



Interlocks in all vehicles? Not quite...

“Imagine a world without impaired driving.” The [Driver Alcohol Detection System for Safety \(DADSS\)](#) program seeks to turn this aspiration into reality.

The DADSS program was borne out of recognition that while we have made substantial gains in reducing the drunk driving problem, there are still far too many alcohol-impaired fatal and injury motor vehicle crashes. This loss of life and the associated societal impact costs the United States billions of dollars annually. In an effort to save lives and reduce the economic burden associated with impaired driving, stakeholders have now turned toward technology in the hopes that an innovative approach can eliminate the behavior.

Since 2008, the National Highway Traffic Safety Administration (NHTSA) and the Automotive Coalition for Traffic Safety (ACTS), which represents many of the world’s leading automakers, have been working to establish new technology. The overall goal of these technological advances is to develop and incorporate sophisticated alcohol detection devices as standard features in a vehicle. Under a ten-year cooperative research program, various prototypes will be developed, tested, and refined. This partnership between private sector and government factions has gained the long-standing support of Congress, and traffic safety groups including [Responsibility.org](#).

Some may ask, do we not have this technology already in the form of ignition interlocks?

Many people are familiar with [alcohol interlocks](#). These devices, which have been in use since the 1980s, require a driver to provide a breath sample that is screened for alcohol content. The interlock is connected to the starter or other on-board computer system, and in order for the vehicle to start, the breath sample must not contain a BAC level above a pre-set limit. The device also requires repeated breath tests while the vehicle is in use to ensure the driver continues to remain sober for the duration of the trip. DADSS technology will differ from the interlock as we currently know it in several key ways.

Interlocks for DUI offenders, DADSS for the general public. In North America, we employ a public safety approach to the use of in-vehicle alcohol detection technology. The use of interlocks is limited strictly to offenders (i.e., those arrested or convicted of drunk driving). The rationale for the use of the technology is to punish these offenders while simultaneously protecting the public-at-large by incapacitating them.

The approach utilized in Europe is different. In many countries, interlocks are used in both a criminal justice and [commercial context](#). For example, in France interlocks are required for all buses that carry children and in Sweden they are utilized on commercial fleet vehicles. These nations use interlocks in this capacity as a means of protecting a greater number of people.

BAC level. Current interlock devices have pre-set levels well below the legal limit. All 50 states have offender-based interlock programs with pre-set limits that range from .02 to .05. The reason why these levels are not .08 is because these individuals have demonstrated an inability to abide by the law and are therefore, at increased risk of recidivism. The interlock is meant to discourage offenders from drinking and driving at levels that approach the legal limit.

The DADSS technology will prevent a person from starting an equipped vehicle if the driver has an illegal BAC limit of .08 or above. The technology is not designed to penalize drivers who consume alcohol responsibly and follow the law.

Functionality. The interlock technology of today is fairly intrusive. In other words, it requires effort on the part of the driver to use. DADSS technology will not resemble the interlock, in fact, the driver should be unaware of its presence within the vehicle.

DADSS program stakeholders agree that the technology must be:

- Reliable and accurate;
- Set at the legal limit of .08 BAC;
- Unobtrusive (undetectable to the driver) and fast;
- Tamper-proof/circumvention-resistant;
- Functional in extreme environments (both hot and cold);
- Easily maintained;
- Affordable; and,
- Voluntary.

Perhaps of greatest importance, the new technology cannot inconvenience (i.e., lockout) a sober driver. Existing interlock technology is extremely reliable and accurate but in order to include alcohol-detection technology as a standard vehicle feature, the accuracy must be higher. An estimated 356 billion driving trips are taken each year in the United States and even with 99.99% accuracy, this would translate into more than a million lockouts in instances where one should not occur (Strassburger, 2007).

Device format. Through the initial phases of the DADSS project, various technology formats were identified and reviewed. This process led to the identification of two promising technologies that have the potential for inclusion in all new vehicles:

- **Breath-based technology:** this technology relies upon unobtrusive sensors to measure alcohol in the driver's breath without requiring a deep lung sample as is required for interlocks. The strategically placed sensors measure carbon dioxide as an indication of the degree of dilution of the alcohol in expired air. The challenge is to ensure that there is no potential bias introduced as a result of intoxicated passengers present in the vehicle.
- **Touch-based technology:** this technology can be used to detect alcohol and metabolized alcohol bi-products through tissue. Infrared tissue spectroscopy estimates BAC levels by measuring how much light has been absorbed at particular wavelengths from a beam of near-infrared light reflected from the finger of the driver. A touch pad will be installed in the vehicle in a location where the driver must have direct contact such as the start button or steering wheel.

Prototypes for each of these technologies have been developed and are currently being tested. Additional funding from Congress is expected and the final product is likely to be several years away from completion.

Responsibility.org is supportive of the use of new and innovative approaches to eliminate drunk driving. We believe that technology, in combination with education and enforcement, plays a vital role and the DADSS research is a promising prevention tool to save lives.