**WOLVERINE**

**Introduction**

In developed countries large-scale technology is used for the monitoring and management of road infrastructure. The WOLVERINE application is implemented for to identify surface disruptions based on accelerometer patterns and also use a crowd sourcing technique for store or pass incident details to the server. Sensor networks together with surveillance cameras help identify elements disturbing cars' mobility. On the contrary, in developing countries, the lack of this level of infrastructure makes the task of roads' maintenance and traffic control challenging. The presence of roadway surface disruptions (RSDs), in particular, affects the economy and reputation of individuals and companies. Urban computing strategies can be adopted to collect data about the presence of RSDs and be applied to monitor traffic related issues. The implementation of such level of navigation assistance could help save freight and money to companies and authorities, and even reduce cars' accidents. In this direction, current mobile technologies can help with the identification and location of road imperfections alerting drivers about alternative routes. In this paper we present our work that seeks to enable citizens' cars as road watchers. By means of the mobile phones' acceleration sensing capabilities we are identifying and tagging the presence of RSDs. Using Android-based devices situated on the copilot floor side of a car, 5 Mbytes of road information has been collected. We run a series of experiments aiming to differentiate acceleration patterns associated to potholes, speed bumps, metal humps and rough roads. Currently, the classification of disruptions is being experimented with techniques from the field of Machine Learning (ML) such as artificial neuronal networks and logistic regression. Classification of individual events is over 86% of accuracy that is competitive with those reported in the literature. In this work we provide the first public dataset that could be used by other researchers to offer more insight in this problem. So this disruption finding is an important feature of this application. Then by using WOLVERINE, user can send incident notification to the server. But here applying a crowd sourcing technique to check the data is fake or not and based on this result the data will be stored or pass to the server and share the information. Voice command alert is another feature of this application and that means, the user can hear a voice commands about the signal rules. And also the user can view the important areas like hospital, school etc.

Objectives:

To design an efficient information system for road travelers through smartphone.

Motivation or Relevance:

Monitoring road and traffic conditions in a city is a problem widely studied. Several methods have been proposed towards addressing this problem. Several proposed techniques require dedicated hardware such as GPS devices and accelerometers in vehicles or cameras on roadside and near traffic signals. All such methods are expensive in terms of monetary cost and human effort required. We propose Wolverine - a non-intrusive method that uses sensors present on smartphones. We extend a prior study to improve the algorithm based on using accelerometer, GPS and magnetometer sensor readings for traffic and road conditions detection. We are specifically interested in identifying braking events - frequent braking indicates congested traffic conditions - and bumps on the roads to characterize the type of road.

DISADVANTAGES OF EXISTING SYSTEM:

* Existing systems gives info about routes and important places only. No systems provide info about road distruptions and traffic signals.
* High Cost

Problem Definition:

Proposed system is a fine combination of Android mobile technology and embedded system. An application should be installed on android mobile handset to get voice notifications about road disruptions. User can send details about traffic signals, accidents and some other disruptions. It includes emergency complaint section to get spot help.

**MODULES DESCRIPTION**

* Sensor Module
* User Module
* Signal board module
* Alert Module
* Emergency module
* Crowd sourcing module
* Spot complaint registration
* Admin Module
* Traffic police
* Admin Module
  + Traffic vehicle registration
  + Device allocation
  + Traffic signal management
  + Important place registration and alert message setting
  + View Spot complaint
  + Reports
* Traffic police functions
  + View spot complaint(Near by)
  + View emergency alerts and point its source using Google map
  + Update status
* Sensor Module Functions

Road conditions are detected using accelerometer sensing. Crowd sourcing techniques are deployed for valid disruption checking.

* User Module functions
  + Registration module
  + Sending emergency messages to server.
  + Send spot problems (image + matter are send to server)
  + View nearby spots (Using Google map)
  + View my position
  + View emergency alerts
  + Send important points
  + View signals

SOFTWARE AND HARDWARE REQUIRMENT

HARDWARE REQUIREMENTS

* INPUT DEVICE : MOUSE,KEYBOARD
* OUTPUT DEVICE : MONITOR
* MEMORY : 1 GB RAM(MINIMUM)
* PROCESSOR : PENTIUM III PROCESSOR

SOFTWARE REQUIREMENTS

* OPERATING SYSTEM : WINDOWS 7/8 for better performance
* FRONT END : ASP.net (For web application)

Java (Android Application)

* BACK END : SQL server
* WEBSERVER : IIS Server (for web applications)