System of Driver Support in Vehicles

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ABSTRACT: ***In today's world, injuries have been more of a day than a day. It's about time we came up with a proposal to suppress it. Our paper reflects on ways to minimize these daunting incidents that have a significant effect on precious lives. In India, we don't have a complex mechanism that might make it easier to monitor incidents. We have thus taken the initiative to monitor the horrific incidents that are actually on the rise with this article. Our paper deals with the avoidance of collisions in the case of twisted roads, where most accidents are accused of happening, since in this case the driver on one side is unaware of the vehicle approaching on the other side.***

KEYWORDS: ***Autonomous, Road Accident, Safety System, Vehicle protection, Passenger safety, Guidelines.***

INTRODUCTION

Road incidents are the result of the interplay of multiple factors, including the length of the road network, the population of cars, the human population and the implementation of road safety laws, etc. Road incidents cause casualties, deaths, disability and hospitalization with significant social and economic costs throughout the world [1]. As a consequence, road safety has been a matter of national and international interest. The cumulative number of road injuries rose by 2,5% from 4,89,400 in 2014 to 5,01,423 in 2015. The estimated number of victims killed rose by 4.6 per cent from 1,39,671 in 2014 to 1,46,133 in 2015 [2]. Road crash accidents have rose by 1.4 per cent from 4 per cent. Accident severity (number of people killed per 100 incidents) has risen from 28.5 in 2014 to 29.1 in 2015. It also indicates that there are 57 accidents and 17 deaths per hour on average in road accidents in our country. There's one death every four minutes from a road crash in India.

Severe road accidents in India occur every minute and 16 die every hour on Indian roads.1214 Road accidents occur every day in India. Tamil Nadu is the state with the highest number of road accidents (figure 1).

1.1 Architecture of The System

The driver assistance and safety warning system has three primary functions:

1.1.1 Have appropriate just-in-time information about the car, the road and the surrounding environment for safer and faster driving.

1.1.2 Passively alert the driver whether his or her car is in a dangerous condition.

1.1.3 Proactively alert the driver of potentially dangerous circumstances on the basis of the vehicle's actual location, orientation and speed and path or surrounding conditions [3].

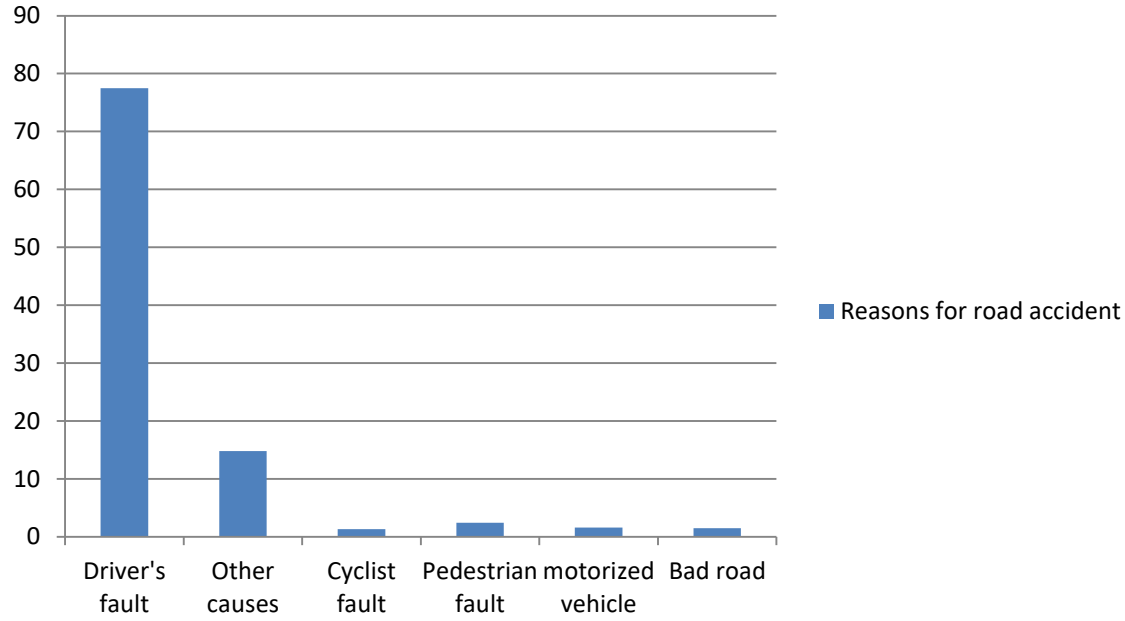

Figure 1: Reasons for accidents on road

Autonomous driving is now one of the most important fields of use of artificial intelligence. Loaded with cameras, algorithms and control systems, autonomous vehicles are designed to operate on their own with limited assistance from human drivers [4]. Continuous progress has been made, with some autonomous vehicles exhibiting excellent results. However, we agree that it will take some time before autonomous vehicles become realistic. In the meantime, smart vehicles-intelligent driver management devices with humans in control-appear to be more promising. In this vein, we are developing an intelligent driver support system, the Driver Advocate" (DA). Building smart vehicles needs a great deal of the same technology to create autonomous vehicles, including camera, vision and image processing systems, meaning and situation understanding, mission modeling, and Inference and decision-making capability. However, as the system needs to communicate with the human driver, designing an autonomous vehicle involves external technology [5] such as user simulation, purpose detection and human factors. One of the difficulties here is that there is a wide variation between the individual drivers in their driving behaviour, and so the driver support system should be able to respond to the peculiarity of each driver [6].

LITERATURE REVIEW

Dual principles of car-to-vehicle mutual service and engagement have been applied to the driver assistance device designed to lighten the working burden on the driver and reduce the incidence of injuries. This answered the question that such systems would decrease the morale of the driver or trigger other problems of this nature [7].

CONCLUSION

Safety systems are intended to deter crashes and injuries by providing devices that alert the driver to possible problems or stop collisions by enforcing precautions and taking charge of the car. Future functionality will be entirely automatic driving. Future plans are to further refine the framework and bring the design into use in advanced truck driver training. It would put together diverse ways of adapting e-learning solutions, serious sports, realistic simulations with actual vehicles and simulator (high-end and low-end) based testing. During the training phase, the individual learning of the acquired skills is followed. This makes for customized

learning approaches and length. The pre-test of drivers and the preparation of training are an important aspect of the definition.

A. Lower-Experienced Pilot- Electronic stability control (also known as cornering break control), intelligent cruise control and forward collision mitigation technology.

B. Night Driver Frequent-Sleep warning and adaptive headlights.

Ending this paper by addressing a variety of interesting problems that we encounter or plan to face during the transformation process. The first is the problem of scalability, i.e. if the results we derive from virtual driving data can be scaled to realistic conditions with real sensors. Unlike the 'high-level situational knowledge' data that we get from the simulator, the output from actual sensors will be unpredictable and low-fidelity.

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