Pedestrian-related crashes are a significant safety issue in the United States and cause considerable amounts of deaths and economic cost. Pedestrian safety is an issue that must be uniquely evaluated in a college campus, where pedestrian volumes are dense. The objective of this research is to identify issues at specific locations around UCF and suggest solutions for improvement. To address this problem, a survey that identifies pedestrian safety issues and locations is distributed to UCF students and staff, and an evaluation of drivers reactions to pedestrian to vehicle (P2V) warning systems is studied through the use of a NADS MiniSim driving simulator.

The survey asks participants to identify problem intersections around campus and other issues as pedestrians or bicyclists in the UCF area, as well as experiences with the UCF shuttle system. Univariate probit models were created from the survey data to identify which factors contribute to pedestrian safety issues, based off the pedestrian's POV and the driver's POV. The models indicated that the more one is exposed to traffic via walking, biking, and driving more trips per week to campus contributes to less safe experiences. The models also show that higher concerns with drivers not yielding, unsafely crossing the intersections, and the number of locations to cross, indicate less safe pedestrian experiences from the point of view of pedestrians and drivers.

A promising solution for pedestrian safety is Pedestrian to Vehicle (P2V) communication. This study simulates P2V connectivity using a NADS MiniSim Driving Simulator to study the effectiveness of the warning system on drivers. According to the results, the P2V warning system significantly reduced the number of crashes in the tested pre-crash scenarios by 88%. Particularly, the P2V warning system can help decrease the driver's reaction time as well as impact velocity if the crash were to occur.

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Approved for distribution by Mohamed Abdel-Aty, Committee Chair, on September 27, 2019.

The public is welcome to attend.