

MOBILE BASED INTELLIGENT TRANSPORT SYSTEM

Participants:

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Sponsorship:

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Mr. Santosh Dwivedi, founder, anamoly solutions.

Abstract

India is full of complex road networks. There is no intelligent transportation system which will consider increasing congestion level at peak periods and efficient use of road network. This system is built to provide innovative services like list of optimal routes according to user's priority. The congestion level at junctions is calculated by processing and analyzing traffic videos at those junctions. The cost of each route between source and destination is calculated considering various factors like carriageway width, AADT (Average Annual Daily Traffic), road geometry, speed limit, signal delay, PLTC (Protected Left Turn Control), POVP (Pedestrian Over Vehicle Priority). The main motive is to build self-learned system to maintain database for large Indian road networks. The system will enlist suitable optimal routes between given source and destination based on given user's priority like time distance or comfort and hierarchy in road networks like National highway, State highway, local road etc. The system will

effectively adapt changing Indian environment by maintaining database with real time data. The application can be run on handy device like mobile supporting android OS.

Problem Statement:

To build an Intelligent Transport System which will consider all real time factors suitable for Indian complex environment like road condition, traffic condition, accidents, rallies, festivals etc. and enlisting the routes according to user's priority like time, distance and comfort.

How the problem was solved?

The congestion level at road junctions is calculated and analyzed by processing videos obtained at road junctions. Cost of all routes is calculated using multiple linear regression technique considering all real time factors. Routes are ranked according to hierarchies of roads.

Functional Description:

Inputs:

1. Source, Destination and priority of user
2. Video of road crossings

Processing:

1. Video processing and calculation of congestion level at node.
2. Calculating costs of route using linear regression
3. Finding optimal routes according to user priority and ranking based on Hierarchies of roads.

Output:

1. Prioritized list of routes for given source and destination by considering maximum possible real time factors.

Area of Work:

Domain: Artificial Intelligence, Image Processing

Technologies Used: J2EE, Android, OpenCV, MySQL

Platforms:

Server Side: Microsoft Windows server 2008 r2

Client Side: Android

Individual Contribution to the project:

- **Pratik Sanglikar:** Android Application Developer, J2EE programmer.
- **Rahul Rane:** Image Processing, Designing of Modified Highway Hierarchy Algorithm
- **Ajay Nemade:** Designing of Modified Highway Hierarchy Algorithm, Database Manager
- **Sagar Musale:** Image Processing, Database Manager

Snapshots:

PARS ITS

Enter Source

Katraj Bus Depot, Pune

Enter Destination

Distance

Time

Comfort

Distance

Get Routes

We consider **User's Priority** while calculating the route.

Any other mapping application doesn't consider

this

PARS ITS

Full Name

Pratik Sanglikar

Choose unique username

pratiksanglikar

Password

.....

Confirm Password

.....

Age

22

Avg. Driving Speed

60

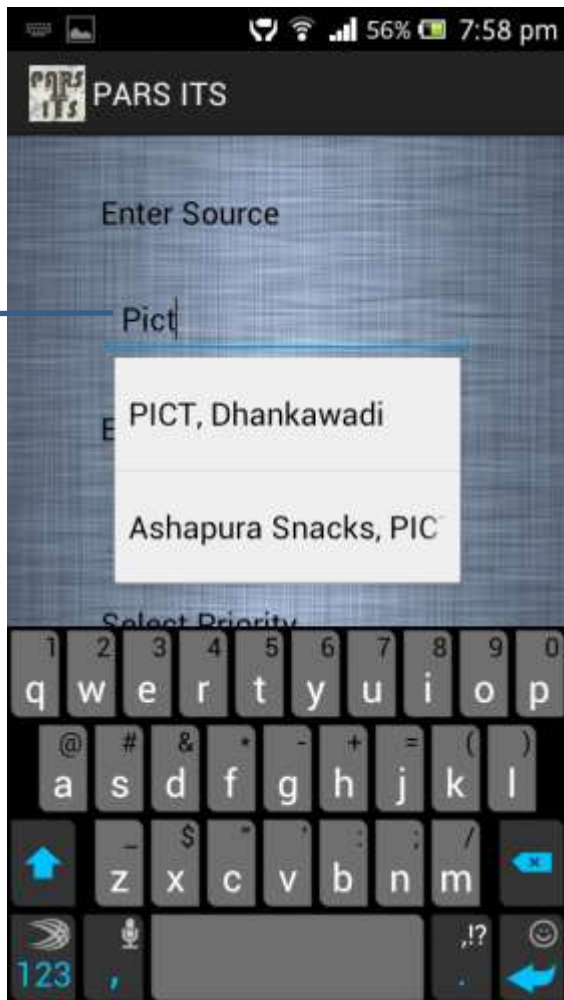
Car/Jeep

Time

Sign Up

We Consider **User's Age, Average Driving Speed, Class of vehicle**

he is driving while calculating the routes.

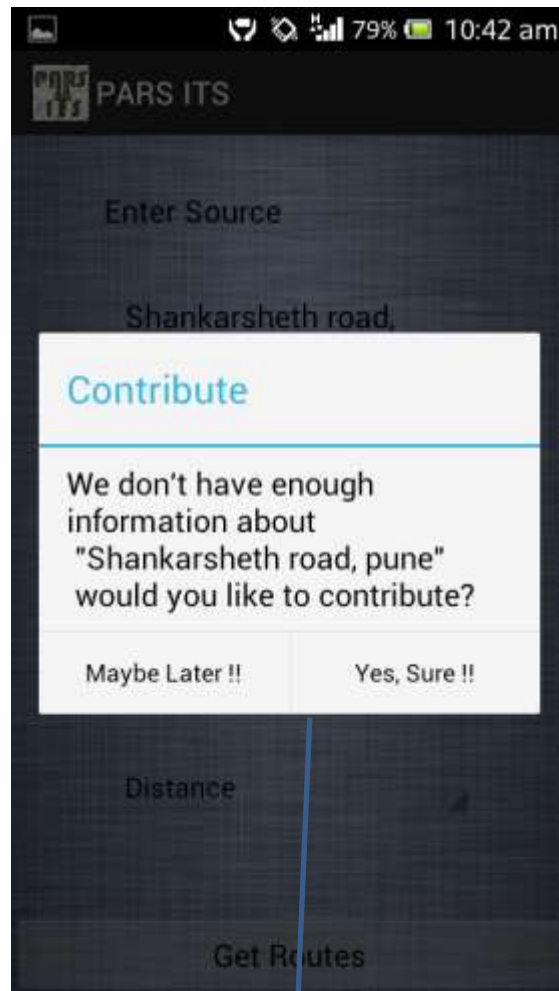
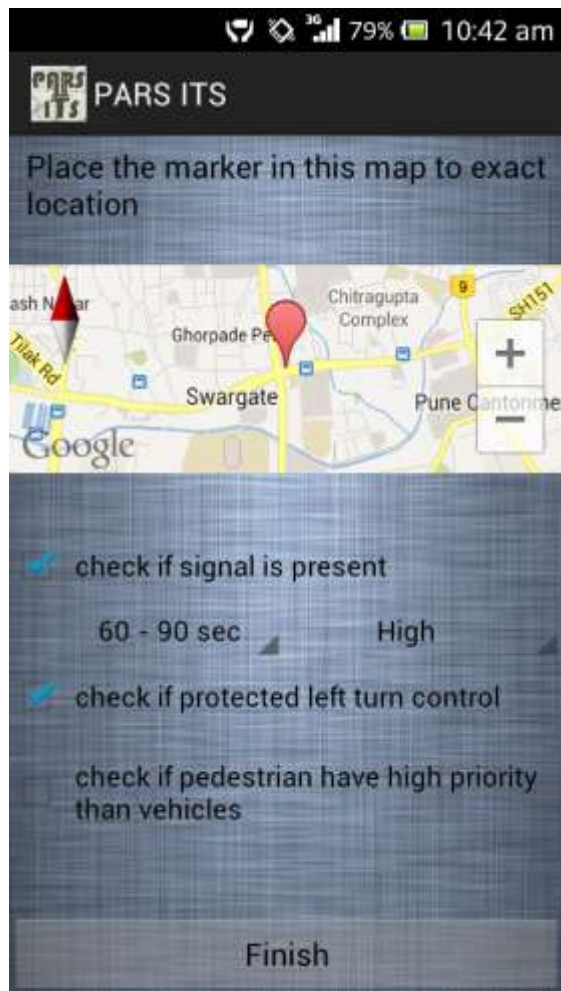


User enters Source, Destination and his priority.



We Provide **list** of routes according to his priority and other **real time factors**.

The above figure depicts route from Katraj Bus Depot to PICT with **comfort priority**.



The algorithm is **self-learning**, Whenever we don't find hit in our database, We ask user to contribute. In this way the database grows.