International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 10 Issue: 03 | Mar 2023 www.irjet.net p-ISSN: 2395-0072

# Car Pooling Web App

**Arnav Bansod[1], Harsh Chavan[2], Kaajal Sharma[3]**

*[1,2]SE Student, Computer Engineering, Rajiv Gandhi College of Engineering, Andheri, Maharashtra, India*
*[3] Assistant Professor, Dept. of Computer Engineering, Rajiv Gandhi college of Engineering, Andheri, Maharashtra, India*

---

**Abstract -** *A lot of problems comes associated with rapid increase in population one such major problem is traffic congestion and other problems caused due to it. It has become a major problem in many metropolitan areas. During peak hour this congestion is something everyone has to experience due to the way the current society operates. There are many solutions to the problem but one effective solution is carpooling. Carpooling is a system in which car owners will share there privately owned vehicle to other traveler traveling on the same route. This will decrease the empty seats which would result in lesser cars on road. The current carpooling system is not much deviated from cab system which is also not so efficient. This service will greatly benefit people who travel on same routes on daily basis such as working people, students. It will also help the owner with affordability of fuel cutting the cost.*

***Key Words***: **Carpool, Traffic Congestion, Ride, Sharing, Affordability**

## 1.INTRODUCTION

In a population dense country such as India, connectivity is a major factor for growth of a nation. Due to the nation having large population it arises lots of problems one such concerning issue is traffic. The amount of privately owned vehicle have skyrocketed and gives rise to problems such as traffic congestion, air pollution, sound pollution, fuel inefficiency and many more.

There are solutions to overcome these problems one such solution is using public transport but a better more efficient way is carpooling.

Carpooling is sharing of privately owned vehicle with one or more people travelling on the same route on occasional or daily basis. This will not only eliminate the problem of traffic congestion but also greatly benefit both the traveler as well as car owner. The distribution of fuel cost among all the traveler will benefit the car owner greatly.

A website will act as a communication link between traveler searching for ride and car owners searching for traveler[3]. The car owner will post the origin of the journey and the end destination and traveler can communicate accordingly.

### 1.1 Advantages of using Carpooling

- Cost efficient: Due to splitting the cost of the travel along with other user it makes it cost effective.
- Environment Friendly: As more number of people will travel in same car on average it will reduce the number of vehicle on road hence decreasing the carbon emissions.
- Traffic : Lesser cars will run on road making the problem of traffic congestion less hectic.
- Socializing: Carpooling provides an opportunity to meet new people, socialize and make new friends which will open new opportunities.
- Improve productivity: Commuters can use their travel time in productive work such as reading book or working.

### 1.2 Drawbacks of current system

- .Safety is a major concern when it comes to carpooling. Due to digital mode of registration it may lead to fake profiles being created[4].
- Carpooling may lead to conflicts between passengers over issues that they don't agree on making it an unpleasant experience for other passengers.
- Time flexibility is an issue as commuters not reaching on time on required destination may lead to loss of time for potentially all the traveler

## 2. SUGGESTED IMPROVEMENT

- Seat availability feature to ensure the traveler is informed about the number of preoccupied space.
- Estimate the cost of travel before the journey starts
- Add a feature of live location that can be shared with family/friends in case of emergency or unwanted situations.
- Allowing passengers to provide feedback of the experience and write review about the same on either car owner or passenger.

## 3. DETAILS RELATED TO PROPOSED SYSTEM

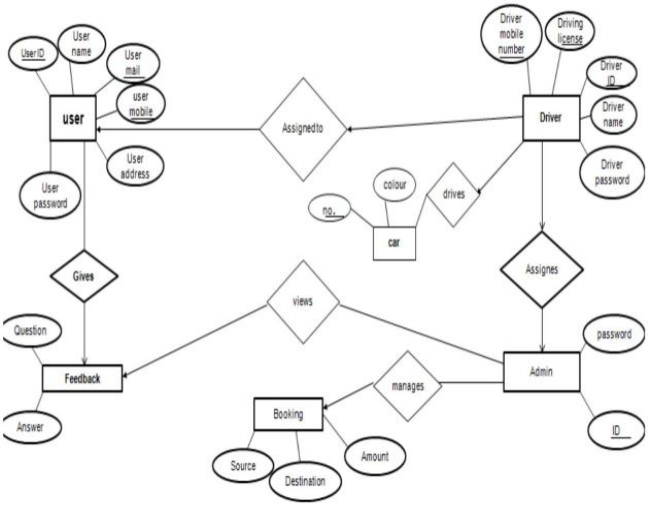



**Fig-1**:ER diagram of system

The different modules of carpooling are:

1) User registration and authentication:

This is the most critical module of carpooling. This will have two types of user which are car owner and traveler. The car owner is the one that provides the vehicle whereas the traveler is the one who want to use the service for the specified route.

While the process of registration, authentication is very important to provide a safe as well as secure environment for the users. This can be ensured by asking the user to provide document that ensure the unique identity which can be vehicle documents, car registration and other details in case of car owner and Aadhar card or pan card in case of traveler.

2) Route creation and management:

The car owner will decide and post the origin and the end destination of the journey this data will then be stored in the database and shown to traveler. The traveler can then choose and provide the pickup and drop off spot to car owner considering they are on the same route and not much deviated.

Different algorithms can be used to match the traveler and car owner such as k-nearest neighbors (knn) which can find similarity in car owner provided path and traveler path to group them together.

After the car owner checks the pickup and drop off spots can confirm the ride and proceed with the journey

3) Communication:

The car owner and traveller should have a way to communicate with each other. A messaging chat can be integrated that allows both parties to communicate effectively and share required information. Other than chat they can be provided with contact information for the same.

4) Payment and reimbursement:

After the journey is completed the traveller will pay for the amount for the distance travelled which will be pre-estimated. Traveller can pay using any mode of transaction credit or debit or online or cash. For online mode of transaction the traveller will be redirected to payment portal[3].

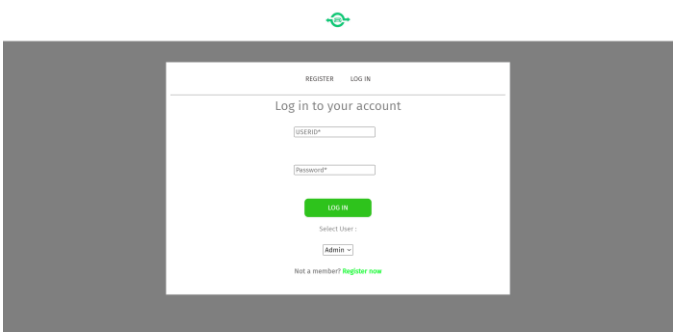
5) Rating and feedback:

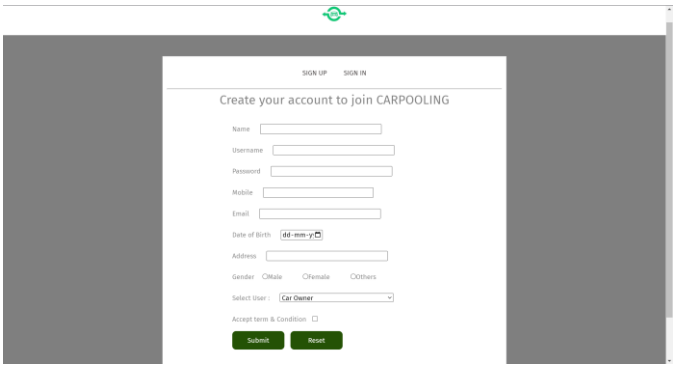
After the completion of the journey the traveller as well as the car owner both can post rating and feedback based on the experience. This can then be taken into consideration by future traveller and car owner for their journeys.

## 4. USER INTERFACE

- Login/Register

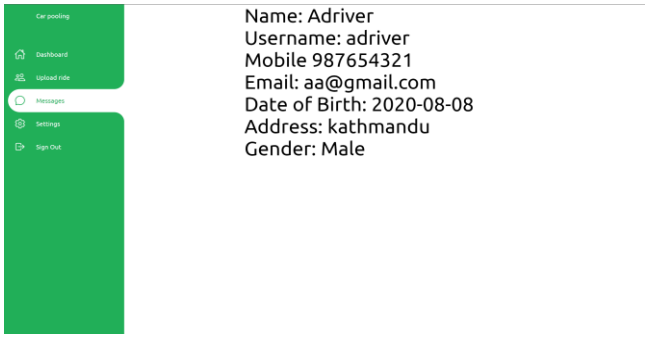
If the user already has an account, they can login or else opt for registration to create a account.



- Dashboard

There are 2 dashboard user and car owner which will display their account information.

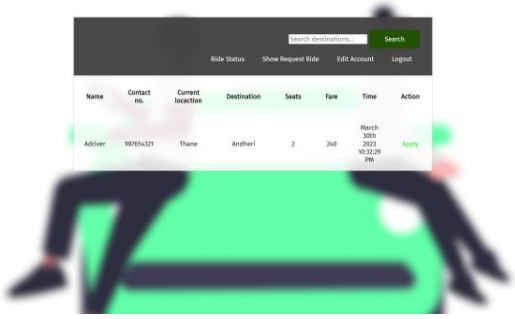



- Post ride

The car owner can provide required information for the ride.


- Apply ride

The traveler can the apply for the ride in available rides page. This page also shows other relevant information about the ride such as the estimated fare, available seats etc.




- Ride status

This will show us the current status of the ride which is accepted. Once completed the user will click complete to officially end the trip.

## 5. FUTURE SCOPE

As part of future scope, many additional features can be added such as GPS tracking system for real time updating of information, SOS feature that would alert required authorities in case of emergency[3].

Advanced matching algorithms paired with self driving cars could lead to convenient and efficient way to car pool. Self driving car could pickup multiple people on shared path, reducing the need of personal vehicles.

Blockchain technology could be used to develop a carpooling platform as it will lead to secure and decentralized network, where users could share there data and make payments without the need of any third party involvement.

Overall carpooling is a sustainable mode of transport which should be promoted and used more widely by the population that also benefits the individuals involved as well as environment.

## 6. CONCLUSION

Carpooling is a very effective solution to some of the major problem faced by commuters as well as private vehicle owners, with the help of carpooling the car owner can cut down their cost of fuel for travelling the same distance by sharing vehicle with other commuters. This will also help with traffic congestion which will increase the fuel efficiency in general as fuel is a depleting resource in nature. It does not only benefit the user but also benefit the concerning environmental issue such as global warming, carbon emission, sound pollution. This can make a significant change in the well being of society.

By sharing rides, users can make new friends meet new people and develop connections which can change into meaningful opportunities.

However, carpooling can also come with its own set of problems such as safety and security of user, privacy, management of payments, conflicts in interests of other commuters and many more.

## REFERENCES

[1] Bhumi Rakeshkumar Patel, Vivek Rajivkumar Patel, "E□RIDE: Carpooling Website" Science, Volume: 08 Issue: 08 | Aug 2021, irjet.

[2] Sasikumar C, Jaganathan, "A Dynamic Carpooling System with Social Network Based Filtering", Volume - 8, Issue - 3, Year – 2017, ijersonline.org .

[3] Bansikumar Trivedi, Sudhanshu Shukla, Bhavesh Amrutkar, Priyank Tiwary, Deepthi Oommen, "Car Pooling:

Real Time Ride Sharing", Volume: 06 Issue: 02 | Feb 2019, irjet.

[4] Surbhi Dhar, Sandra Arun, Vivek Dubey, Nilesh Kulal," App for Ride Sharing", Volume: 07 Issue: 03 , Mar 2020, irjet.

[5] Dejan Dimitrijević, Nemanja Nedić, "Real-time carpooling and ride-sharing: Position paper on design concepts, distribution and cloud computing strategies", Faculty of Technical Sciences, TrgDositejaObradovića 6, 21000,Novi Sad, Serbia.