

New Technology in the Fight Against Drunk Driving

Drunk driving remains the #1 cause of fatalities on U.S. roadways¹, claiming more than 12,000 lives and costing the U.S. approximately \$194 billion every year.² That's why the world's leading automakers and the federal government have joined forces in a public-private partnership called the Driver Alcohol Detection System for Safety (DADSS) Program. Together, they are developing in-vehicle alcohol detection technology to reduce and hopefully one day eliminate drunk driving on our roads.

This new technology – known as DADSS - is designed to reliably, accurately, and passively detect if a driver's blood alcohol concentration is at or above the legal limit – .08% in all 50 states except Utah – and prevent the vehicle from moving. The DADSS system will detect when a driver is impaired with an illegal alcohol concentration and prevent the vehicle from moving. The DADSS Program is made up of two parts: 1) the DADSS Research Initiative, which is developing passive, vehicle-integrated alcohol-detection technology; and 2) the Driven to Protect Initiative, which is building consumer awareness, confidence, and trust in new these new technologies.

The DADSS technology is the latest innovation in driver-assisted safety to help drivers safely operate their vehicles. But unlike existing alcohol detection technologies, DADSS is not a punitive device. Like automatic braking or lane departure warnings, the technology is designed to be seamlessly integrated into new vehicles, keeping the driver safe without affecting normal driving behavior. For underage drivers, the technology may be customizable so that if any amount of alcohol is detected, the car won't start– giving parents the peace of mind that their young drivers won't harm themselves or others on the road.

Virginia: The First State Partnership

Driven to Protect is an initiative of the DADSS Research Program, which empowers states to join the fight against drunk driving by advancing lifesaving safety technology. Powered by a public-private partnership between ACTS and the NHTSA, Driven to Protect offers states the opportunity to test the DADSS alcohol-detection technology on their roads, bringing it closer to widespread commercialization and encouraging consumers to consider advanced sensor technology as a solution to this deadly problem. Virginia was the first state to join the Driven to Protect Initiative,

which now also includes Connecticut and New York. The collaboration – the Driven to Protect | Virginia Initiative — 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, Driven to Protect | Virginia announced a partnership with local business James River Transportation to conduct the first vehicle-integrated, on-road test trials of the alcohol detection technology. James River Transportation equipped their airport shuttles with prototype sensors and collected breath samples to test the sensors' durability and ease of use. Since the launch of the partnership, the sensors have accumulated nearly 100,000 miles and 140,000 breath samples. In 2021, Driven to Protect | Virginia announced a collaboration with Schneider, the first truckload carrier to test the DADSS technology. This trial deployment is designed to help refine the breath sensors by increasing the stress that the DADSS system is put under on the road, exponentially increasing the number of miles driven, and exposing the system to new drivers and environmental conditions. Since 2022, the sensors have accumulated over 140,000 miles and over 54,000 breath samples. The data and feedback collected from the prototype sensors in both pilots, as well as from the drivers themselves, have been invaluable towards bringing fully passive vehicle-integrated breath technology closer to widespread commercialization.

Driven to Protect | Virginia has also been giving Virginians an early look at the technology by bringing it to events around the state — from baseball games and local festivals to military bases and professional development conferences for educators. These interactions allow Virginians the opportunity to experience the technology for themselves and to become advocates for technology as a solution to drunk driving.

In 2020, with partners including the Virginia Department of Education, Driven to Protect | Virginia developed a virtual platform — the Driven to Protect Discovery Hub — to educate students about safe driving and the science behind the DADSS technology.

The Breath and Touch Systems

The breath system is being designed to measure a driver's blood alcohol concentration (BAC) by precisely quantifying the alcohol (ethanol) level present in a driver's naturally exhaled breath. A small sensor analyzes the breath molecules of only the driver using infrared light.



The touch system under development uses spectroscopy to measure alcohol levels under the skin's surface. A sensor shines infrared light through the driver's hand or fingertip.

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, protecting themselves and others on the road.

Putting the Technology to Work

Virginia has been a national leader in the fight against drunk driving. But despite these efforts, impaired driving remains a major threat to all Virginia families and road users. In 2022, Virginia reported 6,910 alcohol-related crashes, 260 alcohol-related fatalities, 2,702 alcohol-related injuries, and 14,247 DUI convictions on its roadways.³

To create a future without drunk driving, Virginia recognizes that we need a combination of broad public awareness, strong enforcement, legislation, 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.

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



¹ National Highway Traffic Safety Administration (NHTSA).

<https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813321>

² National Highway Traffic Safety Administration (NHTSA). "The Economic and Societal Impact of Motor Vehicle Crashes, 2010." Washington (DC), December 2015, DOT HS 812231. Available at URL:

<http://www-nrd.nhtsa.dot.gov/Pubs/812231.pdf>

³ Numbers for 2022 are from the Dept. of Motor Vehicles' Virginia Highway Safety Office at:

https://www.dmv.virginia.gov/safety/crash_data/crash_facts/crash_facts_22.pdf