Taxi ride sharing and Car pooling

Mahalakshmi.P*, G.K.Sandhia
SRM University, Chennai, India,
***Corresponding author: E-Mail: mahalakshmi.p@ktr.srmuniv.ac.in**

ABSTRACT

Objective: The objective of taxi ride sharing and carpooling is to share the taxi in an efficient way by reducing the time and cost of the passengers, which will also reduce the road traffic.

Methods/Analysis: Web crawling is a practice of extracting data's from various web solicitations through Access Control and Privileges for Location based forecasting to be done by the Service Provider.

Findings: The proposed Real Time Taxi Sharing Application which will ping the passengers as far as possible in a Time and Cost Efficient Way to Passengers. Developed a taxi-sharing scheme that receives taxi passengers' real-time ride requirements sent from smart mobiles and agendas appropriate taxis to pick up them via ride sharing and Private Riding, subject to time, capability, and financial constraints.

Novelty/Improvement: The grouping of time and space indexed crime data sets, with mobile technologies and online Geo-Social networks are used to deliver tailored and situation conscious security recommendations for smart phone and social network users.

KEY WORDS: web crawling, location-based prediction, heuristic methods, ridesharing.

1. INTRODUCTION

Taxi is an important transportation mode in urban areas, delivering millions of passengers to their Destinations. However, the Demand for Taxis in Peak time is much higher. Increasing the Taxi Count is not a wise idea as it will increase Road traffic also. So utilizing the available Resources in an operative way will be a good solution to this Problem. If Demand Gets Low the Taxi Drivers also cannot earn as their family expects. So to construct a Mobile Cloud Application that will probably help the Drivers and Passengers in a cost-effective way. Passengers are sometimes Very Lazy in nature to plan a Taxi Trip in advance, and Usually Submit a Ride Request Shortly before Departure. The Destination where the Traveler Travel will also dynamic in nature that their travel plan can change on the go. The grouping of time and space indexed crime data sets, with mobile technologies and online Geo-Social networks are used to deliver tailored and situation aware security recommendations for smart phone and social network users. Moreover, mobile devices and Geo- social network technologies are used to record the trajectory trace of a user using Check in Data: the set of (location, time) pairs where the user has been present. Car Polling Application for private Car Owners who want to Share their Vehicle during their Regular Rides. Usually Most Car Owners follow a regular path on a Routine Basis. Many Other Users who travel to the Same Place at the same time can be grouped on a mutual Agreement between Car Owner and the Traveler. Total Cost Spent on the Ride can be Shared based on the Travel Distance and Time Spent for the Ride. Each Taxi rider with a Mobile Should be registered to Our Application independently depending on the Role of the User. The privacy of each User will be preserved by giving pseudo Uniqueness and Personal information is kept Secure and will not be shared with other users for any reasons. Alternate Mobile numbers are used to trigger any kind of emergency and the Ride Status will be posteroled on Social Applications as you wish to be posted on your rides.

For Safety Personalized safety Predictions for user the Safety and Crime Index are calculated based on the trajectory. The vital objective of describing crime and security indexes is to provide users with protection advisory material. However, people are not equally exposed and vulnerable to all crime types. Age, gender and an array of personal features, preferences and choices play a central role in the perception of an individual's safety. Subsequently such material may not be freely reachable, as a replacement for the localization competencies of a user's mobile device to periodically record and locally store her trajectory trace. This enables us to define the crime index level with which a user is comfortable. The average crime index of the locations in her trajectory. When enough crime information exists to enable the prediction of the near-future crime index of a location, we introduce the concept of personalized safety: the customer is safe if his/her comfortable level of crime index equals or outstrips the forecasted crime index of his/her current locality.

2. LITERATURE SURVEY

Car pooling is a transport service organized by a big concern which inspires its employees to pick up colleagues while driving to/from endpoints to reduce the number of private cars travelling to/from the endpoints. The car pooling problem consists of describing the subsets of employees that will share each car and the paths the drivers should monitor, so that sharing is maximized and the sum of the path costs is reduced. The distinctive case of the car pooling problematic where all cars are identical can be modeled as a Dial-a-Ride Problem. In this paper, we suggest a heuristic method based on two integer programming formulations and the banding procedure combines three lower bounds derived from different relaxations of the problem. An effective higher bound is attained by the heuristic method, that converts the resolution of a Lagrangean minor bound into a viable resolution.

Following the difficulty of public transport to adequately cover all passenger transportation needs unlike original flexibility services are developing. Amongst car-pooling facilities, which are recognized on the clue that group of owners of car taking the same travel endpoint can share their cars. Until now these systems have had a narrow use due to lack of an actual information processing and communication support. In this study an integrated system for the organization of a car pooling service is offered, using several current Information and Communication Technologies (ICT's) technologies: web, GIS and SMS. The organization as a whole is an ideal element which resolves heuristically the definite routing problem. The system has been tested in a real-life case study.

Method to form and validate computation for managing cooperation that determine how communal devices can be formed in real-life situations, where causes can be estimated to have different and changeable objectives, predilections, and conveniences. The approaches are strivied and weighed in the demesne of ridesharing, by GPS logs of converting data. Is consider tests with synchronization amongst self-centered publics targeted at reducing the rate of moving and the effect of transportable on the location. This current scheduling, optimization, and expense contrivances that deliver reasonable and well-organized results to the rideshare cooperation task. This calculate various VCG-based recompense patterns concerning of their calculational effectiveness, economical stability, inducement compatibility, and plan. That extant the conduct and inspects provided by the ABC ridesharing model system. The system acquires about endpoints and predilections from GPS traces and calendars and deliberates time, fuel, conservational, and reasoning charges. We review how ABC generates rideshare ideas from thousands of real-life GPS traces collected from travellers of various community and redirect about the potential of employing the ABC methods to decrease the numerous vehicles on the road, thus reducing CO_2 emissions and fuel expenditures.

Taxi Ridesharing can be of significant social and environmental benefit, e.g. By saving energy consumption and satisfying people's commute needs. Despite the abundant prospective, taxi ridesharing, particularly with varying enquiries, is not studied. In this paper, it is defined that dynamic ridesharing issues and also suggest a service of taxi ridesharing for large scale. It serves competently most real-time requests posted by users and generates ridesharing agendas that decrease the distance travelled considerably. In this method, a taxi searching algorithm is suggested which uses a spatio temporal index for retrieving the runner taxis that are possibly satisfied the request of users quickly. A scheduling algorithm is then proposed. It checks each candidate taxi and inserts the query's trip into the schedule of the taxi which satisfies the query with minimum additional incurred travel distance. To challenge the dense load of computation, an sluggish nearest path computation approach is formulated to quickness up the algorithm for scheduling. The service using a GPS trajectory was assessed and the dataset for a period of 3 months which formed over 33,000 taxis. By learning the spatiotemporal distributions of real user queries from this dataset, we built an experimental platform that simulates user real behavior in captivating a taxi. Verified on this platform with experiments of wide range, method established its effectiveness, scalability and efficiency. For instance, suggested facility assists 25% added taxi users however convertible 13% travel distance associated with no-ridesharing (when the ratio of the number of queries to that of taxis is 6).

3. PROPOSED SYSTEM

To Discourse the issues mentioned above, Proposed a Real Time Taxi Sharing Application which will ping the passengers as far as possible in a Time and Cost Efficient Way both to Passengers and Drivers. Privacy will be retained to the Passengers depending on their Preference by Giving Individual Ride too. As far as Security is Concerned each Taxi User Mobile Application has an option to Report any Kind of Emergency, which will send SMS and Mail to Alerts to Registered Mobile Numbers in a Quick and Easy Way. The Server will also Dispatch a Message to Admin People with the GPS Location of the Cab Where the Emergency was triggered.

Also, we introduce and integrate a Car Polling Application for Private Car Owners who want to Share their Vehicle during their Regular Rides. Usually, Most Car Owners follow a regular path on a Routine Basis. Many Other Users who travel to the Same Location at the same time can be grouped on a mutual Agreement between Car Owner and the Traveler. Total Cost Spent on the Ride can be Shared based on the Travel Distance and Time Spent for the Ride. Each Taxi rider with a Mobile Should be registered to Our Application independently depending on the role of the User. The privacy of each User will be maintained by giving pseudo Identity and Personal information is kept Secure and will not be shared with other users for any reasons. Alternate Mobile numbers are used to trigger any kind of emergency and the Ride Status will be Posted on Social Applications as You wish to be posted on your rides.

For Safety Personalized safety Predictions for user the Safety and Crime Index are planned based on the trajectory. The definitive objective of describing crime and security indexes is to deliver users with security recommended material. However, people are not equally exposed and vulnerable to all crime types. Age, gender and an array of personal features, preferences and choices play a central role in the perception of an individual’s safety. Meanwhile such material may not be freely handy, thus the localization competences are used from a user’s mobile device to every so often record and locally store her trajectory trace. This enables us to define the crime index level with which a user is comfortable. The average crime index of the locations in her trajectory. When enough crime information exists to enable the prediction of the near-future crime index of a location, we introduce the concept of

personalized safety: the customer is harmless if she contented crime index level equivalents or outstrips the forecast crime index of her present location.

System Architecture: The system architecture is given below Fig.1 and it consists of five modules. They are:

- Various Roles of Users and Web crawling
- Building Real Time Taxi Sharing Application
- Taxi Searching and Ride Sharing
- Car Polling and bill Generation
- Personalized Context Aware Safety Prediction and Recommendation

Various Roles of Users and Web Crawling: There are Four Roles in our Application:Admin, Passenger, Car pooler and Taxi Driver. Each User Should be registered with our application except Admin as he authorizes User Registration and Generates Pseudo Identity. First Taxi driver and Car Pooler are registered with their Vehicle Identification Numbers and Mobile Numbers. After verification is done the Vehicle is able to be traced back by our Application at any Time. Taxi Drivers can update the Busy State and Free State on their Taxi's as when a Ride is Started or finished.

Web Crawling is a process of pulling out data's from various web applications through Access Control and Privileges for Location based prediction to be done by the Service Provider. All information for all places should be known. The Information's include Power-Cut Schedules from Electricity Department, Environment Variables from Weather department, and Criminal Records from Police Department. Each Department is diverse web applications and they have their own Admin level People maintaining the datasets. Service Provider should appeal the various departments so that the data's can be crawled from various web servers through web services. So a request will be sent separately to each department and it will concentrate as notifications on the Admin Pages. If they accept the requests sent from our service provider, we can get access to the web application datasets.

Building Real Time Taxi Sharing Application & GSN: Admin should set up an Application by placing Vehicles in Maps. No of Vehicles are Placed on Maps so as to show Demo. As User login to the application he have to choose whether he wants to travel Private (Alone) or wants a Shared Ride. Then the user has to choose the Source, Destination and should request for the Service. User current position will be marked on the Map as and when the user enters the Application.

We build and integrate a Geo-Social network which enables to predict issues that the user might face on a particular location, by evaluating other user complaints in that area. All Users can post complaints through GSN by taking snaps of the particular issue they met over there. Our Applications automatically embed the GPS values, date and time the snap was taken in the image. A small description can also be given so that the ISAFE Admin can easily identify the complainant and the watermark ensures the correctness of the issue. The Database will be updated based on that and any user can misuse a particular complaint. If many users abuse a particular complaint, it is identified as fake and eliminated, thereby making our application unique.

Taxi Searching and Ride Sharing: The Server will try to locate the Nearby Taxi by an Efficient Search Process and finds a best match to the user requirement and will dispatch for Pick up. A Brief charge Sheet is given for the ride request and the ride cost will be manipulated accordingly as the Ride is finished. If the request type is a ride sharing Request then the Passengers can be grouped by mutual acknowledgements, and can be accommodated based on Time, Space and Monetary Constrains. The Passengers inside the Car will be requested to give Permission for a new Comer, who is requesting a ride share service. If and only if all the Passengers inside accepts the request the Taxi Driver is intimated to pick up the New Passenger.

Car Pooling and Bill Generation: A separate Process is developed to support Car Pooling for regular route users and the owners routes is updated on their Registration Process. A Car Pooling request can be given by a user by mentioning the Route Details that should be followed regularly. The Server will find a Proper Car Pooler and will notify both Carpoolers and Requesters. the proposal then they will be pinged and tracked by your application. Bill will be generated based on the Type of travel, Travel Distance and time based on the Tariff mentioned while booking for a ride. Security can be achieved by having an emergency triggers and by posting the travel information on Social Media.Privacy will be retained to the Passengers depending on their Preference by Giving Individual Ride and using Pseudo Identities.

Personalized Context Aware Safety Prediction and Recommendation: Safety information however is most useful when provided for the present or near future. The User Trajectories play an important part in predicting the values which are extracted from the trajectory trace of particular users.The service provider predicts the safety levels if enough prediction values are available for a particular future location depending on GSN, Police Records, Weather Records, and Power Cut Schedules.

User Trajectory traces recorded by his mobile application and the GSN trace helps predicting the Crime Index level with which the user is comfortable. The Average Crime Index values of user's trajectory must be equal or greater than the near future location Crime Index Values. The CI Values depends on the wattage of crimes reported

on that particular location. The prediction is done in 3 levels showing Red, Yellow, Green based on the safety prediction through trajectory trace which guides the user in his destination location as well as makes sure he or she is taking enough precautions in that particular location before arriving to the location.

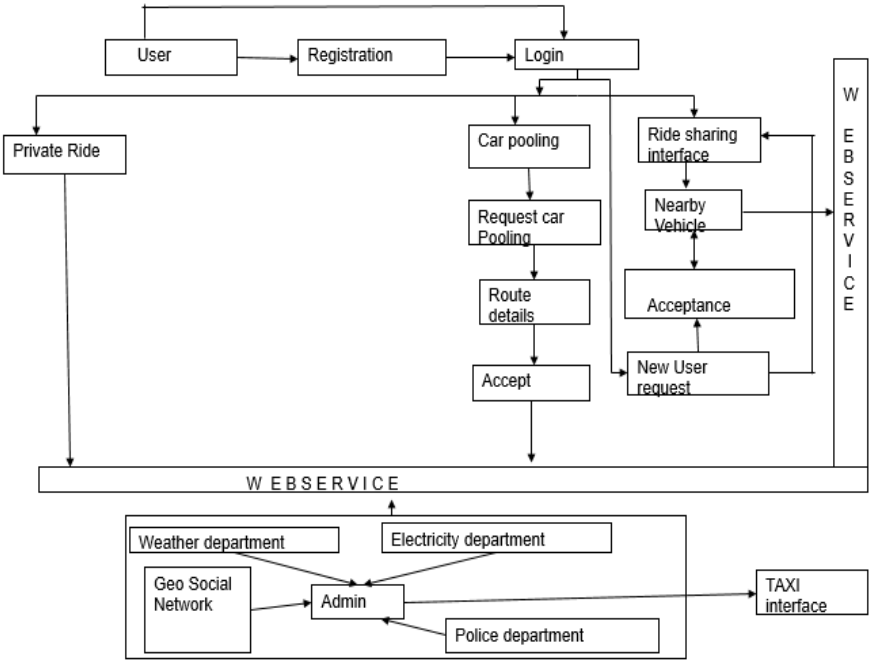

Fig.1. Architecture of Taxi Ride Sharing System

4. CONCLUSION

Proposed Taxi Ridesharing & Car Pooling Application allows the user to travel to their endpoints on the fly with comfort and fair subject to time, capacity, and economic constraints for both user and driver, guaranteeing the privacy and security concerns and also ensures the user for taking safeguards on the particular endpoint liable on the personalized context aware safety levels.

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