



There was a time when things like self-driving cars only lived in the dreams of kids and Hollywood writers. As we barrel ever closer to a future with autonomous trucks, it's fueled by technological advances making drivers safer. One of the most intriguing recent developments is the application of haptic feedback (i.e. haptics) to the driving experience.

The Geek Shall Inherit

According to [UltraHaptics](#), haptic technology interfaces with the user through the sense of touch. Haptic feedback isn't anything new, especially for gamers. Look back to 1976 – Sega released motorcycle arcade game "The Fonz" that featured vibrating handlebars, controlling the game when one player collides with another.

What was first embraced in arcade games is now coming full-circle, finding its way into new vehicle design. Advanced safety technologies are a common standard feature in personal and commercial vehicles, including automatic emergency braking, pedestrian detection, lane centering assist, active park assist and adaptive cruise control.

Sensory Experience Heightened

Expanding driving to include haptic feedback would introduce touch to the task of driving alongside the norm of sight and hearing. Combining these three senses would expand the way information and alerts could be transmitted to the driver, then helping driver response times and potentially saving lives. An obvious choice would be the steering wheel, where vibrations could alert drivers of dangers or even the direction of an upcoming turn.

Places haptics could be deployed within cars include:

- Steering wheel
- Seat belt
- Pedals
- Seat
- Dashboard
- Wearables

Touch provides a number of unique possibilities for haptic feedback. Companies such as Jaguar Land Rover are exploring incorporating heat and pressure devices to create additional sensations. They're also working on embedding rounded pins in steering wheel that could create patterns focused on communicating detailed information to the driver.

More Information, Fewer Distractions

Driving is a primarily visual experience and anything that distracts a driver on the road can make driving inherently more dangerous. Since the nature of haptics is non-visual, it would be a useful way to improve safety while increasing the overall driving experience. Most obvious would be applying haptics to deliver important driver intelligence, including spatial information.

With touchscreen displays replacing traditional knobs and buttons in many vehicles, simple tasks such as temperature control require some level of focus. Haptic technology can be a useful solution and used to deliver status like current temperature and general information.

Next-level haptic technology is being developed for uses including ultrasound waves creating haptic sensations mid-air, allowing people to see virtual displays. This is yet another way haptics can help resolve inefficient automotive design trends.

Autonomous Future

When discussing the marriage between technology and trucking, you can't ignore autonomous vehicles. We aren't viewing autonomous trucks as a matter of if or when but a matter of how. It's widely accepted that development of self-driving trucks will occur in phases.

Haptics is a natural fit for the semi-autonomous world to coordinate hand-off controls between computer and driver. They would be more effective than a light or a ding when alerting a driver playing on his smartphone.

Fully autonomous vehicles would incorporate haptics much differently, with the end goal remaining to increase road safety. Whatever the future of autonomous trucking, it's definitely leading us down a road to some interesting new technology those behind the wheel and the community as a whole.