Asian Journal of Applied Science and Technology (AJAST)

Volume 1, Issue 6, Pages 58-60, July 2017

Android Based GPS Navigation and Accident Prevention

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Article Received: 27 June 2017 *Article Accepted: 10 July 2017* *Article Published: 16 July 2017*

ABSTRACT

The main objective of this model is to develop a system consisting of information's associated with Google map, other locations and our locations which are clubbed together to form the AGNA Application developed on android platform. The existing applications only show the device locations on the map and works upon automatic routing. Our Proposed model aims to show all the nearby navigation devices simultaneously. Our model comprises of GPS, Google maps and Wi-Fi direct.

Keywords: GPS, Google maps and Wi-Fi direct.

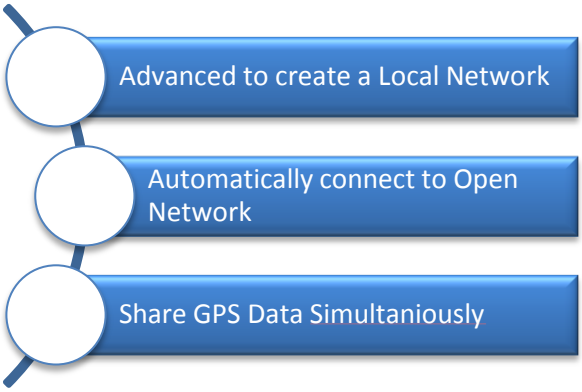
1. INTRODUCTION

Android Phones with Wi-Fi, GPS are available for <2,000 Rs in Indian market. Android is an open source project, Also Google Map too. With help of smart phones anyone can develop an application which is open source. Many applications are already available with particular objectives. In this paper we are going to discuss a prototype model for the proposed system and discuss the characteristics of this model.

2. RESOURCES REQUIREMENT

Eclipse
Java 7.x or higher
ADT-Android Development Tool
Google Map Tool in ADT
Mobile phone with Android 4.x.x or higher with GPS and Wi-Fi Direct

Application Overview

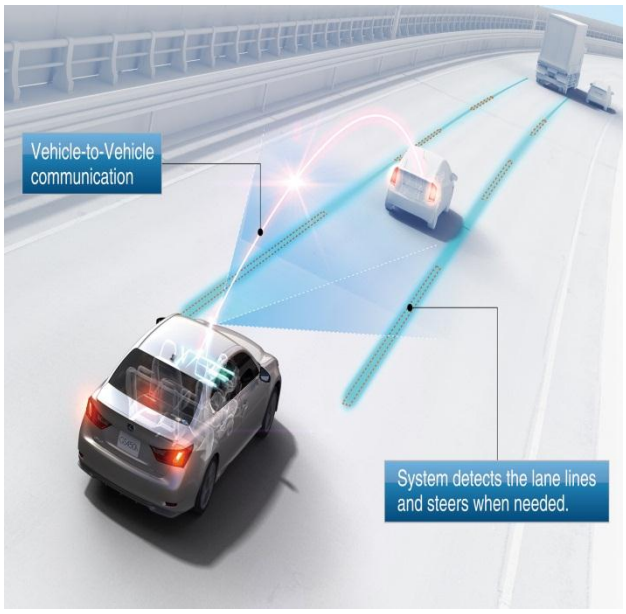


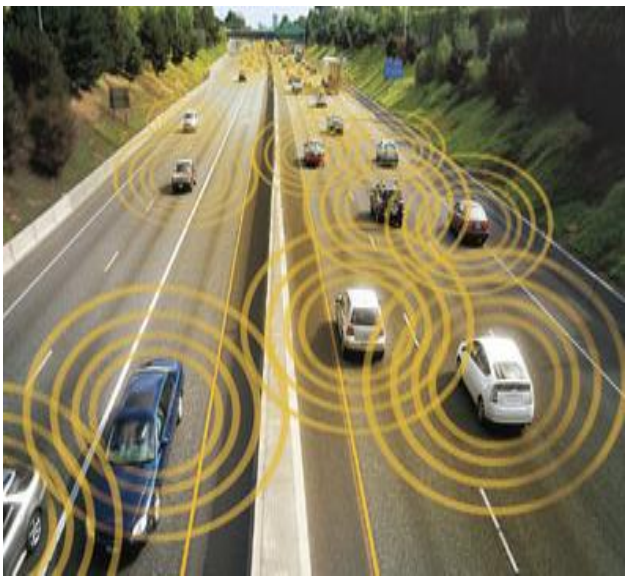
This comprises of development of a LAN which is automatically connected to an open network. This automatically connected network will share GPS data simultaneously and data can be retrieve.

2.1 Prototype model

INTER VEHICULAR COMMUNICATION

The figure shows the vehicle to vehicle communication. In this case the signal information is communicated within the LAN and the system detects the lane lines and helps in alerting the driver to steer the wheel when required thus avoiding the collisions. The routing of the signals are done automatically and is retrieved from the LAN network this signals are linked with the Google maps and are shared using Wi-Fi direct which is present in all the smart phones available in the market.





If you must use mixed units, clearly state the units for each two parts, include the Each vehicle will have its own routing networks as shown in the fig it can be observed that the yellow circular regions shows the spacing and if a new vehicle arrives within the specified locations signals are generated indicating the locations.

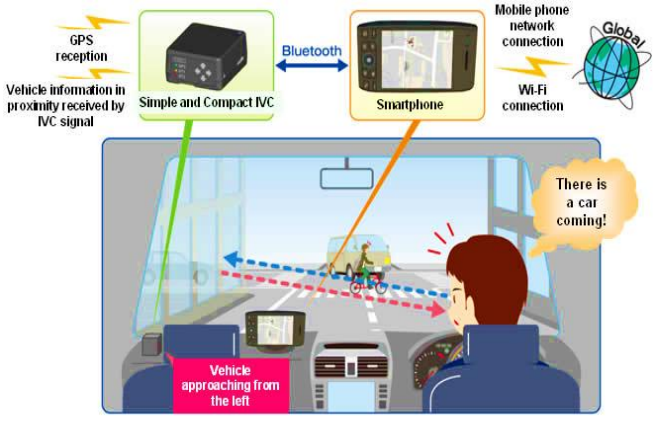
Advantages

- Sharp turning
- Night Vision
- Speed and distance

Sharp Tuning: This system aims to generate better performance by providing sharp tuning thus avoiding the errors.

Night Vision: The accidents associated with night drive can be overcome by generating automatic routing enabled by maps and Wi-Fi direct.

Speed and Distance: Data containing the information of the speed of the vehicle and the distance between the other vehicles can be obtained with the help of this system.



- This proposed model is a prototype demonstrating inter vehicular communication
- Main objective is to provide more comfort & safety to driver
- Main features include
  - Speedometer
  - Distance indicator
  - Alarm for over speed
  - Displays multiple nearby devices
  - No internet connectivity required

Requirements

- Need Good Knowledge in java, XML. More precisely on Android
- Automatic Wi-Fi Connectivity is not possible; it requires rewriting Android Rom itself.
- GPS positioning is not so accurate

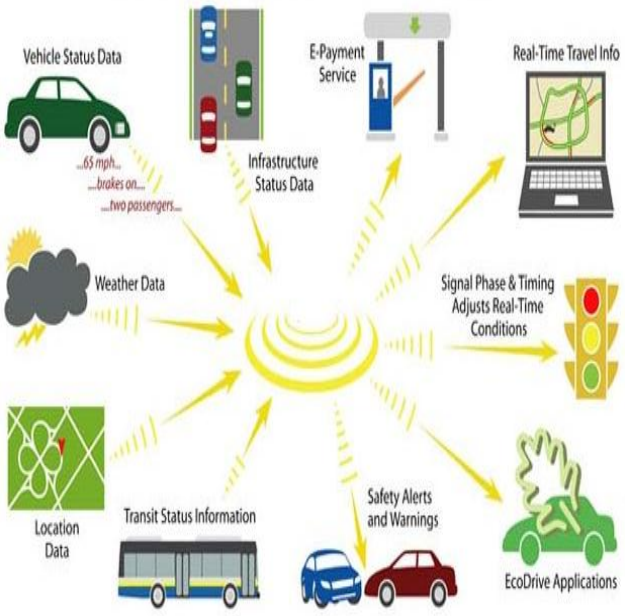
Risks and Rewards

- This project is a prototype, taking the advantage of low cost mobile devices to demonstrate the possibility of inter-vehicular communication
- Successful execution of this would probably reduce number of accidents, traffic congestions.

Future Enhancement

Local Transport Vehicle [Bus] Current Position Identifier App.

Requires GPS device with 3G, 4G or GPRS connectivity placed on vehicles and more sophisticated database on dedicated server and an android app on the client side also require special permissions from concerned authorities and vehicle owners Incorporating Device To Vehicle For Automatically Applying Brake Under Emergency.



3. ACKNOWLEDGMENT

I acknowledge the management and the board of governing members of IMPACT Group of Institutions Bangalore for the strong support and encouragement for all the developmental activities. I extent my sincere thanks to Dr. K.P.Mathulla, Founder Chairman ICEAS Bangalore for the motivation and support.

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Volume 1, Issue 6, Pages 58-60, July 2017