

The next step in autonomous cars? Helping avoid motion sickness



Carsickness can happen to anyone: the confusion between the motion your eyes see, and the motion your body feels, can lead to a queasiness in your stomach or something worse. About a third of all people are susceptible to it—women more than men, children more than adults—but under the right conditions, anyone can suffer from it. And many of those conditions could become more common once autonomous vehicles hit the road.

At the Volkswagen Group research labs in Wolfsburg, scientists are studying what can trigger car sickness and potential ways to help prevent it from happening in a future where the car can mostly drive itself.

“To put it simply, the forces acting on us in the car confuse our sense of perception,” says Adrian Brietzke of Volkswagen Group Research. This happens most often to passengers he says—the “driver’s privilege” of knowing what’s about to happen next allows them to adapt to the car’s motion.

But what could happen with autonomous vehicles?

At the test track in Ehra-Lessien, a female volunteer takes the passenger seat of an Audi A4 sedan wearing various sensors and cameras designed to measure her pulse, skin temperature, and even changes in skin tone. For a 20-minute drive, the sedan will use Automatic Cruise Control to follow a semi-autonomous Passat that travels in a stop-start motion.

During the test, a tablet properly secured to the dashboard plays a video for the volunteer to watch. The visuals are swimming fish rather than a major blockbuster, to help avoid triggering any emotions such as tension or happiness that could skew the data. As the car drives, the volunteer rates her state of health on a tablet—and it doesn't take long for a change.

"I didn't think I was that sensitive, but I felt queasy after just a few minutes," says the volunteer.

In other tests, the Volkswagen Group researchers are exploring whether changes to the vehicles themselves might help prevent motion sickness. Such ideas include special movable seats that can react to driving changes and an LED light strip on the door panel that illuminates in green and red – providing a visual cue for the passenger of braking or acceleration.

Studies have shown that these inventions have already had some initial success. But the team still has some way to go, and further studies are in the pipeline. Their plans include examining not only the longitudinal forces that passengers feel when braking and accelerating, but also the transverse forces when taking corners. With the first truly autonomous vehicles possibly arriving within the next decade, finding a way to help control our propensity for motion sickness will be more important than ever.

