IN-DEPTH INVESTIGATION OF BUS ACCIDENTS

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Abstract - Bus or heavy vehicle passenger accidents are rare events, compared with car accidents, but sometimes leads to a large number of victims especially in rollover crash scenarios.
Two accidents occurred in Portugal in 2007 and 2013 in which 28 people died and more than 50 are injured, shown the importance of the investigation of such accidents. For the investigation of these accidents multidisciplinary teams are constituted with engineers and police officers. All the factors involved are taken into consideration including road design, traffic signs, maintenance and hardware, human factors, and vehicle factors. In this work a methodology to an accurate collection of the data is proposed. From the information collected the accident is reconstructed using the PC-Crash™ software. From this all the contribution factors are determined and recommendations to mitigate these crashes are listed. These two accidents are rollover accidents and the analysis of the injuries and its correlation with the use of retention systems is very important. From the medical data and with the dynamics of the accident determined simulations of the occupants with biomechanical models are carried out in order to evaluate the effect of the retention systems in the injuries. This analysis is based on injury criteria (such as Abbreviated Injury Score (AIS) or Injury Severity Scale (ISS)). With this it is possible to determine if the seat belt was worn or not.