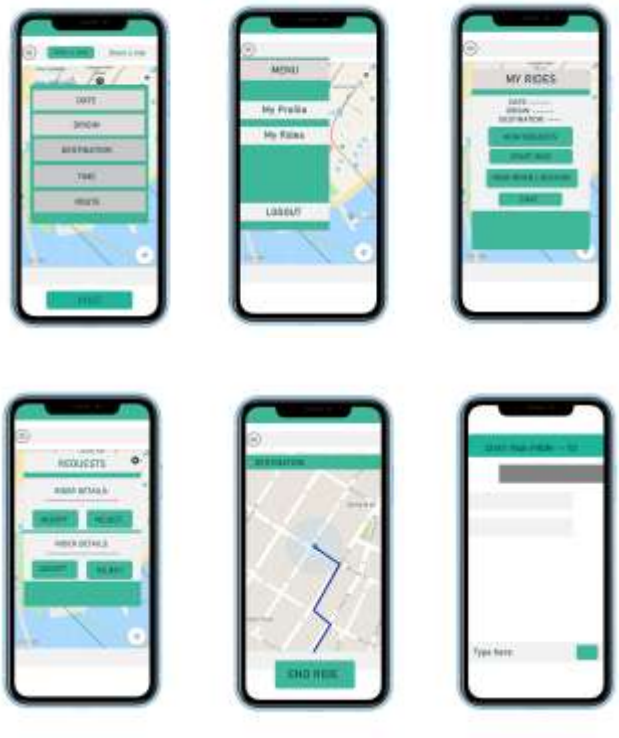
3.4 USER INTERFACE

- Login/ Register



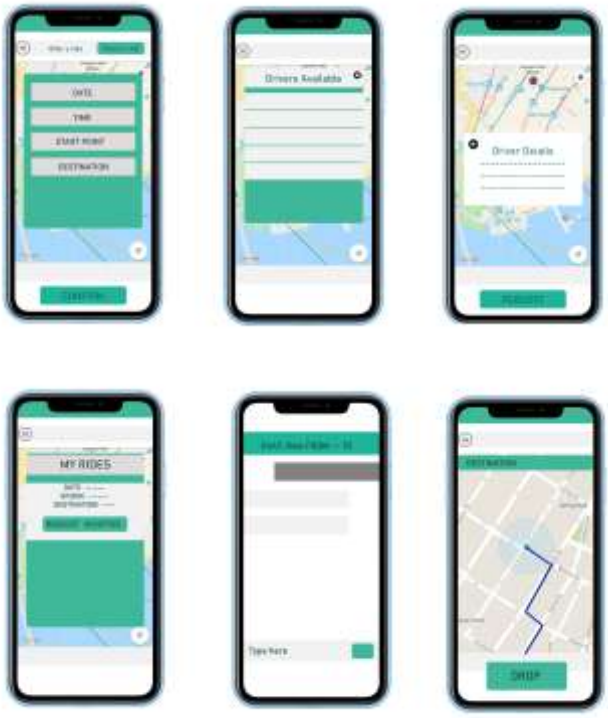
On starting the application, the first page that appears is the login page. If the user is not registered already, the user is prompted to register.

- Offer a Ride



For creating and publishing a ride, the ride creator has to provide all the ride details. Once the ride is posted, it is visible to passengers requesting places nearby. The ride creator can then choose to accept/ reject the requests based on his choice.

- Request a Ride



The riders can find rides going their way by putting in the starting point and the destination. Out of the existing rides, the rider can choose a ride and request the ride creator. All the ride history can be found in 'My Rides'.

4. CONCLUSION

With the increase of environmental concerns and the congestion of roads, carpooling has gained a lot of popularity when it comes to environment-friendly and cheap ways of travelling. Carpooling is when two or more persons share a ride in one of their personal cars. Carpooling is a revolutionary way to commute. This carpooling application is designed to be scalable, extensible and highly available. It ensures the privacy of its users and is secure. But, the application can be further improved to provide the users with better experience and more security.

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