Team contributing to noise safety standards for electric vehicles

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Louisiana Tech researchers conduct noise output measurements on electric cars. Credit: Louisiana Tech University

The Professional Development and Research Institute on Blindness (PDRIB) at Louisiana Tech University is conducting human trials to determine if electric and hybrid electric vehicles traveling at low speeds provide sufficient sound to be safe for pedestrians, especially those who are blind and visually-impaired.

The World Blind Union (WBU), in partnership with the National Federation of the Blind (NFB), is working with the United Nations to develop an international minimum sound standard for electric and hybrid electric vehicles. The standard would require electric and hybrid vehicles to be equipped with a sound generating device known as an: "Acoustic Vehicle Alerting System (AVAS)."

Louisiana Tech's PDRIB conducted trials with blind pedestrians and blindfolded adults. During these trials, vehicles with and without the AVAS standard traveled in front of these individuals and measures were captured to determine at what distance the new sound standard can be heard. The results of the research demonstrated that in fact, the sound being emitted by the AVAS system was too low to provide meaningful warning to pedestrians.

The data demonstrated no significant difference in the time that pedestrians could hear the approaching sound of a "quiet" electronic vehicle and the approach of a quiet vehicle using the AVAS alert system.

"Louisiana Tech University is at the forefront in innovative research in the area of education and rehabilitation for the blind, and the work we are doing here will be used to make the world a safer place for blind (and sighted) pedestrians in the future," said Dr. Edward Bell, director of Louisiana Tech's PDRIB. "We are proud to represent Louisiana Tech and are confident in the impact that our research will have on the United Nations and auto manufacturers as they seek to make vehicles that are both environmentally friendly and safe for pedestrians."

Dr. Fredric Schroeder, first vice president of the World Blind Union says the work of Louisiana Tech's PDRIB is impressive and important with its current research regarding the quiet car issue being only the latest example of the difference that Bell and the Institute are making.

"Without the real-life testing of the alert device by Dr. Bell and his team, we would have no way of knowing whether the proposed technical committee standard will safeguard blind pedestrians or leave them subject to preventable accidents and injury," said Schroeder. "There are 258 million blind and visually impaired people in the world. Without the help of Dr. Bell and Louisiana Tech University, the independence of these individuals would be seriously limited."

Bell recently presented these findings to a United Nations committee in Seoul, South Korea to consider in making its determination on whether to accept this standard for all future electric and hybrid vehicles. Although the final outcome of that meeting is not yet known, the data collected from the study at Louisiana Tech during these human trials has played a significant role in educating the United Nations and international automobile manufacturers as to the efficacy of the systems and standards they are proposing.

Provided by Louisiana Tech University

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