Title

Active Safety Study and Potential Technical Application in China Based on Real World Accident Data

Authors

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Abstract

During the past 10 years, the passenger vehicle production in China has increased a lot. In 2009, it reached 10 million, and after 5 years (2014), it was about 20 million. Besides this, it is predicted that it will exceed 25 million in 2018. Meanwhile, we can also see that are still a lot of road traffic fatalities in China. Though according to The People's Republic of China Road Traffic Accident Annual Statistic Report, the number of traffic deaths decreases every year, but compared with Germany and Sweden, there are still a lot of traffic accidents in China.

This article first provides an overview of China's real world daily road traffic conditions, some of which are different from European countries. Then based on the real world 1,718 on scene traffic accidents investigated by CIDAS (China In-Depth Accident Study) which were collected in six cities in China from 2011 until 2014, a comparison accident study was made between developed countries and China. Through the comparison, typical accident characteristics were analyzed. In the end, active safety technologies which would benefit for the Chinese traffic problems were proposed, and the future applications of these technologies were also studied in the paper.

Results: According to the CIDAS data from 2011 to 2014, nearly 76% traffic fatalities are vulnerable road users (VRUs, pedestrian 21%, two wheelers riders 55%). For the fatal electric PTW accident in CIDAS, it was found that, if the field of view of camera on the car increased from 40 degree to 60, then it would cover 88% of the fatal accidents, and 70% for the non-fatal. Compared with the real world pedestrian accident data from UK, similar distribution of adult male and adult female was found in CIDAS. For the pedestrian walking speed before the accident, there were more running cases in OTS than in CIDAS. For the severely and fatally injured in-car occupant accident, the top 5 accident reasons for the accidents were: over speeding, failure in giving way, drunk driving, incorrect braking and fatigue driving. Active safety technologies like night vision, AEB, LDW and etc. will benefit a lot for the Chinese real world traffic safety.

Key Words: traffic safety, accident characteristic, pedestrian accident, in-car occupant protection, active safety