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Vehicle Security At Highway Using Intelligent Vehicle Highway System(IVHS)

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Abstract:

Various forms of wireless Communications Technologies has been proposed for intelligent transportation system.In ITS ,VHF and UHF frequencies are used for short and long range communication.Short range communication which should be less than 500 yards can be accomplished using IEEE 802.11 protocols. The dedicated short range communications standard is promoted by the intelligent transportation society of America and the united states department of transportation . But range can be increased using mobile adhoc networks or mesh networking. Large scale communications can be achieved using IEEE802.16 WIMAX protocol or 3G. These methods have some drawbacks like these methods require extensive and very expensive infrastructure deployment. So we developed a safe transportation system in which a vehicle can predict the actions of neighbouring vehicles and provide extreme accuracy in vehicle location at all times.

Introduction

Main problems that inherent with these systems are traffic congestion. Traffic congestion occurs when a volume of traffic generates demands for space greater the available road capacity . This is termed as saturation. there are such type of circumstances that about half of the traffic congestion is recurring, most of the rest is attributed to traffic accidents , roadwork and weather events .

Still research can fully predict under which condition, a traffic jam may suddenly occur. It has been found that individual may cause ripple effect s such that it can create a sustained traffic

Jam . Congestion reduces efficiency of transportation and increases travel time , air pollution and fuel consumption.So in this paper , solution has given to overcome these problems using intelligent vehicle/highway system or transport technologies.

Intelligent Transportation System

Transportation systems are networks; For example, whether a traffic signal " knows" there is traffic waiting to pass through an interaction whether a vehicle is drifting out of its lane , whether two vehicles are likely to collide at an intersection etc. Intelligent transportation system empowers factors in the transportation system-from commutators , to highway and transit network operaters to actual devices ,such as traffic light themselves. If traffic lights are automated using some new technology like zigbee based on IEEE 802.15.4. It can be overcome . Zigbee is the result of the demand for longer battery life, simple design, shorter range,low cost solution and traffic intelligence by actionable information .

To make better informed decisions whether its choosing which route to take, when to travel, how to optimize traffic signals , where to build new roadways or how to hold providers of transportation services Accountable for results.

Advantages provided by ITS are

Increasing safety.

Improving operational performance

particularly by reducing congestion.

Enhancing mobility and convenience

Increasing productivity and enhancing economic and employment growth.

Importance Of Improving Country's Transportation System

The traffic prediction problem ,which is concerned with attempting to forecast future traffic volumes , speeds or travel times ,has been received increased attention in last few years , especially given the interest in ITS and real time and Artificial intelligent traffic management and control. Decision making processes for transportation investment, travelers choice of routes and modes and driver's behavior are typical examples that are not entirely based on the clear cut decision criteria. often difficulty of dealing with these decision problems are caused by the analyst's attempt to view the answer in the frame of binary logic or in other words, to seek an answer in one of two words yes or no or wrong or right and nothing between with no uncertain terms .

As the scope of transportation analysis and as the consequences of transportation decisions pose far reaching impacts on many non transportation aspects ,the analysis of transportation must inevitably deal with the types uncertainty that are different from the traditional form ,which has been handled by intelligent transportation system .That's why **it** is necessary to improve country's transportation system.

IVHS

What does IVHS means?

IVHS meaning is intelligent vehicle and highway system. Delivering a safe transportation system is a universal goal. All agencies need to incorporate safety into their overall transportation management process.

The highway safety manual provides agencies institutionalize safety.

First of all we need to evaluate what is the probability or how much rich is network . which means how much vehicles are coming or transportation is heavy or normal which which diagnosis the network then go for the economic appraisal and prioritization of the project.After that evaluate effectiveness of this intelligent vehicle/highway system.

In IVHS ,A vehicle can predict the actions of neighbouring vehicles is an important step for safer highway transportation . Locating the position of all the vehicles in close proximity to the automated vehicles with high accuracy is essential. This can be accomplished through multisensor system for adjacent vehicles.This knowledge can be accomplished by either vehicle based or roadside based detection or by Communicating with the vehicle.

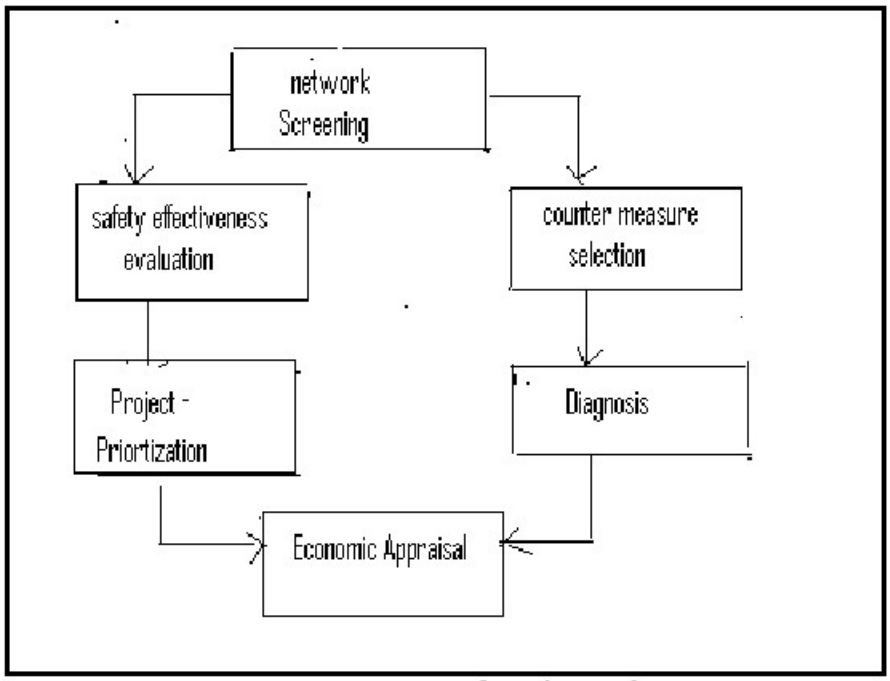

Figure: Basic flow chart Of HSM

This technology requires extreme accuracy in vehicle location at all times. Highway contain many characteristics that simplify the problem of automation ,such as uninterrupted traffic flow ,controlled access .Therefore automation on arterials will lag significantly behind automated highways. However many problems arises using equipment already designed for the highway. The problem of intersection collision can be reduced activating the on board warning system automatic braking system with electronic signal lights. If intersection detects for a collision it can notify equipped vehicles.

Advanced Traffic management system will guide the vehicle while constantly updating the routing strategy based on current information.

Conclusion

In the last couple of decades this have been widely used to solve various transportation problems that has traditional modeling approaches–research efforts have shown that this can be most efficient and effective when addressing complex problems for which an accurate and complete analytical description is often too difficult to obtain . There exists a wide spectrum of architecture which provides short term traffic prediction, incident detection etc. it has the potential to tackle a large number of problems in the area of transportation engineering.

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