The cockpit of the future

February 2 2009

The novel car dashboard shows velocities or models of the town in three dimensions. © Fraunhofer HHI

(PhysOrg.com) -- Research scientists have developed a novel car dashboard that functions as a 3-D display and shows velocities, engine speeds or warnings in three dimensions. The display's design can be chosen individually by the driver.

A driver gets into his car and turns the ignition key. The dashboard, which was black just a moment ago, now reveals itself as a 3-D display with a simple but modern design. If his son were at the wheel, the controls for the mp3 player would now appear in the foreground: "Please select an artist". After choosing some music, he would set off.

The display would show a 3-D model of the town, and the integrated navigation system would direct him to his destination. The car owner,

however, prefers other types of information, such as the latest traffic reports. He also likes to have the rev counter in view at all times. After he has driven for a while, the display changes and an alert message literally jumps out at him: “Please refuel”.

The new 3-D cockpit developed by researchers at the Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institut, HHI in Berlin not only looks classy but also offers a variety of useful functions. While conventional dashboards have a round disk with a scale and moving mechanical hands to indicate the velocity, and another for the engine speed, the new display is digital and shows three-dimensional depth images. “The information most important to the driver at any given time is displayed in the foreground - be it the air pressure, the route or the title of the song currently playing,” says HHI project manager Dr. René de la Barré.

So how does the system know which information the driver wants to see, and when and in what size? “Before setting off, the driver can choose how he wants the information to be displayed, and can save these preferences,” the expert explains. The depth images are made possible by sophisticated equipment: Two cameras inside the car measure the position of the driver’s eyes and the distance between them - in real time. The two superimposed images that generate the 3-D effect on the display are thus individually adapted to the driver’s vision. This ensures the full effect from every viewing direction and every sitting position.

A round or a ladder-like scale? Blue or red background light? The 3-D cockpit can be personalized, so each driver can individually set their preferred design and functional navigation menu. The researchers will be presenting the first prototype of the cockpit display at CeBIT in Hanover on March 3 to 8.

Provided by Fraunhofer-Gesellschaft