

A Computer Program for Developing Bus Rear-End Collision Warning  
Algorithms

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Abstract

This study designed a simulation scenario based on a bus driving simulator for testers to respond to a vehicle in front which suddenly braked while following it on freeway straight road sections. Bus drivers working in the freeway bus companies were recruited to conduct the simulation experiment. The sample data of the braking perception-reaction time, deceleration rate and stopped vehicle spacing were collected and analyzed. Then this study utilized the fuzzy set theory to develop the safety membership function of each parameter and the related rear-end collision warning algorithms. According to the developed framework of parameter analysis, this study finally developed a computer analysis program to manage the experimental data and establish fuzzy-based bus rear-end collision warning algorithms. This program provides five major functions by seven modules. The developed program can be a useful platform to develop the rear-end collision warning systems for bus driving.

Keyword : Bus, Driving Simulator, Freeway, Rear-End Collision, Computer Program.