Present Scenario of Road Accident and Latest Methods for Road Safety
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Abstract—Road accidents are increasing very rapidly. 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. According to official statistics 141,526 persons were killed and 477,731 injured in road traffic crashes in India in 2014. However, every road injuries are not reported to the police. The actual numbers of injuries requiring hospital visits may be 2,000,000-3,000,000 persons. It reflects into every minute one road accident occurs and one death reported from every four minutes. Hence it is alarming situation for transportation agency to reduce this road accidents statistics. Traditional methods are applying for road safety like wearing seat belts, adequate road marking, proper signaling on intersection but it seems that these methods are not adequate to reduce road accidents, so it is necessary to provide some advance methods for road safety. Evaluation of transport safety has been a concern of road authorities for many years. Improvement of road infrastructure, road design, vehicle design and human training contribute to a decline of the number of casualties on rural and urban roads.

Keywords: Road Safety, Road Accident

I. INTRODUCTION

Road accidents are results from the various factors like regulations for driving, vehicle condition, mental condition of road users, environmental factors, geometrical condition of road, surface condition etc. Road accident causes injuries, fatalities, disabilities and hospitalization with severe socio economic costs across the country. Road safety has become an issue of concern not only in India but at global level also. The United Nations declared 2011-20 as the Decade of Action on Road Safety. As per the Commission for Global Road Safety (2015), road traffic accidents kill an estimated 1.25 million people and injure 50 million people per year globally. The majority of these deaths, about 70 percent occur in developing countries. Road accident cause vast losses to the economy of country in property loss and personal losses to the victims in the form of treatment in hospitals. Accidents also involve considerable pain, grief and suffering to the victims as well as those who care for the victims.

II. PRESENT SCENARIO OF ROAD ACCIDENTS OF INDIA

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Fatal</th>
<th>Killed</th>
<th>Injured</th>
<th>Accident severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>4,60,92</td>
<td>93,917</td>
<td>1,05,74</td>
<td>4,96,48</td>
<td>22.9</td>
</tr>
<tr>
<td>2007</td>
<td>4,79,21</td>
<td>1,01,16</td>
<td>1,14,44</td>
<td>5,13,34</td>
<td>23.9</td>
</tr>
</tbody>
</table>

Table 1: Source: morth.nic.in

Accident severity is indicating number of persons killed per 100 road accident

The above table is indicating that road accidents are increasing every year and accident severity is also increasing every year. Accident severity in 2005 is 21.6 which increased up to 29.1 in year 2015. It reflects that deaths from road accidents are increasing very rapidly, so it is alarming situation to reduce road accidents by implementing methods for road safety.

III. LATEST METHODS FOR ROAD SAFETY

1) Use of Airbags in a Car: Most of the new cars today come equipped with airbags. In combination with seatbelts these are a very effective means of protecting safe while driving. Airbags are electronically connected to sensors in car that can detect when car been in a collision. Once car gets high collision than there is a sequence of events that occurs in the opening of the airbag. This process happens very rapidly in less than one twentieth of a second. Front air bags are meant to keep safe your head and chest area in the occurrences of a head on collision. Airbags will inflate if the impact is on an angle and if the impact is enough to decrease the vehicle's speed and trigger the sensors.

2) Plastic Road Dividers: It is observed from recent accident patterns of urban city that many fatal accidents are happen due to collision from road dividers which are conventionally made from concrete which has a high toughness. If two wheeler vehicles slightly get slip than also the vehicle gets collision with the dividers and got serious injuries, and if vehicle users not wears helmet than there is a high chances of death on head injuries. Hence it is recommended that replace this conventionally using concrete dividers with the plastic dividers which are less hazardous from the collision point of view.

3) Use of Sensors in Helmet: As per the record of road accident pattern maximum road accidents involve from two wheelers. Wearing helmet is not a guarantee of...
protection from deaths but it can reduce the probability of roads accident deaths. If two wheeler users wears helmet than severity of road accidents can be reduced. A helmet is the first line of protection for the rider in case of an accident to prevent fatal brain injuries. A methodology is developed with the help of sensors that two wheeler would not start until the user wears a helmet and rides the two wheeler. This system ensures the safety of the human brain and therefore reduces the risks of brain injuries and deaths in case of an accident.

4) Ranking of Road Safety Hazardous Locations: Road sections or spots that have accident potential or have high numbers of accidents called hazardous locations. Identification of hazardous locations in a road network is an important task for improving road safety. Further, some locations have high frequency of accident but fatality is less. Many locations with narrow bridges, slippery pavements, and rigid roadside obstruction have a high accident potential but may not yet have a history of high-accident occurrence. Therefore, it is important for a highway agency to also consider the identification of locations with a potential for high accident number or severity. Further, it is generally not possible to implement all remedial measures identified due to limited budget available for road safety improvement. Hence if road networks are treat according to their rank of hazardous locations than they can be treated depending on the available budget.

IV. CONCLUSIONS
Serious injuries & deaths due to road accidents are increasing every year worldwide. One in every tenth road deaths across the globe is reported from India, and every sixth road accident reported from India. India has only 1 % of total vehicle across globally but it has 10 percent of total deaths. Hence it is alarming situation to reduce accidents, and implement effective methodology to reduce total deaths from road accidents and total number of road accidents. Use of airbags in a car is such type of methodology which is very effective to reduce the serious injuries on head on frontal collision, it works on the sensors, which inflates when vehicle gets collision. Replacement of plastic road dividers with the concrete road dividers may reduce the serious head on injuries by the concrete road dividers. Sensors attached helmets are also very effective for two wheelers for road safety.

REFERENCES