You might think a robotic head mounted on the dashboard of your car would be a distraction. But car maker Audi and the Massachusetts Institute of Technology think it will actually provide less jarring directions than a standard satnav – because it will be sensitive to your moods and habits.

More WALL•E than KITT, the Affective Intelligent Driving Agent, or AIDA, has a rounded wedge-shaped head sitting on top of a five-jointed "neck". A laser projector the size of a deck of cards is mounted inside the head and projects colour graphics to create expressions on its "face".

According to Mikey Siegel, part of a team at the MIT Media Lab collaborating with Audi to design AIDA, the versatile neck and face allow the robot to make a wide range of human-like gestures that can send subtle signals to the driver. A downturned face with pleading eyes, for example, indicates that AIDA is "worried" because the driver has failed to buckle the safety belt.

Road rage
Existing cars communicate the same reminder via a buzzer that is designed to be annoying. "That's the worst possible way to get a person to do something," says Siegel. The hope is that with AIDA a driver will buckle up to avoid making the car "feel bad".

But AIDA is intended to do more than provide seatbelt reminders. It uses sensors inside and outside the car to pick up clues about the driver's state of mind: grip strength and skin-conductivity sensors in the steering wheel, for example, tell the robot when the driver is tense. AIDA also uses GPS logs of a driver's travels to learn favourite locations and suggest better routes.

But the way it will communicate such suggestions is a matter for more research. "I would be annoyed out of my mind if there was this nagging thing in the car with me," says Siegel. "The whole point is to figure out a better way for the car to communicate with the driver."

Social engineering
Gilly Leshed a researcher at Cornell University in Ithaca, New York, who is not involved with AIDA, has studied how people interact with devices such as GPS units inside their cars. She thinks that having a robotic head on the dashboard will change in-car social dynamics.

"It's not just sitting in the back, it's sitting in a very dominant, active place in the car," says Leshed. "It's going to change the different roles and responsibilities for each person who rides in the car." Just as we each respond to others differently, individual drivers are expected to form different relationships with AIDA.

The concept appears to be catching on. Both car maker Nissan and electronics-for-entertainment company Pioneer are also working on dashboard-mounted robotic sidekicks.

Ultimately, Siegel hopes these robots will feel more like passengers than gadgets. "Having a passenger in the car is not considered unsafe, but checking text messages is very unsafe," he says. Research has shown that drivers are actually safer with someone else in the car.

Siegell hopes that he and his colleagues can make AIDA more like an understanding companion than a gadget oblivious to when it is a bad time to interrupt. "It'll be subtle," he says. "That's the whole point."

If you would like to reuse any content from New Scientist, either in print or online, please contact the syndication department first for permission. New Scientist does not own rights to photos, but there are a variety of licensing options available for use of articles and graphics we own the copyright to.