

QUANTIFYING CAR COMFORT WITH ROBOT ASSISTANCE

Ultimately, it is the customers who judge the quality of a car's interior, on the basis of the level of comfort and well-being that they experience. Before they can make that judgement the manufacturer needs to be sure that any problems with the quality of the instruments and controls have been eliminated.

In the past vehicle interior evaluation was a subjective, manual process subject to considerable fluctuations. A robot-assisted application from Battenberg Robotic of Marburg now automates this process to cut costs and provide more objective results; The solution involves a combination of robots, sensors and an intelligent software package that tests the functionality and subjective ergonomics of the vehicle controls. The system operates the controls and measures force/travel and torque angles, delivering figures for evaluation of their haptic and ergonomics properties. These are needed for the final design specifications, service life analyses and product release. Measurements can be performed both on controls in the vehicle and on individual components in the lab, making it possible to determine key parameters like functionality and service life long before the car goes into production.

The objective measurements provide a transparent and time-saving basis for coordination between OEMs, suppliers and car manufacturers.



The robot-assisted measurement system is extremely versatile. For example, a powerful vision module is now available for testing LCD displays, including tests of viewing angles, brightness and contrast in relation to viewing distance. When a keyboard is connected the robot can

activate and operate the on-screen menus and then check the resulting displays.

Products:

- ◆ RV series articulated-arm robots from Mitsubishi Electric
- ◆ Sensor technology and software from Battenberg Robotic

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