

CAR SEAT BELT INDICATOR WITH VOICE REMINDER

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ABSTRACT

Car was the second most common transportation used and also has been identified as one of the highest contributor to fatalities in road accidents. Since seat belt has been proven to prevent certain injuries and also reduce the risk of fatalities for the car occupants, the government has decided to make seatbelt mandatory in all cars. The seat belt indicator systems available in most car today use LED and buzzer as it main indicator to remind the car occupants' on the seat belt usage, but these systems were still insufficient judging by the amount of car accidents and fatalities that have been increasing every year. By developing an indicator system with an improved visual and audio indicator, a system that can remind and warn car occupants about their seat belt usage was invented.

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CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION TO THE PROJECT

Malaysia has been experiencing rapid growth in the population, economy and motorization. This increase in population and motorization has led to an alarming increase in the number of road accidents and car has been identified as one of the highest contributor to fatalities in road accidents [1]. In 2001 alone, of the 11,302,545 registered vehicles with the Department of Transportation, close to half (4,557,992) were cars, representing 40% of the total vehicles registered in Malaysia. Of 5,849 fatalities registered in 2001, car drivers made up about 9.0% (527) of the deaths and 8.6% (4,335) of the casualties. Passenger fatalities for the same period stood at 797 (13.6%) and casualties at 4,712 (9.3%). Combined, the results indicate 1,324 fatalities (22.6%) and casualties of 9,047 (17.9%) for car occupants which stands next to motorcyclists in terms of number of fatalities and casualties. Studies done have found out that the major cause of car occupant fatalities in car accidents was head injuries, which account for more than half (56.4%) from the total of 1,324 fatalities.

This usually occurs when car occupants are thrown out of the vehicle through the windshield or when they collide with the car seat or dashboard. Thus this observation leads to the inevitable conclusion that the head and body are the most susceptible parts to injury and that restraining the head and the body in the initial position is important in any injury control strategy involving car users [2]. To prevent these cases from increasing, government has made seat belts mandatory for all cars in Malaysia. This was due to the studies that have been conducted on the effectiveness of seat belts. According to the studies, seat belts are 56% effective in preventing fatalities to front seat occupants in passenger cars. In other words, 56% of fatalities could be prevented if all the front seat passengers are restrained. As far as nonfatal injuries are concerned, seat belts are more effective in reducing non-incapacitating injuries (55%) compared to incapacitating injuries (53%). Seat belts also are 33% effective in reducing possible injuries to passenger car occupants.