

Our Point of View: Defeating Driver Distraction Through Technology

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by Kristen Tabar

Driver distraction has now joined alcohol and speeding as one of the leading factors in automobile fatalities and serious injuries. Here at Toyota, we're putting our resources behind bringing attention to, and ultimately defeating, this serious public safety issue.

Frankly, one of the coolest things we saw during our visit to Higashi-Fuji Technical Center has been the [Driving Simulator](#). It's an awesome sight: in a hangar-sized expanse, a spaceship-like capsule is perched atop a complex turntable system that allow it to tilt, swerve, and move freely, giving the occupants the feeling of really driving on the road. The purpose of this multi-million dollar, NASA-style driving simulator is to replicate scenarios that mimic actual driving, including driver distraction, and measure various driver behaviors and reactions.

In the past, it's proved difficult to analyze the risk factors drivers carry with them in terms of errors of recognition and judgment. That's where the Driving Simulator comes into play. Drivers enter the Simulator and perform a variety of safety tests under realistic conditions: in the cockpit, sophisticated, 360 degree, high-definition computer graphics display crash risks, traffic configurations and potential distractions.

One exciting new safety technology being tested in the Driving Simulator is our Pre-Collision System (or PCS), which judges the possibility of collisions and gives drivers more control to avoid them. Here's how it works: when the PCS determines a frontal collision to be imminent—using front stereo cameras built into the vehicle windshield and “millimeter wave” radar—a series of warnings and then pre-collision brakes and pre-collision seatbelts are automatically deployed to attempt to avoid the collision or reduce collision damage.

The ultimate goal of all of this safety technology is to move from collision mitigation to collision avoidance. We even got a chance to experience the early prototype systems on actual vehicles during a test drive on one of the tracks at Higashi Fuji. It was clear that the PCS system was helping detect potential safety concerns at an earlier point and enabling things to help prevent the crash.

What we're learning from the Driving Simulator has been hugely instructive, and is enabling Toyota to better develop next generation safety technology from the driver's perspective.

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