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Android Based Fuel and Resource Saving System

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***Abstract*—** Many carpool and ride-sharing solutions have been proposed and even developed in the previous decades, but they were rarely able to attain a global user base, at least not up until recently. That was mostly because many of them were not initially designed as scalable, leaving their users without user friendly user experiences as their user base grew, and often their cell-phone or desktop client reach was not unique enough, making them available only to a small portion of mobile client devices and/or desktop users. This paper explains and describes the design concepts, distribution and cloud computing strategies the authors feel any future global carpool and ride-sharing solution could follow, making it very scalable and unique enough to successfully fulfill user requirements with user friendly user interface

Keywords: ABF, RSS, Carpooling system

I. INTRODUCTION

With the growth of economic development in urban area, the needs of transportation is exponentially increased, meanwhile brings various threats. These threats mainly the rise of oil prices, air pollution, and urban traffic congestion, are not only worsening people`s quality of life but also overwhelming natural and human-centered ecosystems. In most cities, track facilities including roads, parking lots, and the like provide insufficient capacities to serve good transportation especially on rush hours. In addition, the use of public transportation is relatively inconvenient than the use of private one. More use of private vehicles more will be the mentioned threats. For solving the problems due to these threats, various theories and methodologies were continuingly proposed in academic, industrial, and political circles. A well-known idea, carpooling, has been a widely accepted concept. In recent years, carpooling in conjunction with the use of information and communications technology (ICT) shows its potential to implement real trails of better transportation style. However in reality, most of current carpooling systems or applications are not functioned well as the expected. The reason varies according to the weakness of different carpooling designs. With the advances in Mobile technology, mobiles are proving to be the next generation computers. Developers are trying to explore the potential of mobile technology to its fullest. Pool' up is an application that adds on to the pool of already existing, useful software's. Pool' up runs on a mobile and using GPS technology enables car-pooling in a more efficient and flexible manner.

Carpooling is a concept in which people who travel to the same destination can share their vehicle with others which reduces the fuel cost, reduces the traffic on the road and ultimately reduces pollution and global warming. With the ever-increasing population worldwide, it is necessary to carpool to preserve the world for our descendants. There are many websites for carpooling but these websites fail during the actual working. Carpooling websites are not flexible and does not give an assurance during the payment matters. The Carpooling application for apple phone was also not that much flexible because of driver can keep tracking the passenger and the passenger does not know the status of driver and also there were issues related to security. The apple application "Carticipate" is not flexible in countries like India, where people have operating system like android, symbian. So we developed an application on android as it is more user-friendly and easily available.

Transportation is a major issue these days. 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. An overabundance of cars creates various problems which include increased traffic, increase pollution, parking congestion and many more. Car sharing aims at solving this problem by targeting the empty seats in the private cars. Employees of the same area or the students going to the same school can carpool. This can be done as the know each other and can communicate. But when going on an intercity trip you are not aware if some other person also intends to make the same journey. Thus the applications helps you in seeing 1 people and journey schedules and make an informed decision about do you wish to travel alone or save money and travel with a safe company. Furthermore, carpooling has documented social and environmental benefits that include: It helps in reducing traffic congestion as number of vehicles on the road can be

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reduced significantly. Miles of travel of a particular vehicle and emission of gases by the vehicles can also be reduced. As the system aims at the empty seats it increase vehicle occupancy. More efficient land use as parking requirement is reduced. Thus also helps in saving cost of building and maintaining infrastructure.

Carpooling is the sharing of rides in a private vehicle among two or more individuals. It involves the use of one person's private or company vehicle to carry one or more fellow passengers. Carpooling is the easiest and most common ridesharing arrangement. It usually consists two to four persons commuting in a vehicle. Sometimes carpoolers share driving, and other responsibilities. In other cases, one person does all the driving and is reimbursed for mileage by his or her riders. The carpool driver may pick up passengers from their home or the passenger may find a way to get to the driver's home at a specified time or they may meet at a particular location. Car-pooling defined as an effort by drivers of motor cars who agree to take turn to share rides from places of residence to places of employment. As the definition implies, car-pooling therefore refers only to the exercises carried out by the owners and drivers of private motor cars.

For example, if two persons A and B would like to car pool, they must first be owners and drivers of cars. They will then organize among themselves as to who is to drive on which day or which route to follow, and so forth. Preferably, A and B would alternate driving on a daily or weekly basis, or on any other basis they prefer. There will not be any charges or fees involved. Excluded from the definition are those who ride share but do not own a motor car; and those who own motor cars ride share regularly but did not share driving. In these two cases, payments of fees are usually involved. If a car owner drives alone to work every day and spends approx. Rs. 5392 including fuel, maintenance and parking etc. It is assumed that on an average, he travels 40 kilometer per day. If he share the car with three carpoolers, who have their own car and if they drive to the same workplace. Then each of them can save Rs. 4044 per month of the total spent on commuting to the work place. All the four carpoolers have to bring their own car for a week in a month and drive themselves with other three carpoolers. Carpooling is an android based application which will provide the advanced searching technique and provide most relevant result for the carpooling in the city. Taking an idea of previous system we developed an application for android devices and which can track both passenger and driver. This system is a user friendly. Carpooling system have many application in real time system. Some are following

1. It reduces the traffic problem.
2. It is an environment friendly and the user friendly.
3. It also reduces environmental pollution by limiting fuel consumption.
4. Carpooling is an easy and effective way to reduce your environmental impact and save cash.
5. Reduction in the number of vehicle on the road.
6. Reduce in expense of gas.

So we developed an application on android which is easily handle to the users. Now everyone has a smartphone with android operating system. This system will be designed tacking into consideration the user need about safety.

Paper Statement

There is acute problem of traffic on roads these days and the increasing fuel prices add to the misery of daily users of personal vehicles. Also use of vehicles causes pollution which has its adverse effects. Car sharing is a solution but issues like security and trust come into picture. Can this problem be solved?

Solution to this problem is mobile based Carpool system. The Carpool system would enable its user a safe and secure way to share cars. This could include both short daily journeys such as going to workplace within the city and also long inter-city trips.

Motivation

Carpooling is a concept in which people who travel to the same destination can share their vehicle with others which reduces the fuel cost, reduces the traffic on the road and ultimately reduces pollution and global warming.

Objective

The objective of car-pooling is to realize collective rides. Carpooling is at least two people riding in a car usually belonging to one of the occupants, whether one person always drives or the carpoolers alternate driving. Driver and passenger know before the trip that they will share the ride and at what time they will be leaving. Professional and/or commercial vehicles are excluded. Both the driver and the passenger(s) are considered as car-poolers. So, the service is based on: a driver that offers a lift using its private car some people asking for a lift. Carpooling is a very efficient way to: reduce travel costs by sharing the expenses among the carpoolers; reduce traffic congestion and increase the possibility of parking; reduce pollution produced by cars emissions; Socialize with other people. Reduce psychophysical stress induced by traffic.

Contributions

- As we are developing android application on the topic mentioned above, it will be easy to use and easy to access the status of the tours, available rides, status of your request.
- We will be adding the security check of every user by getting there UID, that can be PAN card no., Driving license No. etc
- Due to added security check it will make the passegers feel safe, as the person they will be travelling with may be a complete stranger.

II. Related Works

Previous System

In previous system there is no security and no environment friendly. There are more problems occurred in this system to overcome this problem we proposed this system for carpooling application. The Carticipate carpool application is not susceptible because it was not able to fulfill the requirement which are listed below:-

1. Passenger cannot track the driver.
2. Cannot be used on other operating systems.
3. More Expensive
4. Security issues.

Carticipate tends to struggle from lack of users. Only 10.8% of all commuters carpool due reasons such as finding people willing to carpool with them. There are different websites which help in carpooling but fails at some level while dealing with issues like payment, security and real-time tracking.

Proposed System

To overcome the drawbacks of previous system or applications, we proposed an application for android users. In our system we are mainly dealing with security issues which resulted in failure of previous systems. To deal with security issues we are using a comment and rating system. There is increasing fuel prices add to the misery of daily users of personal vehicle. But also there are more problem like environment pollution are occurred. Car sharing is the solution of this problem but there is no security and trust come into this picture. To avoid this problem we proposed the Carpooling System .In this system we also used the mobile phone. Now a day many people have an android phone to use this system. This is a too much simple and easy system to use. To consider all this problem and we proposed this application. This system is used for city-city travel or long travel. Now a day this system is very important for environment. This system give the security as well as both driver and passenger can stay in touch with each-other. For this purpose we use the registration online. Path is to be important into this system. Using this system we reduce pollution and help to the environment. For this purpose we proposed he carpooling system. The reason behind choosing Android is it is more popular among users and is less expensive. The applications can be easily downloaded from the Google Play and can be used whenever want. Inspired by the use of android applications in different sectors, we tried to develop an application which will help in conserving environment and also in reducing traffic congestion problems. The main aim or goal of our system is to provide an application which will help in serving the customer requirements and also because of following points listed below:

1. Enhanced security for women passenger.
2. High reliability due to real-time tracking.
3. Enhanced payment features.
4. Reviewing the history.
5. Both driver and passenger can stay in touch with each-other.

III. Solution/Need/Importance of the Study Problem Statement/Objectives

In this section author address of solution/need/importance of the study problem statement/objectives

IV. FEASIBILIT STUDY

The feasibility of the system can be examined under heads viz. Technical feasibility, Economical feasibility & Operational feasibility.

1. Technical Feasibility: Technical feasibility plays an important role in feasibility study. This study reveals all the technical aspects & its corresponding results. H/W & S/W is as specified in H/W & S/W requirement specification. We use the android mobile phone for implementation.
2. Economical Feasibility: Economical feasibility is one of the most important aspects to be considered .This study reveals all the benefits & draw-backs in implementation of system .The total cost incurred for the development & implementation will be least as computer .JDK and ADT are free toolkit.so cost is minimum.
3. Operational Feasibility: Operational feasibility is the important part of feasibility study. In it, we consider the capabilities of end user that how can easily handle our system with greater accuracy. Our project is a Graphical User Interface (GUI) based project. We will tried to provide a good GUI in our project which will not make any confusion for the user and user can easily operate it.

V. Methodology

JSON Parsing

JSON (JavaScript Object Notation) is the best alternative to XML for storing data in less space. It is easy to parse and access data stored in JSON format.

JSON is a text-based open standard designed for human-readable data interchange. It is derived from the JavaScript scripting language for representing simple data structure and associative arrays, called objects. Despite its relationship to JavaScript, it is language-independent, with parsers available for many languages. The JSON format was originally specified by Douglas Crock ford, and is described in RFC 4627.The JSON _le name extension is .json. The

JSON format is often used for serializing and transmitting structured data over a network connection. It is used primarily to transmit data between a server and web application, serving as an alternative to XML.

Advantages of JSON:-

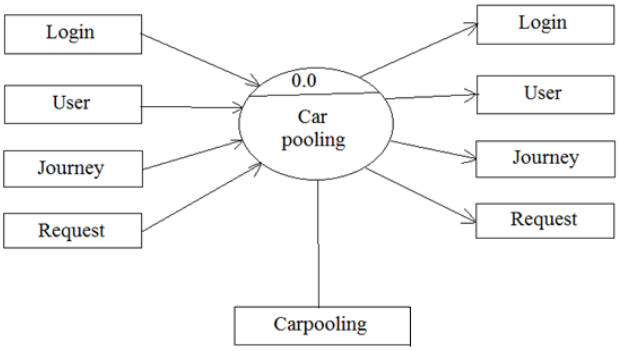
1. JSON produces slightly smaller documents.
2. JSON is easier to use in JavaScript.

3. Parsing JSON encoded data is much faster than parsing XML encoded data.

JSON is not: A document format. JSON is not a markup language. JSON is not a general serialization format. No cyclic/recurring structures. No invisible structure and no functions. The JSON text format is syntactically identical to the code for creating Java Script objects. Because of this similarity, instead of using a parser, a Java Script program can use the built in eval () function and execute JSON data to produce native JavaScript objects.

RESULT&DISCUSSION/EXPERIMENTAL/ANALYSIS/IMPLEMENTATION

Carpooling system is very effective means to reduce pollution and the congestion of friendly way to travel, it also provides an opportunity to meet new people. As today most people prefer private vehicle to travel due to delay caused in public transport system and luxuries provided by private vehicles. pre-registration ensure that only identified people get into the vehicle so that trust can be established.



VI. CONCLUSION

Carpooling system is very effective means to reduce pollution and the congestion of vehicles in cities. It also provides an eco-friendly way to travel. It also provides an opportunity to meet new people. As today most people prefer private vehicle to travel due to delay caused in public transport system and luxuries provided by private vehicles. Pre-registration ensures that only identified people get into the vehicle so that trust can be established. The people registered are allotted specific days on which they should take their private vehicle, so that no inconvenience is caused to its registered passengers for daily commute. Thus the proposed carpooling system will be effective in reducing environment pollution.

VII. SCOPE FOR FURTHER RESEARCH

Carpooling is car-sharing; it helps save money and also is a way to minimize pollution. Carpooling is well established and used on daily basis in China and the US. We need to set up some strategies to encourage carpooling in India. The system can be used in all universities also colleges and other educational organizations and institutes. The proposed system can be used to inform events by any organization.

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