



## Review Paper On CarPooling Using Android Operating System-A Step Towards Green Environment

*Swati.R.Tare*

*Department of CSE*

*J.S.P.M's BSIOTR(W)*

*University of Pune , India.*

*Neha B.Khalate*

*Department of CSE*

*J.S.P.M's BSIOTR(W)*

*University of Pune, India.*

*Ajita A.Mahapadi*

*Department of CSE*

*J.S.P.M's BSIOTR(W)*

*University of Pune, India.*

**Abstract**—As a rapid increase in urbanization, there are huge problems face in travelling. People are migrating from on city to other in search of jobs. This result in increasing population and thus resulting in insufficient transportation facilities. Due to this people prefer to travel by their own vehicle than using public transportation. This leads to problems like increase in number of vehicles, traffic, fuel combustion, heavy cost on resources, parking problems. Using two different vehicles leads to an increase in personal expenses, stress. To overcome this hurdle, a quite different but realistic solution called “CarPooling” can be used. Carpooling is concept in which people travelling to same destination can share car without using different cars. Carpooling can also be called ride-sharing. Carpooling will help in reducing the problems of traffic jams, fuel combustion, also help in controlling pollution and resulting in green environment. This application will successfully overcome the drawbacks of previous application which can be accessed only by the driver and not the passenger which resulted in inflexibility and also is less expensive and anyone can afford it on their Smartphone and is quite more user-friendly.

**Keywords**—Carpooling; Android; Google maps; Real-time tracking; rating; comment.

### I. INTRODUCTION

Due to increasing population, the metropolitan cities are facing an acute problem of traffic and congestion. Due to lack of flexibility of public transportation, people prefer to travel by their own vehicles which results in gigantic increase in number of vehicles. Due to increasing number of vehicles, problems of fuel combustion, pollution are increasing at an alarming rate. This will result in extinction of natural resources like petrol, diesel and also harming the environment by releasing the contents of carbon dioxide, and other harmful gases in surrounding. To overcome or to find a accurate solution a concept of carpooling comes into picture. A carpool is a system in which several people share rides to work, school or other destinations. 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 effective way to reduce your environmental impact and save cash. By finding a co-worker or neighbour (or several) to share the drive with, you will also be reducing traffic congestion for yourself and others. Bonus: reducing the number of miles put on your car will increase its lifetime. The more you carpool, the more your wallet, car, and the environment will thank you. To overcome this problem an application was developed on smartphone operating on iOS operating system but this application was not flexible for users having android operating system. So we developed an application on android which is easily available to users as everyone has a smartphone with android operating system. Taking an idea from previous application we developed an application for android devices and which can track both passenger and driver. The paper is organized in different section like, Section II containing the review of previous work and their limitation, Section III contains the architecture of proposed system and how the system will work, Section IV will contain the result and analysis and finally the Section V will contain the conclusion and future works.

### II. Related Work

#### A. Need for Carpooling Application:-

There are many websites for carpooling but these websites fail during the actual working [2]. 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” [3] 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.

#### B. Limitations of Previous Systems:-

The Carticipate carpool application is not susceptible because it was not able to fulfil the requirement which are listed below:-

- User/Passenger cannot track the driver[3].
- Cannot be used on other operating systems[3].
- More Expensive.
- Security issues.

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

#### C. Proposed solution to Carpool using Android:-

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 the failure of previous systems. To deal with security issues we are using a comment and rating system. The passenger and driver are given a provision to rate and comment each other. These details will be helpful for people who are travelling with the same passenger and driver. Our system will contain a driver module, passenger module, modules for comment and rating and for Google Maps. The system will be communicating with a XAMPP server which has MySQL and PHP as a cross-platform. The system will work in a two-way communication between driver and passenger and thus creating a flexible environment. The details given by the passenger will be displayed on the driver's phone and vice-versa. The passenger can book seats by reviewing the history and then taking a final decision of whether to carpool or not. The reason for choosing Android is that it is more popular among users and is less expensive. The application can be easily downloaded from Google Play and can be used whenever wanted. Inspired by the use of Android applications in different sectors, we tried to develop an application which will help in conserving the 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 the following points listed below:

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

### III. The Carpool Android System

#### A. System Architecture:-

The system architecture shown in Fig. 1 shows how the system actually works or interacts. The main modules are the passenger and driver. The application will be installed on both devices and they will interact with each other.

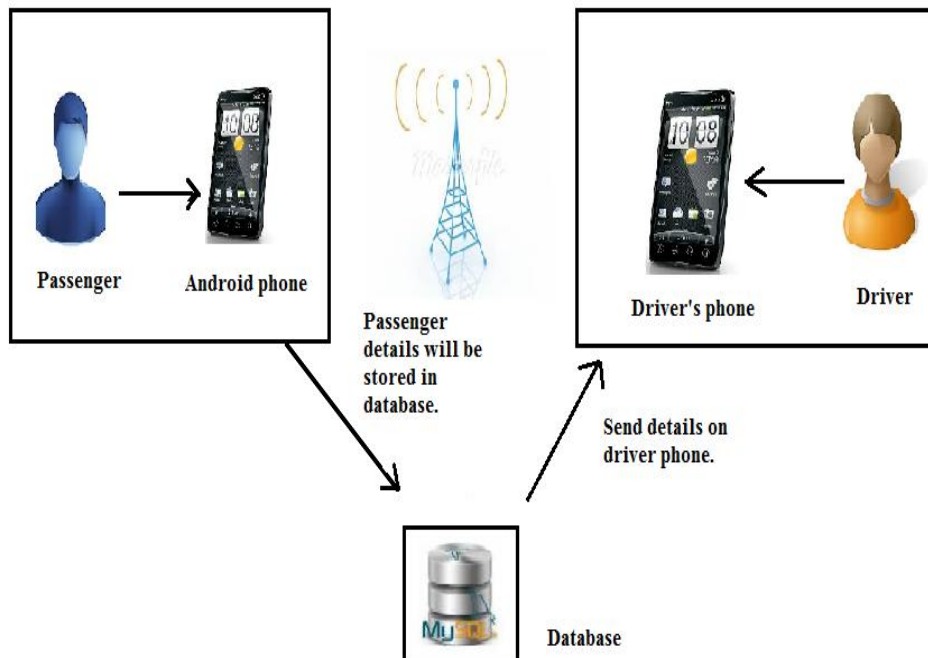


Fig 1. System Architecture with internet access.

The Carpool application will contain the most important things and they are listed below:-

- The application will be deployed on the driver and passenger Android phone.
- The database which will allot ID to the driver and passenger.
- The central database which will manage other databases and control the activities.
- The ratings and comments history will be displayed on mobile phones.

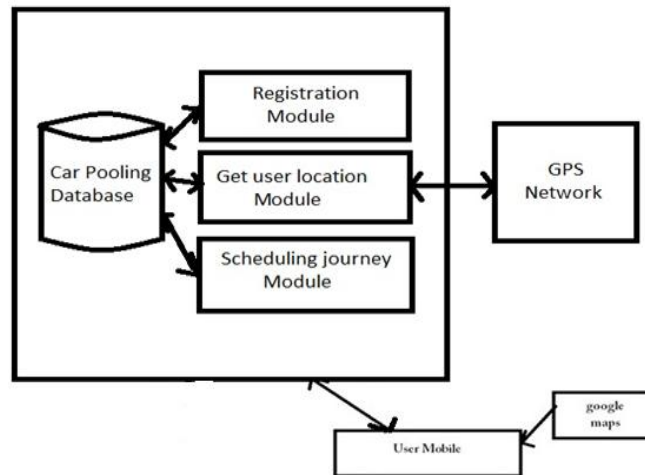


Fig 2. Actual Working of Application

Thus the above fig 2 shows the actual working of the application. The database plays an important role as it is automatically updated and process all activities

### B. System Design

In this we are giving a detailed description of how exactly the user and passengers will interact and also some use-case diagram and also class diagram. The passenger or the driver has to register themselves if they are using the application for first time. If they are already registered they have to login using their phone number and password. After login, they have to select whether they are driver or user. If he/she is a driver then the details of carpool will be filled and it will be stored in database. If he/she is a passenger then the details will be displayed on their respective phones. The passenger will fill the details and seats will be booked.

After successful carpool, the driver as well as passenger will rate and comment and this will be stored in database. The google maps will be displayed for the source and destination given by driver.

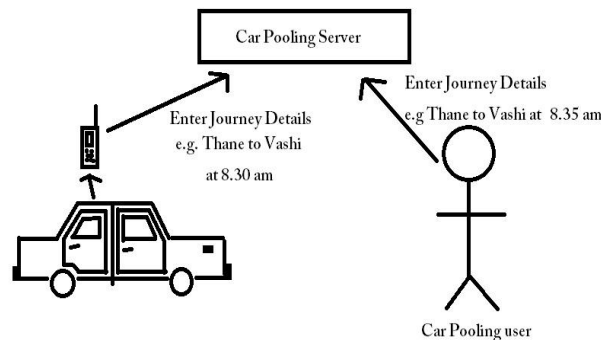


Fig 3.a. Start of Journey Situation

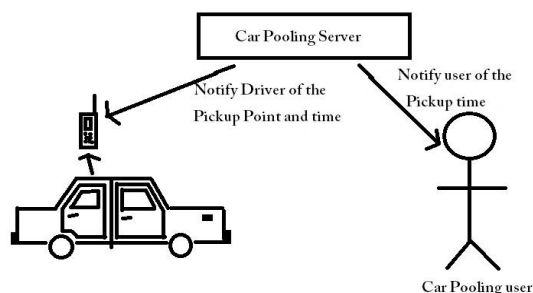


Fig 3.a.1 Once the request is accepted

#### IV.Result & Analysis

##### A. System Specification.

The Carpooling application is designed on android operating system which is linux based operating system. The Carpool application will work on version 2.2 and all highest versions. The database is mysql which is in cross platform with PHP. Google maps are used for real-time tracking.

##### B. Analysis

Fig 4.shows how the application will help in reducing the pollution and traffic problem.The application will cut-down personal expenses and cost. Thus increasing the income.The diagram shows the total benefit of application.The graph shows the parameters like reduction in fuel,usabilty,cost,and reliability.

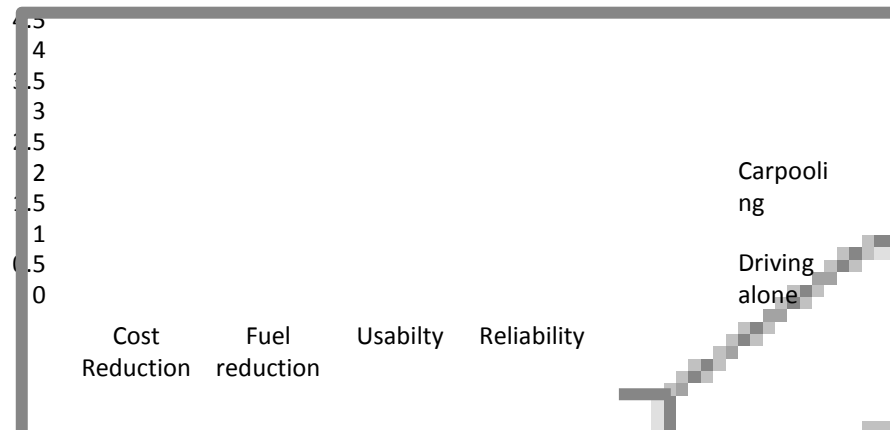


Fig.4 Showing how carpooling will be beneficial from driving alone

#### V. Conclusion And Future Work

In this paper,we presented a solution to an ever-rising traffic problems which will prove a boon to next generation driving way.We always strive to bring new change in society,which will change the life of people so Carpooling will help in bringing an emergent change and also help in providing beneficial features to society,individual and last but not least environment. In next phase we will be working on bike-pooling and also providing features like artificial passengers which will find the people on the way automatically.

#### Acknowledgement

This work is completed under the guidance of Prof. Sanchika Bajpai and Prof. Jayant Jadhav. We express our gratitude towards them for their continuous support on this research. We would also like to thank the reviewers for their suggestions to improve this paper.

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