Smart Carpooling System For University

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Abstract

The increase in college populations have resulted in insufficient transportation facilities. Thus use of private vehicle has become the choice of transport. Parking problems, Traffic and increased fuel combustion are some of the problems faced due to increase in the number of vehicles. Smart Carpooling system for universities proposed in this paper can be used to overcome this problems. It enables teachers and students to Carpool with their fellow colleagues to and from the university. It gives the people plying to the university or college more options to choose from.

The proposed android application will give a boost to carpooling since carpooling is already encouraged by government and institutions. The smart carpooling system for university would thus result in savings, increased security and increased vehicle occupancy.

Keywords: carpooling for university, Smart System, Peer Carpooling.

1. Introduction

Current socio-economic conditions in cities impose an increased need for mobility. Some of the transportation energy consumed during peak commuter periods is wasted through slow running in congested traffic. Most large cities are overcrowded with vehicles, facing a continuously growing volume of traffic. Traffic congestions, an everyday phenomenon, are basically caused by the large number of vehicles, moving or searching for a parking place. Private vehicles act as one of the main elements of transportation. They result in significant fuel consumption. To manage fuel consumption it is important to reduce automobile use. A carpool is a system in which several people share rides to school or University. This system helps save money by dividing fuel costs among several individuals, instead of each person bearing the cost of his own fuel. It also reduces environmental pollution by limiting fuel consumption and reducing the number of vehicles on the road and subsequent emissions. Carpooling is an easy and green way to save cash without compromising with the environment. By finding a colleague to share the drive with, you will also be reducing traffic congestion for yourself and others. The reduction in the number of cars will thus ease the load on transportation infrastructure. The more you carpool, the more your wallet, car, and the environment will thank you. So we developed an application on android which is easily available to users as everyone has a smartphone with android operating system.

2. History (ref Wikipedia)

Carpooling first became prominent in the United States as a rationing tactic during World War II. It returned in the mid-1970s due to the 1973 oil crisis and the 1979 energy crisis. At that time the first employee vanpools were organized at Chrysler and 3M. Carpooling declined precipitously between the 1970s and the 2000s, peaking in the US in 1970 with a commute mode share of 20.4%. By 2011 it was down to 9.7%. In large part this has been attributed to the dramatic fall in gas prices (45%) during the 1980s. The character of carpool travel has been shifting from the "Dagwood Bumstead" variety, in which each rider is picked up in sequence, to a "park and ride" variety, where all the travelers meet at a common location. The popularity of the Internet and mobile phones has greatly helped carpooling to expand, enabling people to offer and find rides thanks to easy-to-use and reliable online transport marketplaces. These websites are commonly used for one-off long-distance journeys with high fuel costs.

3. Related work

The existing carpooling is a global system wherein all the people can participate in the carpooling. The global aspect of the system can also hamper its efficiency. Since the car plying is between different sources and different destinations there aren't a constant load factor that a car can maintain overtime. In Europe, long-distance car-pooling has become increasingly popular over the past years, thanks to Germany's Mitfahrgelegenheit (carpooling.com), and France's BlaBlaCar.
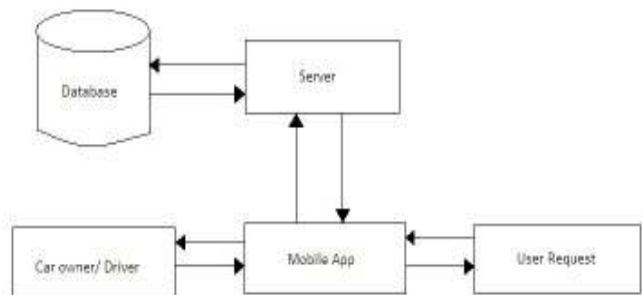
Fig 2.Actual Working of the system

4. Smart carpooling system for University

A. System Architecture

The system architecture shown in fig 1 shows the actual working of the system. The passenger and driver are the two main actors that are involved in interaction with the rest of the system. The application is installed on multiple devices so as to depict the transaction that will occur during carpooling.
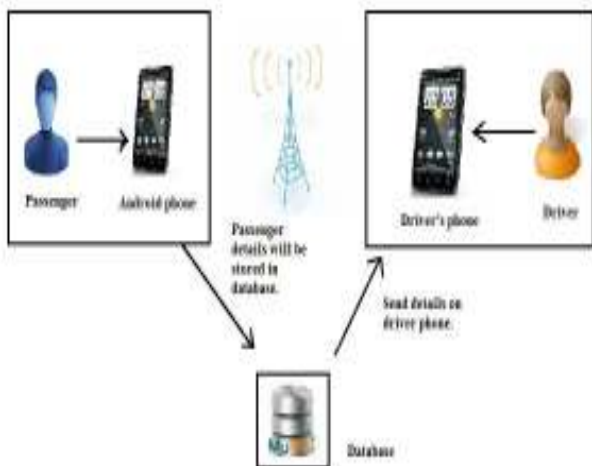
B. System Design

Fig1. System architecture with internet access

Fig 3.1 Search for Car

The System will contain the following things:-

- The database which will contain the driver account as well as passenger account.
- The application deployed on the drivers and passengers android phone
- An android phone that will be connected to the internet.
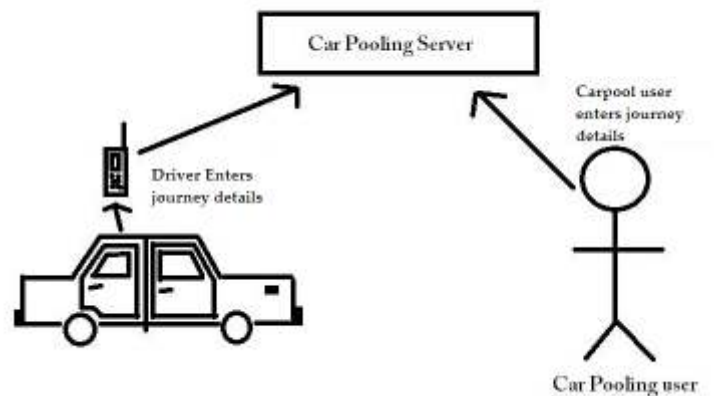- Database server to serve the request.
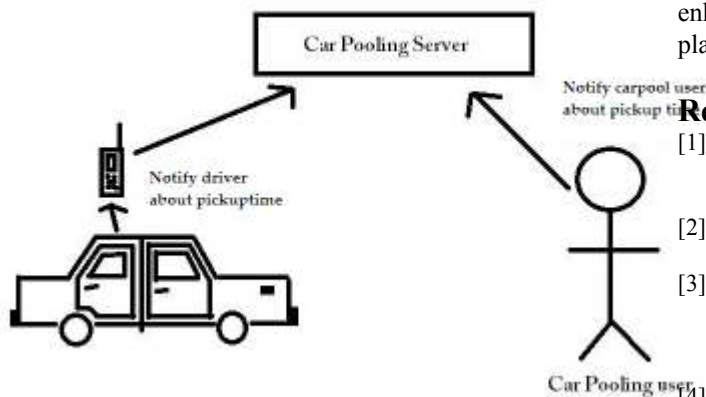
results in increased efficiency. However there are future enhancements that can be done in future. Future enhancements include advanced payment systems, multi-platform support etc.

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Fig 3.2 Notification about Time

C. Requirements

Hardware requirements
1. Processor- Core2duo
2. Ram - 4 GB
3. Hard disk- 1TB

Software requirements
1. Windows 7
2. Android Studio
3. Java JDK
4. MySQL
5. SQL Lite

5. Advantages

- High level of efficiency due to common embarking/Disembarking point.
- Savings on student's expenses.
- Flexibility
- High level of trust due to pool participants being of similar background.
- Increased security due to know participants.

6. Conclusion

Thus we propose to develop a Smart Car Pooling system for university that can increase the vehicle occupancy and reduce problems like pollution, parking problems, fuel wastage and traffic problems. The system will change the way commuting to a university is being done. Since the source or destination of the route will be same hence its