

**Dynamic Ride-Sharing - A Next Innovative Approach**

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Abstract :- *Taxi is the most popular type of on-demand transportation service system in urban areas because taxi sharing system offer more and better services in terms of short waiting times and travel convenience. However, a shortage of taxicabs has always been rare in many urban contexts especially during rush hours and taxi has great rate to maximize its efficiency by employing shared-ride concepts. There are recent successes in real-time ridesharing projects that are expected to bring substantial benefit on energy consumption and operation efficiency. Thus we have proposed a system which allows personal car owner to share their car with the on-route passengers.*

Keywords- Google cloud messaging (GCM)

1. Introduction

Road transportation is one of the major challenges for the new generations, as the current transportation models both are not environmentally and socially sustainable. On the one hand,, pollution is a major source of greenhouse gases emissions. This paper focuses on a distributed and real-time taxi-sharing system, which is an advanced, user-oriented form of

public transportation characterized by flexible routing and scheduling of vehicles operating in shared-ride between distinct pickups and drop-off locations according to the passenger needs, enabled by wireless communication and distributed computations.

1.1. Drivers and Riders

Users are either drivers or riders, as below

1.1.1. Drivers :

The set of driver D represent the ride sharing service providers. Drivers are ordinary people who are just driving in their daily life. At one point, they indicate their request to offer a ride sharing service within their routes. To do so, they call the service to register themselves indicating their origin and destination points, number of seats available, cost for ride . With such registrations,[3] it is allowed to track their locations to access their suitability for any ride sharing service. Once the driver reaches to his destined place, the driver is unregistered for their ride sharing service based on the distance of the cab service they will provide and the tour that they will need to make from their original route.

1.1.2. Riders :

The set of riders R represents persons requesting a ride sharing service. To request such service, a rider r would call service, through the dedicated cell phone app, and provide four pieces of information: (1) the current location origin, which can be obtained directly from the mobile phone, (2) the requested destination,(3) number of passengers required Within few seconds, the rider receives a set of drivers from pool that can offer the requested cab sharing service within the waiting time and price constraints.

The summary of contribution is as:

- We present a distributed and real taxi-sharing system enabled by wireless communication and distributed computing. Furthermore, we propose a pricing and charging system considering implementation details.
- We study in detail the performance of the system, including economic points, under varying demand conditions and varying system problem rates. Results have shown that the deployment of the system can be advantageous for both the passengers and taxi operators, and that a number of trade-off exists.

2. System Architecture :

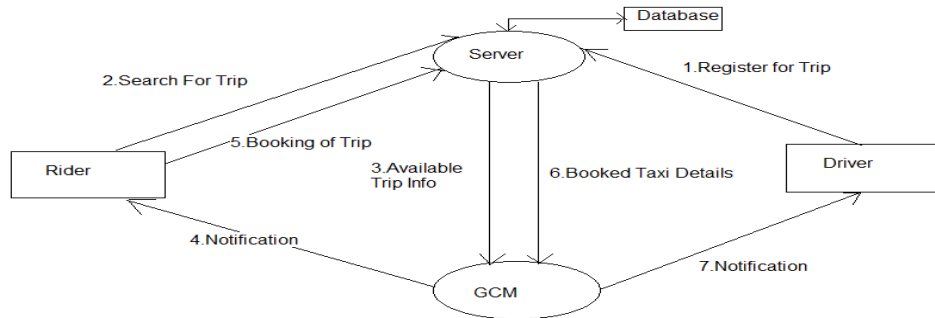


Figure 1. Architecture

Taxi drivers and riders use the same smart phone App to interact with the system, but are provided with different user interfaces by choosing different roles. All information about trips is stored in server's database. Driver registers for new trip to the server(1) Rider submits new ride request to the server (2) .All incoming ride requests of the system are streamed into a queue(3) and then processed according to the first-come-first serve principle. According to riders ride request,server finds available trip information to rider(4).For sending trip notification to the rider and driver, Google Cloud Messaging is used. Rider books suitable trip from available trips and sends its notification to the server(5).Server sends booked details of trip to the GCM(6) and GCM is responsible for sending this notification to the driver.

2.1. GCM :

Google Cloud Messaging (GCM) is a free service that enables developers to send messages between servers and client apps. This includes downstream messages from servers to client apps, and upstream messages from client apps to servers.GCM implementation includes a Google connection server, an app server in your environment that interacts with the connection server via HTTP or XMPP protocol, and a client app.

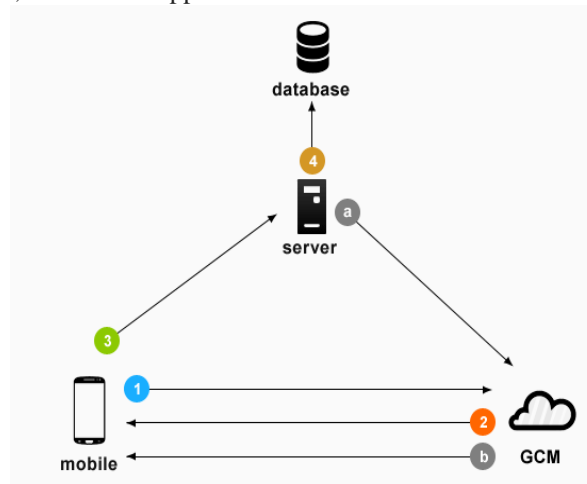


Figure.2.GCM-Model

- 1.First android device sends sender id, application id to GCM server for registration.
- 2.Upon successful registration GCM server issues registration id to android device.
- 3.After receiving registration id device will send registration id to our server.
- 4.Our server will store registration id to the database for later usage.
 - a) Whenever push notification is needed, our server sends message to GCM server along with device registration id.
 - b) GCM server will deliver that message to respected mobile device using registration id.

3. Advantages :

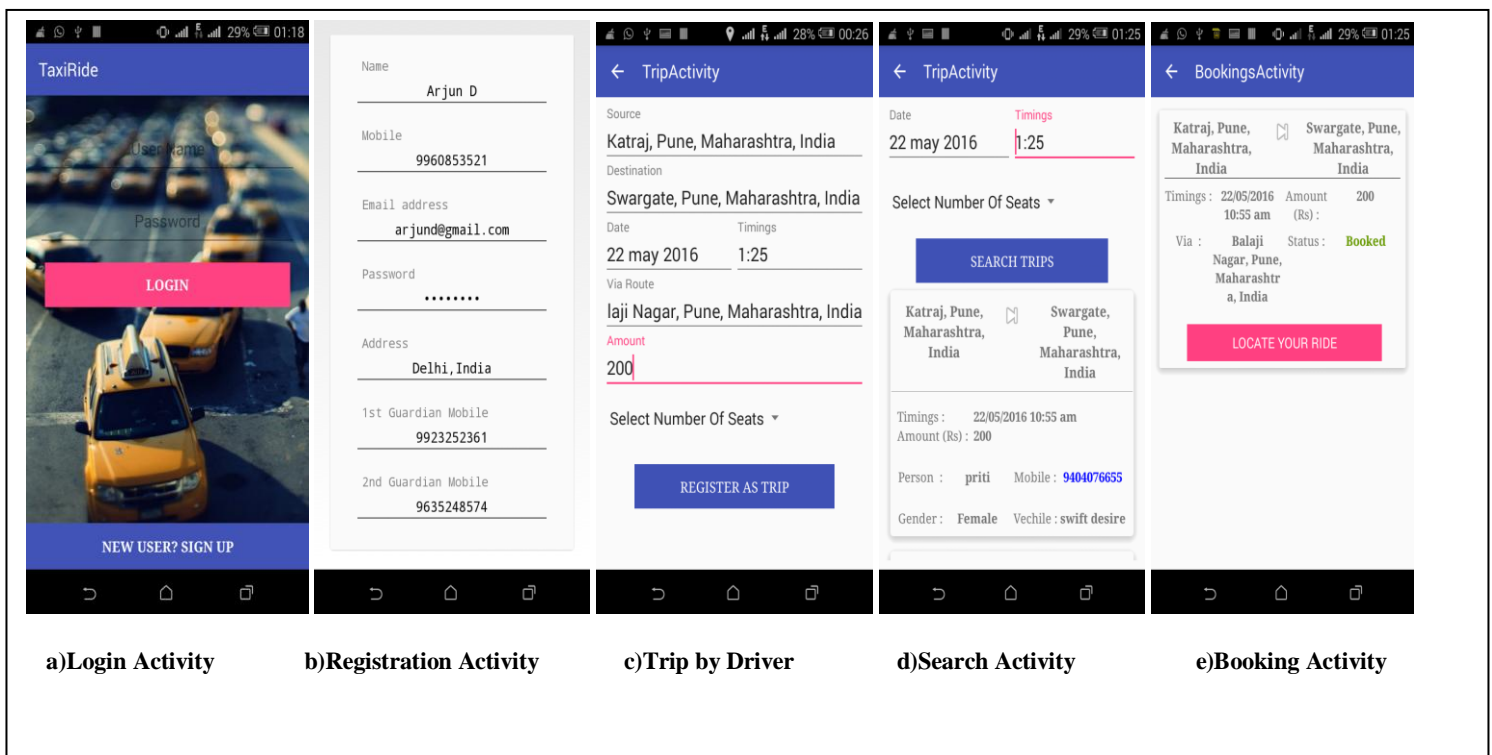
1. User can be Rider or Driver.
2. Cab-sharing can definitely reduce the emission by taxi travel as it will combine multiple trips and fill the unused seats in the taxi.
3. The easiest way to reduce the congestion on the street is to reduce the number of vehicles on the road. The requirement of number of cabs or private vehicles will go down if commuters share cabs.
4. It provides security to both Rider and Driver.

4. Objectives and Scope:

We propose a taxi-sharing system that accepts taxi passengers' real-time ride requests sent from smartphones and schedules proper taxis to pick up them via taxi-sharing with time, capacity and money constraints.

1. To provide social and environment benefit to the people.
2. To test the suitability proposed approach in realtime using dataset.
3. Taxi-share system retrieves the location name with longitude and latitude co-ordinate. The distance among those locations can be calculated via latitude and longitude so that two locations with shortest are match.
4. This matching design process has an ability to solve matching precise location name with simple location name issue.

5. User-Interfaces:



6. Acknowledgement:

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