



Sharing ride with choosing destination using Smartphone

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Abstract — Car 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. A number of car sharing matching services have been designed in order to efficiently find successful ride matches in a given pool of drivers and potential passengers. 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 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 propose system passenger as well as driver. In passenger can request for private or shared ride. If driver accept that ride and next nearest passenger request for ride but his route is different than current route, then that ride also suggest to driver to boost the income. Haversine algorithm used in to calculate the distance from target point to origin point. k-nearest neighbors algorithm used in find out nearest passengers. In propose system we try to solve car sharing problem and develop a prototype of car sharing system to realize car sharing based on smart phone platform and Google Map API.

Keywords- Index Terms—Ride sharing, flexibility, green mobility, GPS, Haversine

I. INTRODUCTION

Car 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 route plan and time schedules. A number of car sharing matching services have been designed in order to efficiently find successful ride matches in a given pool of drivers and potential passengers. 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 driver as well as passenger where passenger request for ride. If driver accept that ride and recommend the next nearest passenger request for ride. If his route is different than current route then that ride also suggest the alternative routes to driver to reduce the cost of ride. It can reduce the time to find clients and allow an automated way to pay taxi costs. Propose system is not only beneficial to individual participants but also has significant social benefits.

II. PROBLEM STATEMENT

In this system the passenger can share his/her ride with other passengers and can reduce his/her cost of ride. 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 and reduce congestion, fuel consumption, air pollution, parking demands and reduce costs etc.

III. LITERATURE REVIEW

Paper Name: ComeWithMe: an Activity-oriented Carpooling Approach

Author: Vinicius Monteiro de Lira, Valeria Cesario Times, Chiara Renso, Salvatore Rinzivillo

Paper Explanation —The interest in carpooling is increasing due to the need to reduce traffic and noise pollution. Most of the available approaches and systems are route oriented, where driver and passengers are matched when the destination location is the same. ComeWithMe offers a new perspective: the destination is the intended activity instead of a location. This novel matching method is aimed to boost the possibilities of rides if the passenger reaches a different location maintaining the activity. We conducted experiments using a real data set of route and our results showed that the proposed matching algorithm improved the traditional carpooling approach in more than 80.0%.

Paper Name: A Model of Multimodal Ridesharing and its Analysis

Author: Jane Lin, Sandeep Sasidharan, Shuo Ma, Ouri Wolfson

Paper Explanation —Getting a taxi in highly congested areas (e.g. airports, conferences) is both time consuming and expensive. Chicago Tribune reports that wait at Chicago O'Hare International airport for taxi cabs can be as long as 45 minutes. In this paper we propose RSVP, a ridesharing system that uses walking and virtual pools. RSVP is aimed mainly for transportation hubs, such as airports, railway stations, etc. In these places, a steady stream of passengers arrives via some public transport mode, say train, and then depart to different destinations. We introduce a model for ride-sharing that involves walking, devise ridesharing algorithms, and evaluate them using a database that recorded real taxi trips in NYC.

Paper Name: Modeling User Activity Preference by Leveraging User Spatial Temporal Characteristics in LBSNs

Author: Dingqi Yang, Daqing Zhang, Vincent W. Zheng, and Zhiyong Yu

Paper Explanation —With the recent surge of location based social networks (LBSNs), activity data of millions of users has become attainable. This data contains not only spatial and temporal stamps of user activity, but also its semantic information. LBSNs can help to understand mobile users' spatial temporal activity preference (STAP), which can enable a wide range of ubiquitous applications, such as personalized context-aware location recommendation and group-oriented advertisement. However, modeling such user-specific STAP needs to tackle high-dimensional data, i.e., user-location-time-activity quadruples, which is complicated and usually suffers from a data sparsity problem. In order to address this problem, we propose a STAP model. It first models the spatial and temporal activity preference separately, and then uses a principle way to combine them for preference inference. In order to characterize the impact of spatial features on user activity preference, we propose the notion of personal functional region and related parameters to model and infer user spatial activity preference. In order to model the user temporal activity preference with sparse user activity data in LBSNs, we propose to exploit the temporal activity similarity among different users and apply nonnegative tensor factorization to collaboratively infer temporal activity preference. Finally, we put forward a context aware fusion framework to combine the spatial and temporal activity preference models for preference inference. We evaluate our proposed approach on three real-world datasets collected from New York and Tokyo, and show that our STAP model consistently outperforms the baseline approaches in various settings.

Paper Name: A Machine-Learned Ranking Algorithm for Dynamic and Personalized Car Pooling Services

Author: Mattia Giovanni Campana, Franca Delmastro and Raffaele Bruno

Paper Explanation — Car pooling is help in reducing traffic congestion and pollution in cities by using drivers to share their cars with passengers with similar route plan and time schedules. A number of carpooling matching services designed in order to and with a good outcome go on matches in a given card-player's money of drivers and passenger.. However, it is now recognised that many non-monetary aspects and social considerations, besides simple mobility needs, may influence the individual willingness of sharing a ride, which are difficult to predict. For this problem, in this study we propose GOTOGETHER, a recommender system for car-pooling services. Then, GOTOGETHER builds the list of recommended rides in order to maximise the success rate of the offered matches. The results show that the proposed solution quickly obtain an accurate prediction of the personalised user's choice.

Paper Name: Modeling the multihop ridematching problem with time windows and solving it using genetic algorithms

Author: Wesam Herbawi and Michael Weber

Paper Explanation —In ridesharing systems, drivers and riders decide to share their trips with each other for cost sharing, fun, reducing congestion, etc. The ride matching problem with time windows consists of matching a set of drivers' offers and a set of riders' requests based on their sources, destinations and timing with detour willingness. If a request can be matched with only one offer, then the problem is called single hop ride matching. It is called multichip ride matching, if a request can be matched with two offers at different times. In this work, we model the multichip ride matching problem with time windows and provide a genetic algorithm to solve it. Experimentation results on a realistic dataset indicate that the multichip ride matching could increase the number of matched requests as compared with single hop ride matching.

IV. EXISTING SYSTEM

In existing system user stand on taxi stand or street and then wait for cab or for taxi. At driver side, drivers wait on taxi stand for passenger or drive empty ride to find passenger.

Disadvantages:

1. Time consuming process
In existing system user stands on taxi stand or street and then waits for cab or for taxi.
2. Money consuming process
In existing taxi model the multiple passenger use the private car for the travelling.
3. Fuel consuming system
More and more cars are getting attached nowadays. This means more availability of cars and less number of rides for us.
4. Inconvenient system
Uber can track and choose highly rated drivers where taxi services are inconvenient and expensive.

V. PROPOSED SYSTEM

Propose system is design for passenger as well as driver. In propose system passenger can request for private or shared ride. Passenger pay ride bill as per the price. If passenger select shared ride then it will displayed to the nearest driver if driver accept that request then ride will be started and new nearest passenger which are on other path 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 ABC location to XYZ location. In second one, whenever new shared ride get started it will inform to those users who were travelled before from that location. In third one, if two alternative paths are available for driver to reach any destination then system will suggest that path which can provide maximum passenger to driver.

VI ALGORITHM

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

1. R is the radius of earth in meters.
 Lat_O = latitude of origin point, $Long_O$ = longitude of origin point
 Lat_T = latitude of target point, $Long_T$ = longitude of target point
2. Difference in latitude = $Lat_O - Lat_T$
Difference in longitude = $Long_O - Long_T$
3. Φ = Difference in latitude in radians
 Λ = Difference in longitude in radians
 O = Lat_O in radians.
 T = Lat_T in radians.
4. $A = \sin(\Phi/2) * \sin(\Phi/2) + \cos(O) * \cos(T) * \sin(\Lambda/2) * \sin(\Lambda/2)$
5. $B = \min(1, \sqrt{A})$
Distance = $2 * R * B$

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 simple majority of the category of nearest neighbors as the prediction value of the query Instance

BLOCK DEIAGRAM OF SYSTEM

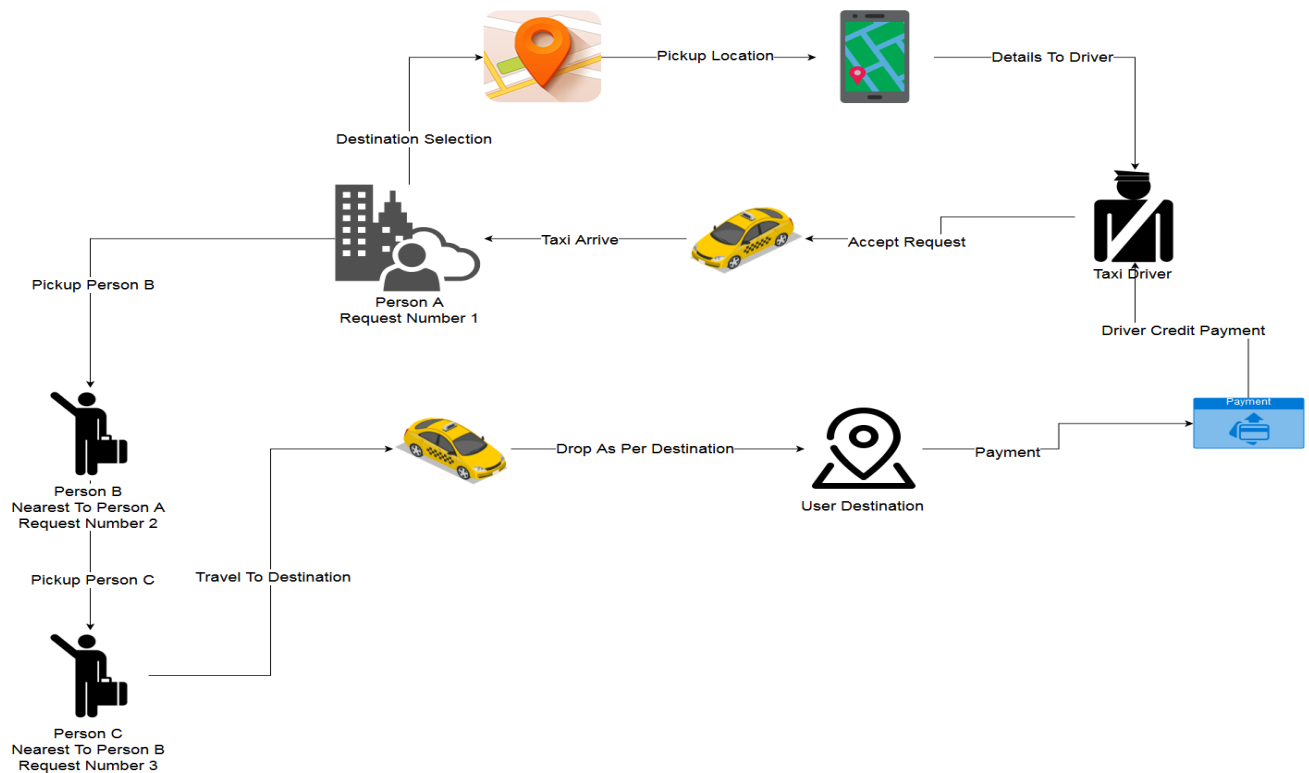


Figure 4.1. Block diagram of Booster Ride

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

VI. ADVANTAGES

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

VII. APPLICATION

1. To book cab online
2. To pay bills easily as per distance and as per ride choice.
3. View and provide rating to cab driver
4. Provide route recommendation to driver

VIII. CONCLUSION AND FUTURE SCOPE

Sharing ride 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 propose system we try to solve car sharing problem and develop a car sharing system based on smart phone platform and Google Map API.

ACKNOWLEDGMENT

Authors want to acknowledge Principal, Head of department and guide of their project for all the support and help rendered. To express profound feeling of appreciation to their regarded guardians for giving the motivation required to the finishing of paper.

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