



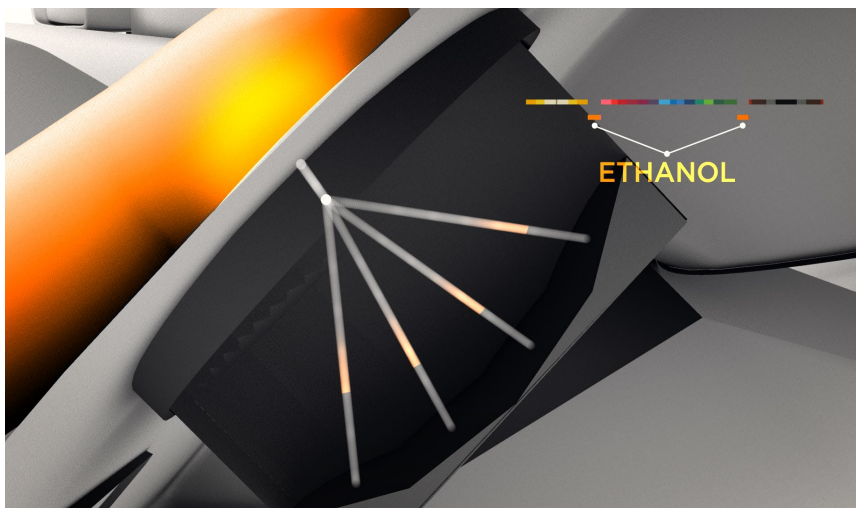
## Touch-Based Technology

The DADSS Research Program is working on a new approach to measuring blood alcohol concentration: a touch-based system that uses spectroscopy to measure alcohol in the driver's tissue. This technology broadens the options for an integrated system that can reliably prevent drunk driving while remaining invisible to any driver under the legal limit.

### How it Works:

The touch-based system analyzes alcohol found beneath the driver's skin's surface (or more specifically, the blood alcohol content detected in the capillaries). Measurement begins by shining an infrared light on the driver's skin, similar to a low power flashlight, which moves into the tissue. A portion of the light is reflected back to the skin's surface, where it is collected by the touch pad. This light contains information on the skin's unique chemical properties, including the concentration of alcohol.

There are two discrete wavelength sources that signal the presence of alcohol. To ensure the speed, accuracy and precision of the device, the touch-based system doesn't analyze all wavelengths – it focuses precisely at the wavelengths where alcohol can be found. The system will be able to take multiple readings in less than a second.



### Testing the Prototype:

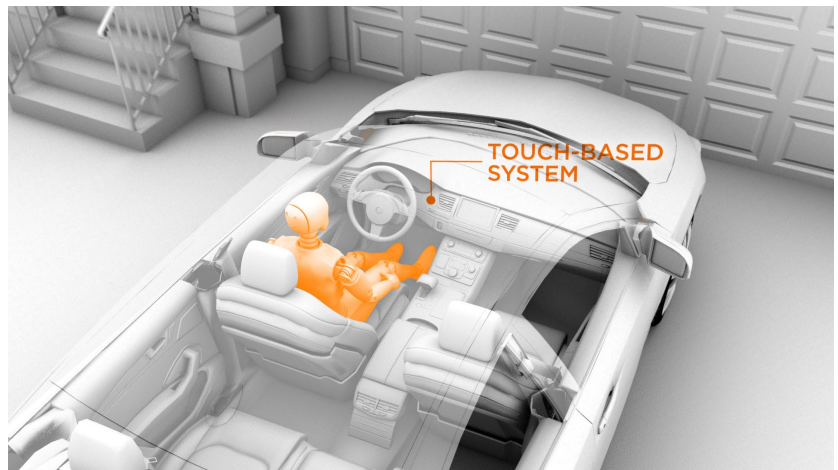
The DADSS Research Program has created a touch-based standard calibration device that combines a series of 8 compounds to accurately simulate the composition and density of tissue in a finger. The prototypes will also continue to be put through a series of human subject tests, comparing prototype readings to blood sample readings, as well as durability tests in different environmental situations.



### Vehicle Installation:

The touch pad will be installed somewhere that is natural to the driver, such as the vehicle start button.

Manufacturers are also working to ensure that the car can accurately detect when it is not the driver using the touch-pad. One possibility is that the touch-based technology will use driver presence detectors in the front seat, which would generate a low-level signal when the driver is seated.



When the driver presses the stop/start button or wherever the sensor is located, the driver completes the loop and confirms that he or she is the person touching the button. If anyone not in the driver seat presses the button, the circuit will not be closed and the alcohol measurement will not be considered valid.