Sharing Drive with Choosing Destination using Android Phone

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Abstract— Drive sharing is expected to significantly help in reducing traffic congestion and pollution in cities by enabling drivers to share their cars with travelers with similar itineraries and time schedules.Car sharing is a collective transportation model based on shared use of private cars. The \\The objective of car sharing is to reduce the number of cars in use by grouping people. By exploiting car sharing model, it can significantly reduce congestion, fuel consumption, air pollution, parking demands, and commuting costs. In the proposed system passenger as well as the driver. In passenger can request for a private or shared ride. If driver accept that ride and next nearest passenger request for the ride but his route is different from a current route, then that ride also suggests to the driver to boost the income.\\ Haversine algorithm used in to calculate the distance from target point to origin point. k-nearest neighbors algorithm used to find out nearest passengers. In the proposed system, we try to solve car sharing problem and develop a prototype of a car-sharing system to realize car sharing based on Smartphone platform and Google Map API.

Keywords: Cab Driver, Passenger

I. INTRODUCTION

Drive sharing is expected to significantly help in reducing traffic congestion and pollution in cities by enabling drivers to share their cars with travelers with a similar route plan and time schedules.\\Car sharing is a collective transportation model based on shared use of private cars. The objective of car sharing is to reduce the number of cars used by people. By exploiting car sharing model, it can significantly reduce congestion, fuel consumption, air pollution, parking demands and reduce costs, etc.\\ Proposed system is designed for a driver as well as a passenger where passenger request for a ride. If the driver accepts that ride and recommends the next nearest passenger request for a ride. If his route is different from the current route then that ride also suggests the alternative routes to the driver to reduce the cost of the ride.

II. PROPOSED SYSTEM

Propose system is designed for the passenger as well as the driver. In the proposed system, passenger can request for a private or shared ride. Passenger pay ride bill as per the price. If passenger select shared ride then it will be displayed to the nearest driver if the driver accepts that request then ride will be started and the new nearest passenger which are on other paths also suggest to the driver. Propose system focuses on three main modules; in first one nearest user will get know share ride is started for one location to another location. In the second one, whenever a new shared ride gets started it will inform those users who were traveled before from that location. In third one, if two parallel paths are available for the driver to reach any destination then the system will suggest that path which can provide maximum passenger to driver.

III. SYSTEM ARCHITECTURE:

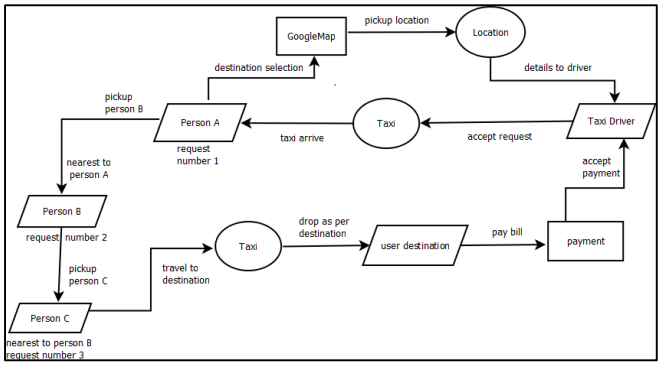

Fig. 1: System Architecture

IV. WORKING

User request for share ride, the request will display to the nearest taxi driver. The driver accepts or rejects the request if the driver accepts request then system inform to the passenger. If another request arises from the nearest area then it will display to the driver, if the driver accepts those request then the new route will be suggested to the driver. The driver will drop every passenger to their destination. The passenger will pay the bill.

The system works in the following way:

1) Driver and passenger are registers on the app with valid information.
2) User request for share ride, the request will display to the nearest taxi driver.
3) The driver accepts or rejects the request if the driver accepts request then system inform to the passenger.
4) If another request arises from the nearest area then it will display to the driver.
5) if the driver accepts those request then the new route will be suggested to the driver
6) The alternative route is suggested to the Driver.
7) Haversine algorithm is used for calculating the distance from the target point to the origin point.
8) Using the k-Nearest Neighbor algorithm nearest passenger are suggest to the Driver.
9) The driver will drop every passenger to their destination.
10) The passenger will pay the bill.

V. RESULTS

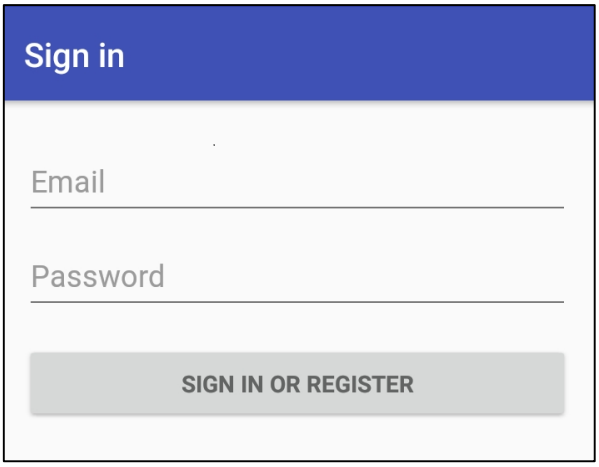

Fig. 1: Passenger Login

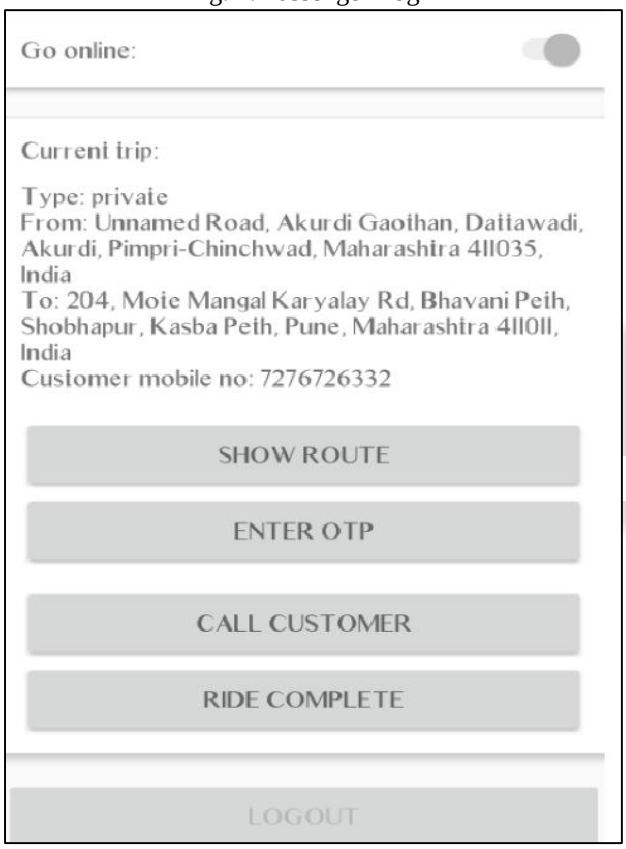

Fig. 2: Ride Information

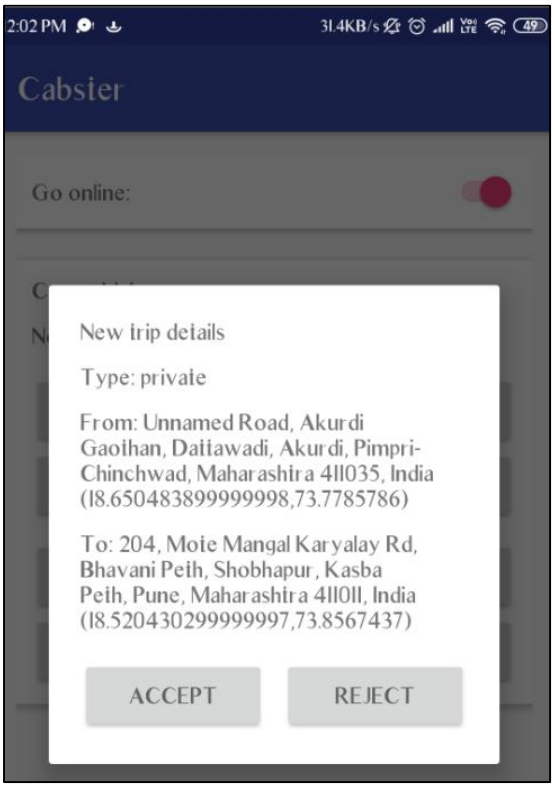

Fig. 3: New Customer Request Arrive

Fig. 4: Route

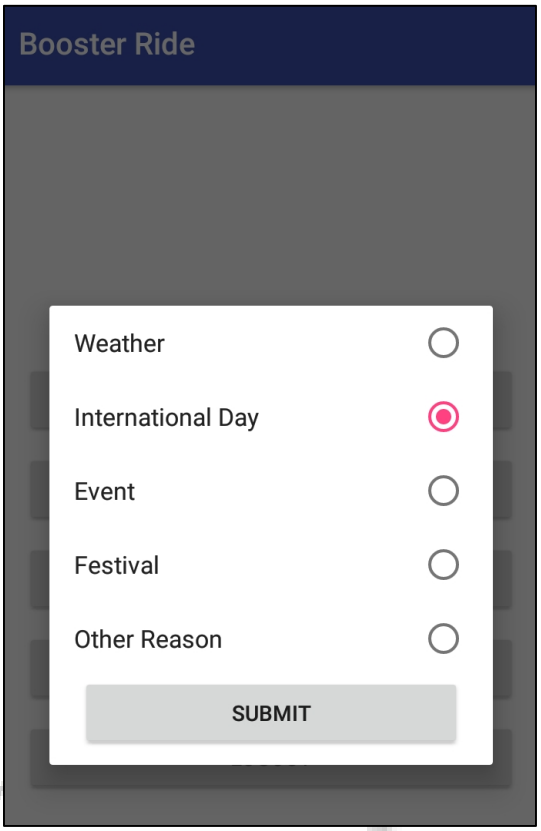

Fig. 5: Ride Cancelation Reason

VI. ALGORITHM

A. *Algorithm:*

Haversine algorithm to calculate the distance from target point to origin point

1) R is the radius of the earth in meters.
   LatO= latitude of origin point, LongO = longitude of origin point
   LatT= latitude of target point, LongT= longitude of target point
2) Difference in latitude = LatO-LatT
   Difference in longitude = LongO-LongT
3) Φ =Difference in latitude in radians
   Λ =Difference in longitude in radians
   O= LatO in radians.
   T= LatT in radians.
4) A=sin(Φ/2)*sin(Φ/2)+cos(O) *cos(T)*sin(Λ/2)*sin(Λ/2)
5) B= min(1,sqrt(A))
   Distance = 2*R*B

B. *k-Nearest Neighbor :*

1) Determine parameter K = number of nearest neighbors
2) Calculate the distance between the query-instance and all the training samples
3) Sort the distance and determine nearest neighbors based on the K-th minimum distance
4) Gather the category y of the nearest neighbors
5) Use the simple majority of the category of nearest neighbors as the prediction value of the query Instance

C. *Advantages:*

1) Online car booking becomes part of our day to day life.
2) It offers the user to book a car from anywhere and anytime.
3) Users can use car sharing option to save money.
4) In a shared car, cab drivers get the only recommendation of passengers those are in the way and not in the nearest area.
5) Easy to use
6) Time effective system
7) Save fuel

VII. FUTURE SCOPE

In the future work of sharing ride system, the route information of passenger is automatically sharing on the passenger Whatsapp group, facebook, twitter, or any other social media to share ride with other friends (passenger) to save the cost. And the updated location of the passenger sends the notification to other friends (passengers).

VIII. CONCLUSION

Sharing Drive is an effective way to reduce air pollution, parking problems, fuel consumption and commuting costs based on shared use of transportations cars or vehicles. In the proposed system, we try to solve car sharing problem and develop a prototype of the car sharing system to realize car sharing based on smartphone platform and Google Map API.

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