

Traffic Management for Emergency Vehicle Routing

Ajit Chinchawade¹ Akshay Patil² Avinash Dhamdhare³ Rajesh Prajapati⁴
^{1,2,3,4}Department of Information Technology
^{1,2,3,4}GHRIET College of Engineering, Pune-412 207

Abstract— An ambulance inward a couple of seconds late can be the difference between life and death for some. As different technologies emerge, various approaches to expediting the movement of emergency, Vehicles have evolved. Horns, sirens and blinking lights were early attempts that are no longer sufficient in most places to clear traffic on the emergency vehicle's route. In these situations, traffic signal pre-emption has made it possible to guide traffic to move in favour of clearing the emergency vehicle's route. Early traffic signal pre-emption approaches depended on direct communication between an emergency vehicle's signal emitter and a corresponding signal receiver on the traffic light it was approaching. Consequently, the position of the vehicle could be detected. Later, (D)GPS was used to more precisely locate the emergency vehicle. This solution was more improved by using competent or uniform ideal path planning algorithms to select the path of the emergency vehicle. In the state-of-the-art in emergency vehicle routing. We implement a graph version of the D*Lite informed search algorithm to efficiently and dynamically plan optimal paths for the emergency vehicle while taking into consideration the real-time updates of congestion levels and other delays to travel time. The results validate our hypothesis demonstrating that traffic management can improve travel time under uncertain congestion conditions, and that incorporating an appropriate traffic light pre-emption mechanism can further improve travel time for an emergency vehicle; potentially saving lives.

Key words: Emergency vehicle routing, Traffic signal pre-emption, Dynamic path planning, Signal phase selection

I. INTRODUCTION

In these days we are facing so many problems, one of the most important problem is traffic. In India there is lack of traffic management due to which many of people lost their life in ambulance because of delay to reach at hospital and getting help from hospitals. In this project we are going to manage hospital and traffic for successful transplantation of organs which can be stored for limited time period.

We are going to handle traffic by using android mobile app for transportation of organs from one hospital to another hospital within a specified time period to save someone's life. To implement this project we are going to use web services for data transfer (we will use REST (web services by using JSON) and GPS for getting the correct ambulance location which will be used for generating alerts.

We are also going to use Google maps in android application and hospital module to view the ambulance location on map. By implementing this project we are going to save life of so many people who lost their life due to lack of time management between hospital and traffic

II. SYSTEM DESIGN

A. Literature Survey:

1) Current Methods:

a) Direct Communication Techniques:

In this technique device attach to the emergency vehicles for communicating to another appropriate receiver in the traffic lights' control system. First, systems depended on strobe lights which are emitted from the vehicle being sensed by photosensitive receivers on the traffic lights. Before that, the directional microphones were used to sense the alerts of the emergency vehicle. However, these two approaches required clean line of view. The microwave and radio signal transceivers are used when the different difficulties or bad climate situations affect the communication device, i.e. the signal, traffic lights be unsuccessful to detect the presence of the emergency vehicle nearby the intersection.

2) Proposed Solution:

In this system there will be main three modules they are hospital, Ambulance, Traffic Police. The ambulance module in which normal user can register for the emergency vehicle. There will be hospital sign in system, if hospital is not registered with our system it can register with all details, so that multiple hospitals data we can store with one database with all security needed. When ambulance app start it send the alert for next three traffic signal means to the traffic police app so that he can clear the road, if ambulance reaches at 2nd signal the ambulance app send alert for next 3 signals this cycle continues until hospital reaches at destination hospital, so that in this way traffic can be controlled and ambulance reach at hospital in specified time.

B. System Architecture:

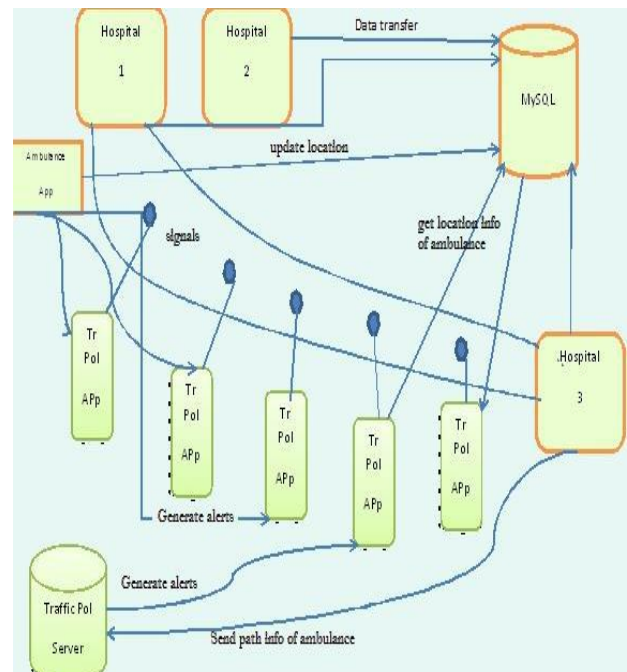


Fig. 1: System architecture

1) *Server/Database:*

All the location co-ordinates, APIkey are stored to the MySQL database. Traffic police server will respond to the requests for clear the traffic by user.

2) *User:*

User has to login to the Ambulance application first. It send request to the Hospital.

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III. SYSTEM FEATURES

A. *Hospital Module:*

- Record-keeping and confirmation of hospitals.
- Recordkeeping for organ donation.
- Condition recordkeeping for organ(acceptor).
- Cause warnings of accessibility of organs and condition of organs.
- Ambulance operation: Add, View location, CRUD operations.
- Conduct info to ambulance app.

B. *Ambulance Application:*

- User has Login in the ambulance application.
- Become present location using GPS
- This application send alerts to next 3 signals .
- Become path to hospital
- Become Assessed time and speed.
- Show location info to hospital and Police Web server.

C. *Traffic Police Application:*

- Check ambulance.
- The traffic police ambulance Get Location info of ambulance.
- Later get the present location of ambulance the traffic police clear the traffic.
- It show alerts to other traffic police whose available on the ambulance way.

IV. CONCLUSION

The Traffic Management for Emergency Vehicle RoutingSystem on JSP and android OS is being developed to offer real-time interface to the massively developing Healthcare world. So the future scope of this system could be simply acceptable with the help of any subsystem such as emergency hospital management. In future we can manage the signals by using web server so there will be no need of traffic police application in this proposed system.

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