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RESEARCH ARTICLE

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PROPOSAL TO CONTROL OVER THE STREET ACCIDENTS OF PEDESTRIANS IN INDIA

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ABSTRACT : As observed with respect to the statistics in every three minutes a person dies in every three minutes in a road accident in India. More than 90 % of the Indian Citizens use to walk on the roads; the pedestrians and the bicycles are the most vulnerable elements of traffic in most of the cities. This is not only because the reckless driving, also due to carelessness of the pedestrians too. In some cities the footpaths are occupied or not suitable to walk which forces a pedestrian to walk on the road which may lead to a street accident.

This study is mainly focused on implementation of proper technique to decrease the number of street accidents and also increase traffic awareness among people.

Key words—Road safety, tactile sensor, accident

INTRODUCTION

According to the statistics of road transport ministry of India around 4.97 lakh road accidents has been reported in 2011 among which 1.43 lakh people died. In every 3.7 minutes a person passes away here in India which is highest in the world. Driver's fault accounted for a whopping 77.5% of the total road accidents while pedestrian and cyclist's fault accounted for a mere 3.7% and defect in road condition are 1.5 % only. The rate of accidents in rural areas is higher compare to urban areas.

Among the injured people around 20% are teenagers. 17-20% pedestrian death occurs among senior citizens; more than half of the passed people are of 15 to 50 age group. The number of persons killed in road accidents were 1, 38,258, i.e. an average of one fatality per 3.5 accidents. The proportion of fatal accidents in total road accidents has consistently increased since 2003 from18.1 per cent to 25.1 per cent in 2012.

Disadvantages of current implementation:

- The infrastructures of the roads are pathetic in most of the cities in India which is the main reason for street accidents apart from reckless driving by consuming alcohol.Alsodue to less awareness by the motor cyclists also it results in that way.

- Though there are strong laws about traffic and road safety acts but the authorities are unable to prevent the inclining of numbers of street accidents.

- Mainly the middle class and lower middle class people use to walk in the roads which are the reason behind the number of victims of this category.
- People those who belongs to the middle class families use to drive two wheelers where most of them even does not have the licence.
- As per the statistics maximum road accidents are caused due to carelessness of the pedestrians, cyclists as well as motor cyclists.
- In India around 13 % of road accident victims are pedestrians which directly arises question over the road safety techniques
- Govt. has to pay a huge amount of money as a whole to help the victims or in some cases to help the family of the fatal; as per statistics it is around 3 % of the gross national product
- At the injured site, primary first aid even not available in most of the cases
- There are some problems in the Govt. hospitals to admit the accident victim without any Police verification which may take away his life
- At least 2 % of the injured victims becomes dead in way to hospitals.

So it is highly required to change the situation as most of the cities have the same problem where Maharashtra tops the list with the maximum number of road accidents. The proposal is mainly based on the metro cities as well as the main cities like Delhi, Kolkata, Mumbai, Chennai, Bangalore, Hyderabad etc.

THEORY

Road accidents are very tragic which acts upon a family as well as some close people extremely. These incidents also affects the economy of a country as well as socio economic balance also damaged due to early deaths, injuries and loss of income.

Data

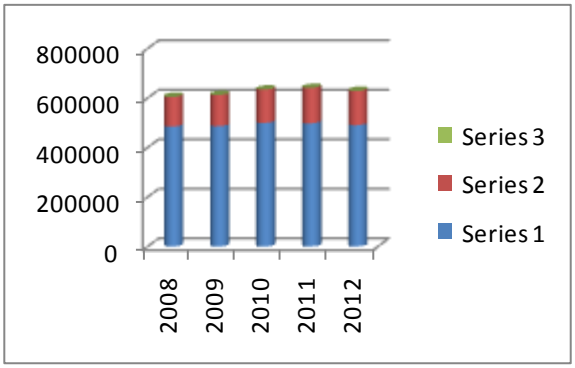
Table 1

Year	Number of Accidents	Number of Persons Killed	Accident Severity
2002	4,07,497	84,674	20.8
2003	4,06,726	85,998	21.1
2004	4,29,910	92,618	21.5
2005	4,39,255	94,968	21.6
2006	4,60,920	105,749	22.9
2007	4,79,216	114,444	23.9

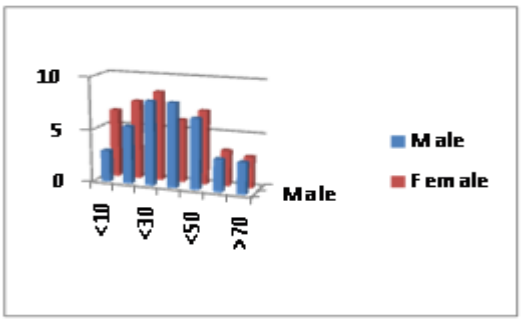
Accident Severity is number of people died per 100 injured in accidents. Now if we look at the present scenario the condition is massively deteriorating.

Table 2

Year	Number of Accidents	Number of Persons Killed	Accident Severity
2008	4,84,704	119,860	24.7
2009	4,86,384	1,25,660	25.8
2010	4,99,628	1,34,513	26.9
2012	4,97,686	1,42,485	28.6
2013	4,90,383	1,38,258	28.2



Graphical Representation of Severity



Graphical representation of fatal

Proposed Modification:

- Sufficient space for safe walking in the city with walk able footpaths.
- More prominent areas with visible clearly crossing to change the road side.
- By placing boundaries on the entire foot paths except crossings
- Separate pedestrian movement than the heavy traffic if possible
- Proper design of the crossings with sensors that can sense by the load close to it.
- A level crossing like system can be implemented in all main crossing of the city. By using a tactile sensor the signal can be easily controlled; if the entire footpaths can be covered with suitable items then the pedestrians can only cross the road in few crossings. At the crossing tactile sensors can be arranged in such a way that whenever a certain no of people gather on the crossing to change the side of the road it can sense by the loads of waiting people and the crossing will be auto on and until all are crossed it will remain open. Whenever a pedestrian will start walking on the roads except the signals the sensors will sense that.

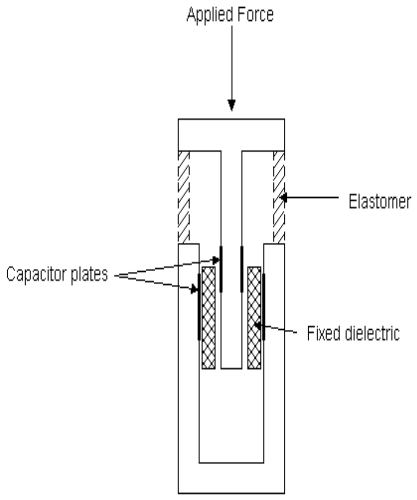
- If tactile sensors are placed within a certain distance then it can sense how far one vehicle is running from the last one.

- Tactile sensing is the process of determining physical properties and events through contact with objects in the world. It is an essential sensory device to support the robot control system particularly in object manipulation task.

- Also by image sensing technology this study can be done or progressed further as like application of Micro Electro Mechanical systems.

- By placing automatic sensing gates or crossings the speeds of the vehicles can be controlled. As the drivers and motorcyclists are reluctant to follow the traffic signals but if a gate way is established then they have to stop at the crossing.

Now to implement these techniques 1st we have to find out the areas with higher load of pedestrians in the cities. Then the road sides has to be covered; e.g. the foot paths with some suitable boundaries so that pedestrians could walk within safe zone. Then the tactile sensors could be places under the road at the crossings.



Tactile sensor

Level crossing consisting of tactile sensors under the road

If a road is wide enough and has a median fence then it can be utilised by planting some trees which will make the road more attractive and beautiful.

CONCLUSION

- If this technique can be implemented then the number of pedestrian accidents will come to minimal
- Though there is an increase of vehicles every year but it can be controlled by sensing technologies
- A proper designed road could be achieved
- The expense of the govt. in the era of road accidents will also come down
- The real impact should be seen only by the reduction in numbers of pedestrian accidents in coming future
- The authorities has to care the roads to make them safe for the pedestrians

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