Reducing Transportation Cost by Managing Rides Using an Android Application

Dr. S. Roselin Mary[1], S. Prabhu[2]

[1,2] *Department of Computer Science and Engineering,*
Anand Institute of Higher Technology,Kazhipattur,Chennai-603103.

---***---

Abstract - Transportation has become a mandatory requirement for every person in their life. It is inevitable that everyone are required to travel to some distance to complete their daily activities. Although there are lots of the public transport modes such as Buses and Trains, they alone are not sufficient to satisfy the requirements of the people. The proposed system involves the management of providing rides in bikes and cars by the vehicle owners with compensation benefits. Initially, the user is required to register with their personal information. Once their account is activated, they will be asked for vehicle information in case of vehicle owner along with their national identity proofs which is for both the vehicle owner and the commuters. Users can start or book a ride as soon as their national identity is verified by the system administrator. Amount for the ride will be calculated based on the distance travelled with respect to the fuel economy of the vehicle and number of persons in case if the vehicle is a four wheeler. Thus, the application enhances transportation by reducing the cost, traffic and pollution along with the cost benefits to the vehicle owners.

Keywords: Global Positioning System, Mobile application, Ride sharing, Transportation.

I. INTRODUCTION

Mobile computing is a ubiquitous computing in which computer is expected to be transported during normal usage, which allows for transmission of data, voice and video. Mobile computing encompasses a number of technologies and devices, such as wireless LANs, notebook computers and smartphones. Android comes with the great opportunity of implementing personal mobile applications. Mobile applications are playing an ever-increasing role within transportations, e-ticketing and yields many benefits. Android's default user interface is mainly based on direct manipulation using touch inputs along with a virtual keyboard. Android has a growing selection of third-party applications, which can be acquired by users by downloading and installing the application's APK file. Android devices are usually battery-powered; Android is designed to manage processes to keep power consumption at a minimum. Android manages the applications stored in memory automatically. The base Android operating system is open-source software. Android smartphone users have access to few taxi and online ticketing applications. Many such devices can connect to the internet and interconnect with other devices car entertainment systems or headsets via Wi-Fi, Bluetooth or near field communication (NFC). Transportation is one of the key requirements for any people in the world. Maps plays a major role in transportation such a suggesting routes, identifying locations and tracking persons nowadays. Almost all android smartphones have a GPS feature. The GPS receiver is used for tracking people based on their smartphone location and estimate distance from the current location to a certain place. The android devices require internet connection and normally uses a GPS satellite connection to determine its location. Mobile Application Development is the term used to denote the act or process by which application software are developed for mobile devices, such as personal digital assistants, enterprise digital assistants or mobile phones. These applications can be pre-installed on phones during manufacturing platforms, or delivered as web applications using server-side or client-side processing (e.g. JavaScript) to provide an "application-like" experience within a Web browser. Application software developers also must consider a long array of screen sizes, hardware specifications, and configurations because of intense competition in mobile software and changes within each of the platforms. Mobile app development has been steadily growing, in revenues and jobs created.

II. RELATED WORKS

The "Smart 24x7" android application has been created for the personal safety & security [1] for personal & business use that alerts emergency contacts with your GPS location. This is a unique approach towards strengthening citizen security. This application can also be used by citizens to secure them when they are in distress by sending SOS signals to their closed ones.

Vroom is an on demand two wheeler ride sharing platform [2] designed to provide a safe, quick, and affordable means of transportation enabling first and last mile connectivity to city commuters. It is a taxi application where only the drivers assigned by the company to attend passengers.

Two Factor Authentication Using Mobile Phone (Android) has been developed [3]. The main purpose of this method is to provide the stronger authentication in online transaction. Mobile phone is used for the purpose of generation of OTP. It improves the security of Internet payments by providing an additional password to the user. The primary benefit of this system is the reduction in disputed transactions and the resultant exception handling expense and losses.

Analysis of advanced issues in mobile security in android operating system [4] about the android operating system security which has been developed for mobile phones. Android mobile applications are evolving at a meteor pace to given a rich and fast user experience. For verifying the reputation of the any application, the android device contacts AM cloud. The increasing order of the hardware and software platforms of mobile devices and promotion of mobile internet have brought a great opportunity to the web application to develop for mobile platforms.

Navigation Systems for Fastest Route which was developed to use the GPS navigation system by combining the use of signals from the satellites with interactive on-board maps [5], navigation systems can plot routes of travel to a given destination based on a number of variables. Some navigation systems are interconnected with sources of traffic information, enabling them to automatically account for construction and congestion when determining the best route.

III. PROPOSED SYSTEM

This system is to manage rides, which is not a profit based management. The vehicle owners and also the passengers must register with the application before availing the services offered by the system. Once the registration is successful user can login into the application. Vehicle owners who are going to start to a place can update the information such as source destinations and number of available seats and submit. Passengers who are looking for a ride can search for the available rides nearby and choose the one which suites them the most and request them. Once the request is accepted by the vehicle owner the trip is confirmed location of the passenger is lively tracked and shown to the driver to pick them and start the trip after otp verification. On completion of the trip the amount is calculated based on the fuel consumed to travel to that particular distance and displayed through application to both the users. Review and rating system is established for each successful trip to certify the users.
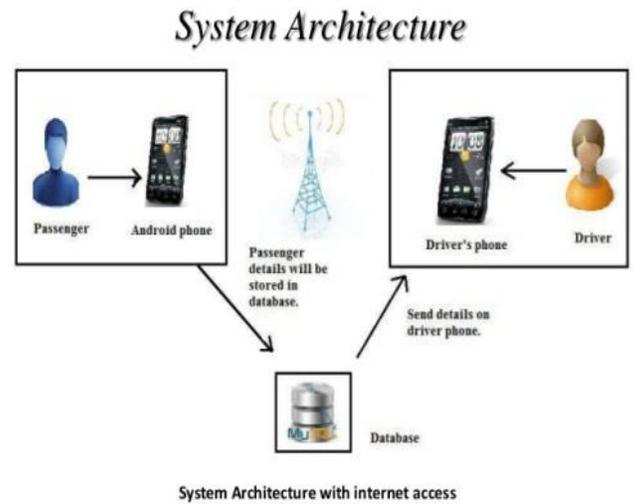

**Figure 1: Architecture Diagram**

VEHICLE OWNER

Vehicle owners can view a splash page when they login. The application has GPS based location detector which allows to spot the passenger. Vehicle owner can sign in and sign off from the application as well as set the current status of the ride. The vehicle owner can accept or reject the ride request based on their preferences. The ETA is calculated based on the distance between the customer and the vehicle. Payments are received by the vehicle driver when a trip is complete or it can be transferred through the e-wallet.
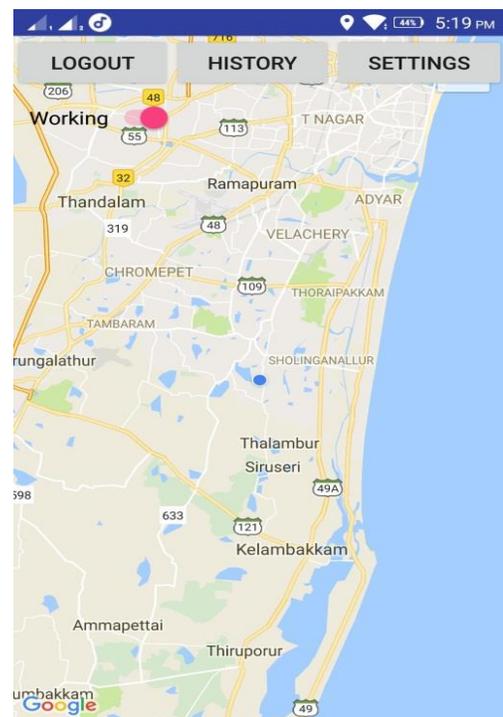
PASSENGER

A splash screen appears for the passenger when they sign in into the application. The location of the end user is detected via GPS. The passenger enters the destination place using the drag pin to target location or by manually typing the place in the text box. Passenger can add comments about other facilities needed. The mode of payment can be fixed such as cash or e-wallet which is then confirmed. Passenger can view list of rides available in Google map within 500m. The estimated time for the vehicle owner is calculated by the application. User can choose the nearest ride and ping them on their phone as a request message for their travel. Passenger can also rate the service provided by the vehicle owner.

Passenger can also save location for future trips. Passengers can cancel ride based on the cancellation policy.
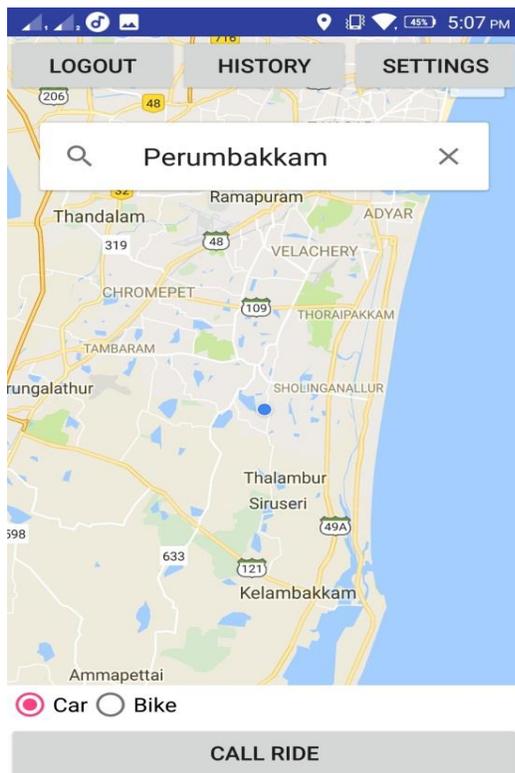
IV. EXPERIMENTAL RESULT

The experimental results are encouraging, allowing us to consider that seamless integration of hybrid management systems for transportation could have tremendous economic and social impact at global scale. It reduces the transportation cost for the user availing the services both vehicle owner and also the passenger. Further it also reduces the traffic and the pollution in the metropolitan cities and provides comfortable rides at low cost for the passengers along with a part of fuel cost for the person who owns the vehicle.

V. CONCLUSION

In this paper we have proposed a ride management and sharing application that can be used by peoples with and without vehicles. It provides a kind of pooling services which could reduce the transportation cost for both the vehicle owners and the passengers. Live tracking is provided by GPS system which helps in providing location information of both vehicle owner and the passenger and also to provide navigation through the fastest route.

VI. REFERENCES:

[1] Android App "Smart 24x7" developed by Smart 24x7 Response Services https://www.smart24x7.com/mobile-safety-apps/android-safety-app/

[2] Navigation Systems for Fastest Route by Prof.Suvarna Pansambal, Nikhil Iyer, vira Meherkar, International Journal of Advanced Research in Computer And Communication Engineering.

[3] Android App "vroom" One Cipher Solutions Private Limited
https://play.google.com/store/apps/details?id=com.vroom

[4] Analysis of advanced issues in mobile security in android operating system Anjaneyulu G. S. G. N, Gayathri M. and Gopinath G Archives of Applied Science Research, 2015, 7 (2):34-38.

[5] Two Factor Authentication Using Mobile Phone (Android) Rahul Kale, Neha Gore, Kavita, Nilesh Jadhav, Swapnil Shinde Journal of Computer Engineering and Informatics.

[6] Intelligent Carpooling System A Case Study for Bacău Metropolitan Area Elena Nechita, Gloria-Cerasela Crişan, Sergiu-Mădălin Obreja and Constantin-Sebastian Damian