

## A possible collision safer device for automobile vehicles

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### Abstract

In our modern daily life, automobile vehicles are the most common transportation tools, however, collisions cause millions of people injury or death and billions of dollar property damage every year, safety is the top concern in automobile industry and researchers, great resources and efforts are focused on preventing collisions, but not much on reducing the severity of the collisions when they really happen. A new collision safer device is proposed to substantially reduce the impact force on the people and on the vehicles during the collision, lives can be saved and property damage can be reduced. The proposed collision safer device has one free rotation wheel installed horizontally at the vehicle lower front left and right corners, respectively, it can be also installed in the middle section of the bumper location as option; the wheels will be first contact of the vehicle when in collision; when the collision is no perpendicular, the collision force component parallel to the collision surface of the collision will cause the wheel rotating and make the vehicle rolling slide along the direction of the parallel force component, therefore, the collision will be softer and less harmful, so lives could be saved and property damage could be reduced.

At 45 degree collision angle, the effective impact force on the people and the vehicle can be reduced about 30%, such 30% impact force difference could mean life or death; at 30 degree collision angle, the effective impact force is half of the original impact force; and at 20 degree collision angle, the effective impact force is about one third of the original impact force, such dramatic reduction of the effective impact force will significantly reduce the severity of the collision, and reduce the collision injures and property damages. Millions of lives and billions of dollars for the property damages will be saved in the future if the proposed collision safer devices are installed on all vehicles in the future. This collision safer device is simple, low cost and can be installed on all types of vehicles. The proposed collision safer devices can be perfectly fit into the structure of the crumple zone of the vehicles and provide maximum protection for the occupants of the vehicles. The function of the proposed collision safer devices in most frequently happened collision situations are discussed.

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