

Acoustic Situation Awareness and Its Effects on Pedestrian Safety within a Virtual Environment

Abstract

A major component of the U.S. Department of Transportation's (DOT) mission is to focus on pedestrian populations and how to enable safe and efficient mobility for vulnerable road users. However, evidence states that college students have the highest rate of pedestrian accidents. Due to the excessive use of personal listening devices (PLDs), vulnerable road users have begun subjecting themselves to reduced levels of achievable situation awareness resulting in risky street crossings. The ability to be aware of one's environment is critical during task performance; however, the desire to be self-entertained should not interfere or reduce one's ability to be situationally aware. The current research seeks to investigate the effects of acoustic situation awareness and the use of PLDs on pedestrian safety by allowing pedestrians to make "safe" vs. "unsafe" street crossing within a simulated virtual environment. The outcomes of the current research will (1) provide information about on-campus vehicle and pedestrian behaviors, (2) provide evidence about the effects of reduced acoustic situation awareness due to the use of personal listening devices, and (3) provide evidence for the utilization of vehicle-to-pedestrian alert systems.

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