Android & Web based Application for Carpooling System

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ABSTRACT

Carpooling also commonly known as car-sharing, ride-sharing and lift sharing, is the sharing of car journeys so that more than one person can travel in a car. With the enormous increase in number of vehicles on road, people around the country especially in metro cities have started facing problem now due to increase in traffic which added an hour or so to their daily travelling time. Carpooling is seen as a more environmentally friendly and sustainable way to travel as sharing journeys reduces carbon emissions, traffic congestion on the roads, and the need for parking spaces. This method is very useful as it has great value and great use in normal life. Car sharing aims at solving this problem by targeting the empty seats in the private cars. In this paper, we propose an android application for carpooling where the user is able to know which car is available for carpooling. This will enable people using this application to share expense, not worry about hiring a cab and making new connections. Carpooling is application intended to better utilize the vacancy seat in the passengers cars.

Keyword: - *Carpooling, Car Sharing, Fare-sharing, Environmental friendly transportation.*

1. INTRODUCTION

Transportation is a major issue these days especially in India. One of the most used means of communication in roadways. One of the major forms of road transport consists of the private passenger car. These cars are generally used with only a single rider. Because of these causes pollution, traffic congestion (Jam), increasing parking space, wastage of time, no new connections & many more. Now a days, there is no. of application are in used but they are working in some bounded area. So, we have to remove the boundary through our application. We are developing the application which is working as like social networking sites. It is touch of everyone those have smart phones. This app is working as social networking site so the security is big issue. We have trace this problem by providing various security advance facilities such as for SOS we develop a technique which used when the passenger or driver in trouble. Our apps will provide a facility for blind person through speech recognition. It will track the location of passenger & driver those who involve in carpool. After all the passengers rich at their desire location it will be disabled automatically. All the users involve in this carpooling system are track through GPS in head office when they made a pool; according to the security point of view it is important. They can watch the SOS notification also & according to that action will takes place.

The Carpooling is not a new concept in the field of car sharing. Decades ago during oil crises in Europe, people were encouraged to share their vehicles. Carpooling tries to reduce the cost of journey for travellers who commute to work daily which not only will save their pocket but will also reduce the usage of most important non-renewable resource we have i.e. fuel, which is declining at rapid pace.

Carpooling is commonly implemented for commuting but is increasingly popular for longer one-off journeys, with the formality and regularity of arrangements varying between schemes and journeys.

Carpooling is not always arranged for the whole length of a journey. Especially on long journeys, it is common for passengers to only join for parts of the journey, and give a contribution based on the distance that they travel. This gives carpooling extra flexibility, and enables more people to share journeys and save money.

2. LITERATURE SURVEY

Mayur K. Thorat and Rahul M. Lahakare [1] have given an overview of Carpooling system With SMS alerts emphasizing more on overcoming issues encountered before and how to make it more secure. They gave the idea of using it for both inter-city and intra-city travels. They tried to expand their user base to blind people also who can use speech recognition technique to precisely know the location at any time.

R. Manzini and A. Pareschi [2] have given a decision support system for the application of carpooling system. This will be used to support passengers to in determining which cars to use.

Swati. R. Tare, Neha B. Khalate and Ajita A. Mahapadi [3] have contributed by suggesting ideas on how make this application more user-friendly for passengers and not only for drivers. They especially worked on reliability of Real time System and security of woman travellers.

BlaBlaCar is the world's largest long-distance ridesharing community [4]. Conceived in December 2003 by FrédéricMazzella, and founded in 2006, BlaBlaCar connects drivers and passengers willing to travel together between cities and share the cost of the journey. BlaBlaCar has more than 20 million members across 19 countries. [3] Members must register and create a personal online profile, which includes ratings and reviews by other members, social members show how much experience they have of the service, meaning those with more-known as "ambassadors" - attract more ride shares. One major shortcoming of this application is that it only offers inter-city carpooling options which our application aims to rectify and add intra-city commuting options too.

FolksVagn offers a community-based system that helps people share rides with others. While the passengers get rides at costs much cheaper than a regular taxi service, the car owner gets a share of the fare. It is open only to corporate clients as it requires a corporate email for registration and has a prepaid account or online wallet system to pay for the ride.

The famous taxi-hire application "taxiforsure" [5] on android platform is the first car sharing application who took the initiative and introduced Carpooling for "Vacationers" .i.e. for those who are on vacations and want to spend less on travelling to save their pocket. They started it for some particular routes only like "Chandigarh-Delhi", "Mysore-Manali" etc. and they are looking forward to reach out the masses in coming future.

3. PROPOSED SYSTEM

Some of the recent solution ideas in carpooling. In this section we propose our design studying the previous solution, understanding the drawbacks of previous solution and proposing some issues & feature which would help to build a more user-friendly and secure carpooling solution. The main features of our application listed below:

3.1 Real-time Design

In addition to the planned or scheduled carpooling system we are also going to provide feature for users who are more interested in picking random passengers and not bind himself with few passengers. Whenever a user who leaves from his home or workplace, he can leave a notification for the passengers on his route (which will be taken from GPS) and if anyone wants to join him, they can just send their location to them and can get picked.

3.2 Security Features

As we will be providing extra filtering facility for woman passengers, our application is going to be more secure for female travellers. Not only that, a driver will not be able to create pool without giving his license number and aadhar number. Ratings will also play a major role in this. This feature will be able to give a bit of assurance to the users of our application.

3.3 Filtering Options

The user will be able to filter in accordance with his destination and middle point (if there are two different routes to reach some destination middle point will help us to filter it precisely). Not only that, we will also provide filtering on gender basis i.e. Woman who wants to travel with females drivers only will be shown available vehicles according to the gender.

Another filtering option will be according to services. The user will be according to reviews or ratings. The user will only type his source and destination and the one with the best ratings from follow passenger will come first. If there are no reviews nothing will be shown and user will be asked to choose another filtering option.

4. SYSTEM ARCHITECTURE

Carpooling system basically depends on two things, the driver who is going to make his vehicle available to get pooled as well his route information and passengers who are willing to get a ride from the available cars. The Carpooling system the user has to be logged in to use the services provided by us. The user can either create pool or can get a ride or both according to his needs. The driver has to create pool first and give out all the necessary details asked by the application. The passenger also has to fill information asked by the tool like his route information. Every detail these users will mention will be stored in our database. The user will use GUI provided by the system to fill in all the details which is connected to our SQLite database. All the entries will be saved in particular columns.

Now, after getting details from both the users, whenever a user (passenger) will click on get a ride option, the user will be diverted to the Activity page of the application where user will be shown drivers according to his source and destination details. The system will use ListView to show suggestions of drivers. Carpooling system will retrieve relevant information from database according to the user's route details.

One of the features of our application is **filtering** which works here. Drivers will always be shown to the user according to the users rating for that driver on that particular route which will help passenger to choose from the most dependent drivers. Woman who are willing to get a ride can choose "**Female drivers**" as filtering options which will not only drive more woman to use this system but also making it a more secure and reliable system for females.

Now that the passengers have seen all the drivers using that route as per their requirement, passenger can send a "Request" to the preferred driver for the ride. The driver on the other hand can accept or decline request if he sense something wrong and can only start communication with passenger if he accepts request with the help of either email id we have taken or phone number. Only these three details, Name, Phone number and email-id will be shown to the passenger before he can send request but will only be able to communicate with driver if he accepts request.

After all this necessary and important steps, both driver and passenger can decide on common meeting points and time to meet to start their journey together.

Another feature which we are going to provide is location based services using Google Maps API via google_play_services_lib from Google where passenger will be able to track the driver so that he can reduce waiting time at their meeting spot and will be safe too. This is how Carpooling system will work.
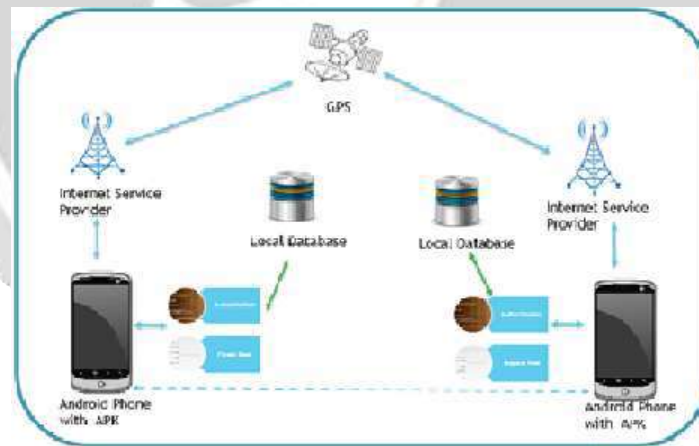

Figure 1: System Architecture.

5. CONCLUSIONS

In this paper, Carpooling system is an effort to reduce consumption of fuel, our most important non-renewable resource and traffic congestion on roads by encouraging people to use car sharing. So it is an environment-friendly social application and also helps people to reduce their journey time. This paper elaborates that the proposed system would consists of 5 main modules which are Offer a ride, Seek a ride, Feedback, Emergency, and user authentication via Registration. This system involves support from Google maps services and GPS module to provide user specific services and through Feedback the user experiences are recorded for rating the Module which is connected to the local emergency services to provide required help.

6. ACKNOWLEDGEMENT

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