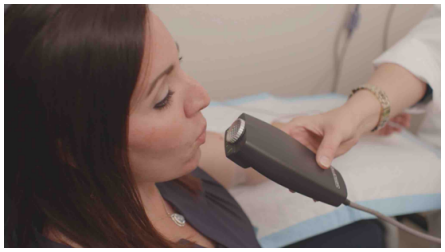
Program Overview

DADSS Technology: Inventing a World Without Drunk Driving

Drunk driving remains the #1 cause of fatalities on U.S. roadways, claiming more than 10,000 lives and costing the U.S. approximately $194 billion every year.[1] With drunk driving fatalities on the rise again, new alcohol detection technology is on the horizon to help reverse this deadly trend. That's why the world's leading automakers, through the Automotive Coalition for Traffic Safety (ACTS), have joined forces with the U.S. federal government, through the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) in a public-private partnership called the Driver Alcohol Detection System for Safety (DADSS) Program. Together, the Program is developing a first-of-its-kind vehicle safety technology to reduce and hopefully one day **eliminate drunk driving.**



This new technology is designed to measure and precisely quantify when a driver is intoxicated with a BAC at or above 0.08% - the legal limit in most states - and prevent the vehicle from moving. DADSS technology is the latest innovation in driver-assisted safety, like automatic braking or lane departure warning, to help drivers safely operate their vehicles. This breakthrough technology is designed to be fast, accurate, reliable, and affordable. And unlike existing alcohol detection technologies, it is not a punitive device, but instead designed for seamless integration into new vehicles 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 additional peace of mind that their young drivers won't harm themselves or others on the road.

How would the technology work?

Two technologies are being developed: a breath system and a touch system. **The breath system** is being designed to measure and precisely quantify alcohol in a passive, non-invasive way as a driver breathes normally, when in the driver's seat. Sensors in the vehicle cabin draw in the driver's naturally exhaled breath, measuring the alcohol concentration through infrared light. Unlike existing breathalyzers, a forced deep lung sample into a mouthpiece is not required, making the system seamless and tamperproof. The breath system is also being designed to distinguish between the driver's breath and any passengers.

The touch system uses tissue spectroscopy to measure blood alcohol levels under the skin's surface by shining an infrared light into the fingertip or palm of the driver. It is being designed to take multiple, accurate readings in a matter of seconds. While final locations are still being determined, it will likely be integrated into current vehicle controls, such as the gear shift, starter button or steering wheel.

[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

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Out of the Lab & Onto the Road

DADSS continues to form **key partnerships** through the Driven to Protect Initiative with U.S. states and private fleet companies to test the technology in trial deployments. Breath sensors have been integrated into vehicles for **on-road tests,** allowing engineers to collect data from sober drivers and observe driver behavior in natural settings. Testing has been expanded to include **controlled, in-vehicle tests** with drinking passengers to determine how the sensors respond to real-world conditions. The Program is also in the middle of comprehensive human subject and driving tests at the Harvard University-affiliated McClean Hospital to ensure the highest levels of accuracy, precision and reliability are met before being introduced to consumers.

Nearing the Finish Line

Today, teams of engineers, chemists and data scientists continue to evolve the technology to meet **strict performance specifications** and ensure the systems are fast, accurate and reliable so sober drivers are not inconvenienced and **so drunk drivers are never allowed to operate the vehicle**. They are also working to reduce the size of the sensors, so they are small enough to fit into passenger vehicles, can withstand harsh environmental conditions, do not require extensive calibration and can last the entire lifetime of a vehicle.

Previous transportation safety innovations like airbags take a minimum of 20 years to be tested and approved for the public's use. The DADSS Program is on track to be completed in less time and is currently on schedule with the following timeline for commercialization:

- **2021:** Zero-tolerance (.02 BAC) **directed breath sensors** available for licensing by **fleet operators**
- **2024-2025:** Fully **passive breath sensors** made available to OEMs for consumer vehicles (0.08 BAC)
- **TBD:** Fully **passive touch sensors** made available to OEMs for consumer vehicles (0.08 BAC)

After the technology is made available to vehicle manufacturers, it will take at least 1-2 years for the system to appear in consumer vehicles, because automakers need time to integrate the system into each different make and model in their own unique way. **The technology will be made available globally,** and it will be up to each vehicle manufacturer to determine when and how the technology will be integrated in future vehicles.

For more information, visit www.dadss.org

AUTOMOTIVE COALITION FOR TRAFFIC SAFETY

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