Transportation at Fingertip

Filling the Gap in City Transportation

Archana Sidhanti
Department of computer science
Vishwanath Rao Rural Institute of
Technology
Haliyal, India

Anjana N
Department of Information science Gogte
Institute of Technology
Belguam, India

ABSTRACT

The product's vision is to build bridge between driver and passenger. It is a product that addresses today's one of the key issues in logistics, especially for growing and metro cities. It provides an opportunity to the consumer (passenger), to publish his/her instant (or future) transport needs through the Android App or mobile portal accessed from any smart device. It shows the route path from the published source to the destination. It displays the total distance (in km.) between source and destination and rate (cost) of the transportation. The product offers a mobile Android application for the Auto drivers/Cab drivers, which allows them to see the position of passengers or loads (Goods) that needs auto/matador. In short, this PickMe service is to enable consumers to ease their current pain in personal mobility in city or urban areas while allowing the Auto/Cab drivers to improve their productivity and livelihood as well reducing their idle times.

Keywords-GUI, PHP, IIS, GSM, CDMA, GPRS, GPS

1. INTRODUCTION

The aim of the project is to develop a native mobile Android application to provide service to customers and drivers. This project deals with interaction between drivers and passengers. It mainly focuses on providing service to the drivers as well as passengers. To make use of this application, it should be installed on android phones. In urban areas personal mobility suffers a major problem i.e. auto/cab/goods drivers spend substantial time waiting for passenger/goods and consumers also suffer in dearth of transportation needs at point of demand. In order to help consumer to make their life little better and auto driver/goods driver to improve their revenue by reducing their idle time, this service is being introduced. It offers a mobile Android application for the auto driver/goods driver which allows them to see the position of passenger or loads needing auto/goods. For the

consumer it provides an opportunity to publish their instant (or future) transport needs through an Android Application from any smart device.

2. USER CLASSES AND CHARACTERISTICS

2.1. Admin

Administrator will be provided with username and password for login. He has facility to generate different kinds of reports. He can view/update the information of driver and customer. He can also deactivate any record or information of customer and driver through GUI.

2.2. Drivers

The Driver needs to register with PickMe App to use this application. Driver can then access the application by logging in. He is provided with three options – Planned Trip, instant Pickup and Goods Transport based on the services mentioned during his registration. Driver can accept the customer request by clicking on icon in Google map in case of Instant Pickup/Instant goods transport. In case of planned trip and planned goods transport, he can select customer from the list.

2.3. Passengers

Passenger shall access the application after registering. After successful login, user shall be provided a menu with options as instant pick-up, planned trip, instant goods transportation and planned goods transportation. Instant pick-up shall facilitate user to request for an auto instantly, similarly the instant goods transportation. Planned trip module and planned goods transportation module provide the user with facilities to plan his trip and transportation of goods. Once the request for service is published during instant pick up, the map will show the location of accepted driver and himself. Feedback component is used to get feedback from user to measure the quality of servi

3. SUBSYSTEMS

System has 4 main subsystems and they are:

1. Admin subsystem.
2. The Driver subsystem.
3. Passenger subsystem
4. Core logic

3.1. Admin subsystem

Administrator will have the following functionalities:

➢ He can update and delete the information of driver and passenger.
➢ He will handle escalation mechanism, if driver is unfair to the passenger.
➢ He can record the feedbacks given by the passenger and driver.

3.2. Driver subsystem

Following are the functionalities given to Driver:

➢ He can view all requested passenger locations in his map.
➢ He can select one passenger and accept the request of that passenger.
➢ He can cancel any request.

3.3. Passenger subsystem

Passenger will perform the below functionalities:

➢ He can request for instant auto service, planned

   trip and goods transport within city.
➢ He will get the conformation of service from serv
➢ He can view accepted auto coming towards him in map.
➢ He can cancel any request.
➢ He can give feedback on journey completion

3.4. Core logic subsystem

This subsystem is responsible for all the operations in the system. It handles all the requests from the clients.

➢ It works on IIS/Apache web server.
➢ It will have all the web services needed for client to serve the request.
➢ It will be done using PHP.
➢ On client request it will retrieve data from database and send it to client.

4. THE ANDROID ADVANTAGE

Recent market penetration of Google's open source Android platform has ushered in a new smart phone era which is going to be truly mass-market phenomena. As more and more hardware vendors moves to take advantage

of openness and economic advantage, it appears that Android is going to be default choice of OS for majority devices in the very near future. With the volume of smart phone, capacity touch screen price also going down dramatically making Android smart device truly mass-market phone. [1], [2]

With Android phone ruling the market and with more than 50% of all smart phones sold, it is natural for us to leverage Android as choice of technology platform for our application, especially for the driver. We believe a GSM/CDMA phone with GPRS and GPS capability with a reasonable size of touch screen will soon be available at a cost of Rs. 2000-5000, while the upper band is quite difficult for autowalas/tempowalas. We believe, bulk deals and prolonged service opportunity can easily reduce the

cost of ownership drastically.With this assumption, we have decided to create our native App for drivers over Android.
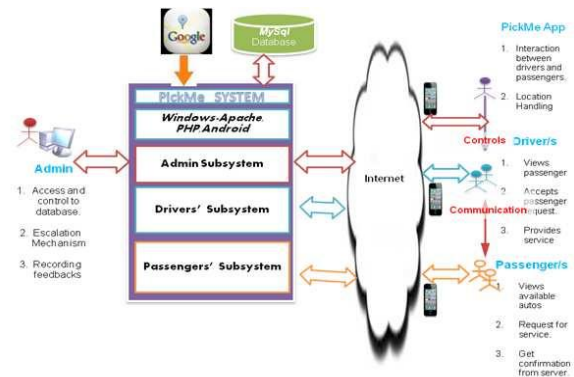
5. PROPOSED SYSTEM ARCHITECTURE

Figure: 1 System architecture

Above Figure.1 emphasizes n the overall system architecture of Pick Me system. It represents the technology stack, user profiles, external interfaces, means of accessing the application and the key use cases of each user profile of the application.

6. TECHNOLOGY STACK

Above diagram encompasses the proposed technology stack for development and deployment of PickMe system.
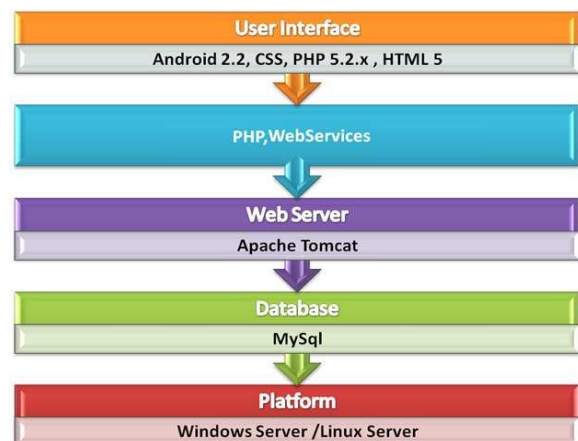
Cascading Style Sheets (CSS): This language is used to describe the presentation semantics (look and formatting) of document written in a markup language.

CodeIgniter: It is a powerful PHP framework with a very small footprint, built for PHP coder who needs a simple and elegant tool kit to create full-featured web applications.

MySQL: It is an open source RDBMS, which runs as a database server providing multi-user access to a number of databases. ([3], [5])

Linux: It is Unix-like computer operating system assembled under the model of free and open source software development and distribution.

Windows IIS/Apache web server: Web server is used to host web sites, for data storage and to run enterprise applications.

Android: It is an operating system for mobile devices such as smart phones and tablet computers. It is developed by the Open Handset Alliance led by Google. Developing Apps for Android2.2 is facilitated by a group of tools that are provided with the SDK. [1], [2]

HTML: It is a language for structuring and presenting content for the World Wide Web, and is a core technology of the Internet, and originally proposed by Opera Software. [3]

PHP: It is a general-purpose server-side scripting language originally designed for web development to produce dynamic web pages. [3], [4]

7. SYSTEM PERFORMANCE

In software engineering, performance testing is in general testing performed to determine how a system performs in terms of responsiveness and stability under a particular workload. It can also serve to investigate measure, validate or verify other quality attributes of the system, such as scalability, reliability and resource usage.
The parameters which are used to measure systems' performance are response time, delay, throughput, latency, bandwidth, usability, waiting time, scalability etc.. in our product we have used the parameters such as response time, bandwidth, throughput and delay.

7.1. RESPONSE TIME

The elapsed time between the end of an inquiry or demand on a computer system and the beginning of a response; for example: the length of the time between an indication of the end of an inquiry and the display of the first character of the response at a user terminal. In this application, this applies to the google map's response and display of path between passenger & accepted driver.

7.2. DELAY

In a network based on packet switching, transmission delay is the amount of time required to push all of the packet's bits into the wire. In other words, this is the delay caused by the data-rate of the link.
Transmission delay is a function of the packet's length and has nothing to do with the distance between the two nodes (driver and passenger).

7.3. THROUGHPUT

In communication networks, such as Ethernet or packet radio, throughput or network throughput is the average rate of successful message delivery over a communication channel. This data may be delivered over a physical or logical link, or pass through a certain network node. The throughput is usually measured in bits per second (bit/s or bps), and sometimes in data packets per second or data packets per time slot. In our application, it applies to the messages and notifications sent over the network.
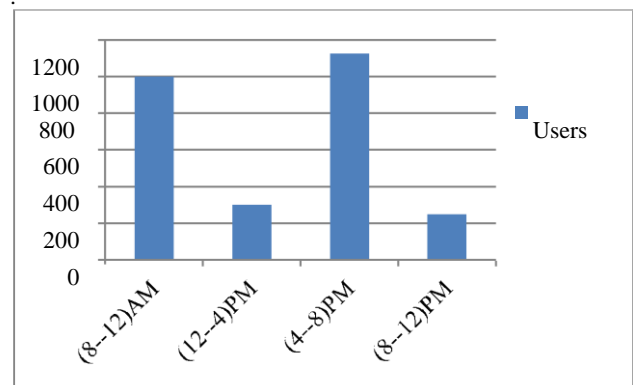

Figure.3 Usage Graph

In the above Figure.3, the x-axis refers to the time slots and y-axis corresponds to no. of users. In the 8-12am and 4-8pm slot, the no of users availing the service is about 1000 users on an average and the other 2 slots are having minimal no of users. Hence it is evident that the maximum usage is in morning and evening hours. The product is tested and doesn't crash even at boundary value conditions.

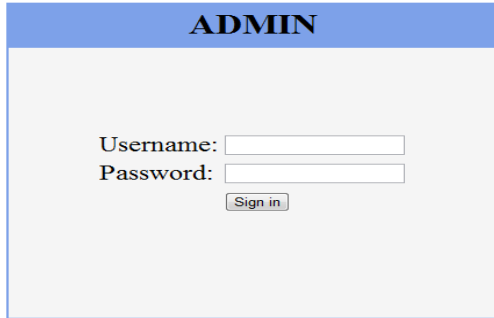## 8. RESULTS AND DISCUSSIONS

8.1. Admin Module:
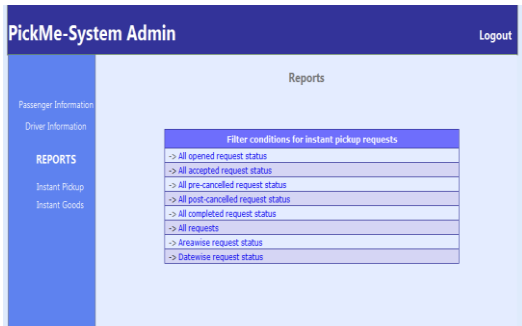

Fig. 4 Login Page for Admin

Fig.8 Details of available Passenger (Instant pickup)

Fig. 5 Reports for Instant Pick Up

8.2. Driver Module:

Instant Pick-Up/Instant goods trip

Fig.9 **Planned Trip Menu**   **Fig .10 Passenger Info for accepting trip**

Fig .6 Login page   **Fig.7 Instant Pick-Up (map view)**

Fig. 11 Already Booked Planned Trips   **Fig. 12 Cancel Planned Trip**

8.3. Passenger Module

Instant Pick-Up/Instant goods trip

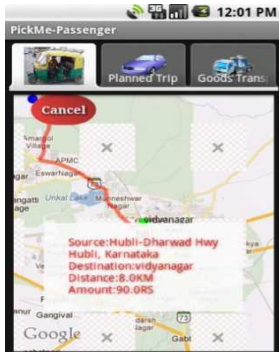**Fig. 13 Login page**

Fig. 14 Publish Request

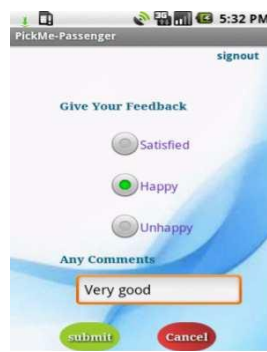**Fig. 15 Map view displaying path from source to destination**

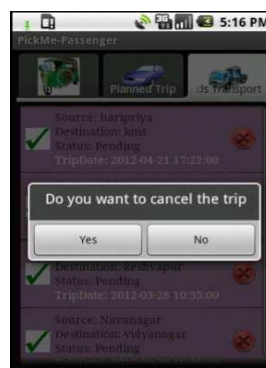**Fig. 16 Feedback Form**

Fig. 17 Entry details for Planned trip

Fig. 18 Cancel Planned Trip

8.4. Results description:

Fig. 4: This figure illustrates the login page for administrator.

Fig. 5: This figure illustrates the various reports generated for instant pickup.

Fig. 6: This snapshot refers to driver's Login Page, which allows to access the PickMe application.

Fig. 7: This snapshot displays the map, upon opening the application which highlights the available passengers as green icons on map.

Fig. 8: This figure refers to the details of journey of available passengers in Instant pick up.

Fig. 9: This snapshot refers to planned trip menu which has two options namely, New trip to accept new passenger & already Planned trip to view accepted passengers.

Fig. 10: This figure illustrates the details of passengers before accepting them.

Fig. 11: This figure contains the list of already booked passengers.

Fig. 12: This snapshot refers to cancellation of planned trip with that passenger's info.

Fig. 13: This page contains login credentials for passenger.

Fig. 14: This page allows the passenger to publish the request by mentioning the destination.

Fig. 15: This snapshot holds the map view displaying path from source to destination .

Fig. 16: This page refers to the feedback form which is filled by passenger as either satisfied, happy or unhappy.

Fig. 17: This page records the details for entering the planned trip details.

Fig. 18: This page displays the dialog box which confirms the cancellation of planned trip.

9. CONCLUSION & FUTURE ENHANCEMENT

This app is more beneficial as it helps to ease the life of passengers and drivers, Reducing driver's idle time, Automating city transportation problem and even facilitating for planned and goods trip. It displays the route path between source and destination so that drivers can't cheat the passengers. It shows distance as well as rate (cost) of the transportation. It serves more advantageous in less crowded places and at odd timings.

➢ Drivers can be awarded/black-listed based on his/her
  performance.
➢ Bidding to decide auto charge.
➢ Black-listed drivers can be penalized.
➢ Penalizing the passenger, who misuses the service.
➢ This application can be implemented in regional
  languages.

10. REFERENCES

[1]. Android programming tutorials, 2nd edition – Mark Lawrence Murphy

[2]. Professional android 2 Application Development – Reto Meier

[3]. www.w3schools.com

[4]. Programming PHP – Rasmus Lerdorf, Kevin Tatroe, peter Maclant

[5]. Beginning PHP, Apache MYSQL web development – Michael glass, Yalle, Elizabeth Naramore

[6]. Android Developers – developers.android.com

[7]. Android Tutorial | Android SDK Development & Programming Tutorial

[8]. Android Location based Services – www.JavacodeGreeks.com

[9]. Manav Singhal, Anupam Shukla - Implementation of Location based Services in Android using GPS and Web Services IJCSI Paper.