Innovative Technology in the Fight Against Drunk Driving

Each year in America, drunk driving claims approximately 10,000 lives and costs the U.S. approximately $194 billion.[1] Can we invent a passive safety system for cars that would help prevent a drunk driver from getting on the road? That's what the Driver Alcohol Detection System for Safety (DADSS) Program is working to do.

The DADSS Program is a public-private partnership between the federal government and the world's leading automakers. Public-private partnerships like DADSS have led to innovations that enhance our everyday lives, such as the internet, GPS and the microchip. The Program is researching a first-of-its-kind alcohol detection technology that will detect when a driver is impaired with a blood alcohol concentration at or above 0.08% and prevent the car from moving. Once it has met rigorous performance standards, it will be voluntarily offered to vehicle owners as a safety option, similar to other driver assist systems like automatic braking or lane departure warning.

The breakthrough technology will be fast, accurate, reliable and affordable. And unlike existing alcohol detection technologies, it will be seamlessly installed into new vehicles and will not affect normal driving behavior.

Virginia: The First State Partnership

Recognizing the potential of the DADSS technology to save lives by preventing drunk driving, Virginia became the first state to use NHTSA highway safety grant funds to partner with the DADSS Program through the Virginia Department of Motor Vehicles (DMV). The partnership—Driven to Protect—is another example of the technological innovation happening in Virginia and the ongoing leadership the state is showing in the fight against drunk driving.

In 2018, Governor Northam and the Virginia DMV announced a partnership with local business James River Transportation to conduct the first in-vehicle, on-road test trials of the alcohol detection technology. James River Transportation equipped their airport shuttles with prototype sensors and collected breath samples as drivers took clients from Richmond International Airport and Norfolk International Airport to their destinations.

In the first two years of the partnership, the sensors accumulated nearly 52,000 miles and over 46,000 breath samples. The data and feedback collected from the prototype sensors, as well as from the drivers themselves, have been invaluable to improving the technology as it is prepared for widespread commercialization.

[1] National Highway Traffic Safety Administration (NHTSA). "The Economic and Societal Impact of Motor Vehicle Crashes, 2010." Washington (DC), December 2015, DOT HS 812 231. Available at URL: http://www-nrd.nhtsa.dot.gov/Pubs/812231.pdf

In addition, Driven to Protect has been giving Virginians an early look at the technology by bringing the prototypes to events around the state – from baseball games, to military bases, to NASCAR races to local festivals. This traveling experience lets Virginians test the technology for themselves while educating them about the effects of alcohol on driving. The program is currently developing a series of digital resources and online learning courses that provide engaging opportunities to learn some of the science behind the program.

Putting the Technology to Work

Virginia has been a leader in the state-level fight against drunk driving. This includes participation in Checkpoint Strikeforce, a research-based, multistate, zero-tolerance drunk driving initiative that enjoys widespread public support, whose goal is to get impaired drivers off area roads by employing checkpoints and patrols at the locations and times that drunk driving is most likely to occur.[2]

Despite these efforts, drunk driving remains a major threat to all Virginia families and road users. In 2020, Virginia reported 6,624 alcohol-related crashes, 272 alcohol-related fatalities, 3,986 alcohol-related injuries and 14,105 DUI convictions on its roadways.[3]

To move towards a future without drunk driving, Virginia recognizes that we need combination of broad public awareness, strong enforcement, legislation such as first-time offender ignition interlocks, comprehensive education, and other research proven interventions to stop drunk driving. By advancing the alcohol detection system, Virginia is adding an important new tool to prevent drunk driving before it happens.

Through Driven to Protect, Virginia continues to put the health and safety of its residents first by helping to prevent additional drunk driving crashes, injuries, and deaths on its roads.

The Breath System

The breath system developed by the DADSS Program determines a driver's blood alcohol concentration by measuring the alcohol (ethanol) level present in a driver's naturally exhaled breath. A small sensor analyzes only the breath molecules of the driver using infrared light.

This technology will take the guesswork out of BAC measurements by letting a driver quickly, easily and reliably know if they are at or above the legal limit.

Ultimately, this sensor would be programmable to a zero-tolerance policy for parents of teen drivers, or to a BAC of 0.08 percent, the legal limit in nearly all 50 states.

For more information about the program, visit www.DriventoProtect.org.

[2] http://www.checkpointstrikeforce.net/
[3] Numbers for 2020 are from the Dept. of Motor Vehicles' Virginia Highway Safety Office at: https://www.dmv.virginia.gov/safety/crash_data/crash_facts/crash_facts_20.pdf