Recent Trends for Prevent Road Accidents

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Abstract— Road accidents are increasing every year worldwide. Road accident causes injuries, fatalities, disabilities and hospitalization with severe socio economic costs across the country. So it is required to reduce the number of road accident, and it is not only required to reduce number of road accidents but it is essential to reduce number of deaths also from road accidents. Various measures are practicing for prevention of road accidents in all over the world, like use of intelligent transport system in traffic operation. Intelligent transportation systems (ITS) are advanced applications which, without embodying intelligence as such, aim to provide innovative services relating to different modes of transport and traffic management and enable various users to be better informed and make safer, more coordinated, and 'smarter' use of transport networks. Automated driving offers real potential for preventing accidents, against this background, the top priority must be to exploit every opportunity available to bring about a further reduction in the number of road accidents and casualties.

Key words: Road Accident, ITS, Fatality and automotive drive vehicle

I. INTRODUCTION

The Global status report on road safety 2015, reflecting information from 180 countries, indicates that worldwide the total number of road traffic deaths has reported at 1.25 million per year. However, with one of the highest motorization growth rate in the world accompanied by rapid expansion in road network and urbanization over the years, our country is faced with serious impacts on road safety levels. Road accidents are an outcome of the interplay of various factors, some of which are the length of road network, vehicle population, human population and adherence/enforcement of road safety regulations etc. Road accidents can be prevent by apply various measures on highway, like intelligent transport system (ITS) Intelligent transport systems vary in technologies applied, from basic management systems such as car navigation; traffic signal control systems; container management systems; variable message signs; automatic number plate recognition or speed cameras to monitor applications, such as security CCTV systems; and to more advanced applications that integrate live data and feedback from a number of other sources, such as parking guidance and information systems; weather information; bridge de-icing (US deicing) systems; and the like. Additionally, predictive techniques are being developed to allow advanced modelling and comparison with historical baseline data.

Recent trend to prevent road accidents

Intelligent transport systems (ITS)

Intelligent Transportation Systems (ITS) is the term used to describe the application to road transportation of advanced technologies including computing, sensors, communications, and controls. These technologies have been in use for some time, but the rate of application has increased dramatically in the past few years. These systems are intended to improve the safety, efficiency and capacity of the highway system.

Following are the applications of ITS with respect to problems on roadway.

II. VEHICLE SAFETY ARRANGEMENT

ITS not only improves the driver experience, but it also functioning in improving traffic safety. Some of the technologies practicing today are given below

- Collision ward off arrangement use radar, sonar, or other sensors to detect nearby vehicles and potential accident prone situations and alert drivers so they can take right action. Some systems also take proactive measures to avoid or mitigate the severity of a collision, including allow for automated braking assistance and occupy vehicle stability control systems.
- Lane deviations admonish systems use cameras to observe lane markings and alert the driver when the vehicle begins to move from its lane without use of the turn signal.
- Yawning driver warning systems use video technology to monitor eye movements and detect when a driver is showing signs of fatigue, providing alerts when necessary to help reduce dangerous driving situations.

III. ROADWAY SAFETY SYSTEMS

Technology involved in traffic situations also plays a key role in improving driver, passenger, and pedestrian safety. Sensors or cameras installed on roadway at traffic signals, crowdies intersections and other accident prone locations can collect and transmit real-time information about vehicles, driving conditions, and potential hazards to the vehicle user.

- Intersection collision avoidance systems use sensors to observe traffic at dangerous intersections and alert vehicles of approaching cross traffic by roadside signage. Numbers of road accidents at intersections are approximately one-third of all accidents in the United States, and test deployments have indicated that these systems are effective in both reducing the speed of approaching vehicles and decreasing the number of collisions at dangerous intersections.
- Curve warning arrangements use radar to measure the speed of vehicles approaching a curve, display the speed at which the curve can be safely negotiated on electronic signs, and warn drivers to slow down based on real-world conditions.
- Animal detection systems use infrared or other detection technologies to identify large animals approaching the roadway. When animals are detected, drivers are alerted through flashing signs. These systems are more useful in rural areas where animals like cow, buffalos are generally crossing the roads.

– Road weather sensors can give data to vehicle user in actual time about snowfall, water on the road, rain or fog ahead, and other potentially hazardous conditions through message or radio advisory.

A. Emergency Solution for road accidents injury:

First few minutes after road accident is important for injured person, if emergency medical facility is available for injury than it become possible to save many lives. Hence it is required for transport agency to make insure that emergency medical services can reach toward road accident victims. ITS is now a day's practicing for delivering road crashes information to call center by sensor detection.

B. Automotive Drive Vehicle:

Modern vehicles equipped with ever more advanced assistance systems and functions are already playing an important role. Accident researchers at the Allianz Center for Technology (AZT) have established, for example, that the number of accident-critical situations could be reduced by 32 to 82% if adaptive cruise control (ACC) and forward collision warning (FCW) were activated in 51% of cars on highways. On rural roads and in urban areas, too, such systems could help to cut the number of accidents by an impressive 32 to 45 %

IV. CONCLUSIONS

This study discusses recent trend for improving road safety by decreasing probability of hazardous conditions on roadway. Intelligent transport system is a technique by which accident prone situations can be avoided by transmission of acute time information of roadway to vehicle user. Risk factors on roadway like, high speed, violations of traffic rules, wrong decisions made by driver, adverse surface, weather or road lighting conditions are contribute to road accidents. ITS is a more feasible system that is proposed for cars in which the car will be able to sense as well as transmit data with other vehicles on road so as to avoid the accidents almost every time. A new ITS algorithm is being developed by engineers in which older cars that cannot be equipped with any of these technologies is also considered. The algorithm includes all sorts of human driving behavior which can account to a sudden collision. The anti-collision methods such as warning the driver, automatic control of the vehicle is also included in the algorithm.

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