

## Chavant News

By Drew Winter

*DITCHING VIRTUAL REALITY*

*Wards Auto World*

*January 1998*

*Page 64*

GLASGOW, Scotland "What is reality?" was the big question in the 1960s. After experimenting with "virtual reality" for a few years, the big question for automakers in the 1990s seems to be "What's better than virtual reality?"

Unfortunately, much-hyped virtual reality isn't working out as well as expected, so it's back to the drawing board, so to speak, as automakers search for a better reality; in short, a means of projecting large, three-dimensional engineering drawings in mid-air without a lot of fancy headgear or other devices.

**So-called VR**, with its goofy headsets, goggles and gloves may be a great toy for computer buffs, but in the work-a-day world of vehicle design, it just doesn't fly. Critics complain that designers and engineers simply can't spend 40 or 50 hours per week dressed up like warriors from another galaxy - especially when the technology makes some viewers nauseous after only a few minutes.

VR "doesn't get you where you want to be when you have top executives review your vehicle, or in a customer clinic," says a Ford spokesman. "You want as realistic an experience as possible. Goggles and helmets get in the way of interaction between a team of people."

The ultimate goal at Ford is to project high quality holograms in two sizes - a small "desktop" version for design engineers and a big version for displaying life-size car designs - but it is being preceded by a variety of interim steps that include adding sound and other sensory inputs as well.

The idea is to create what technology buffs now call "replacement reality," or a computer-generated environment in which the user's senses of sound and touch as well as vision are included in the experience.

**"Replacement** reality is a step beyond virtual reality," says Tom Scott, director of Ford's Advanced Design Studio in Dearborn, MI. "We want to create the perception of reality by creating computer-generated images and environments, but without having to resort to the use of VR headsets and visual aids."

To do this, Ford is collaborating with the Glasgow School of Art (GSA) on a research project "that pushes the boundaries of human perception." Together with a number of high-tech suppliers on both sides of the Atlantic, Ford and GSA are developing new technologies that could be used by Ford designers worldwide to design and engineer vehicles in the next decade.

**Ford recently** invited a small group of journalists to GSN's newly opened Digital Design Studio in Glasgow to show off its progress in these areas. Among the most fascinating technologies demonstrated is "auralization," a technique that imitates the acoustics of a computer-generated model. Not only does it simulate the sound of computer-generated objects, it also replicates the entire acoustic environment in which these sounds occur. Reporters fitted with special headphones were able to look at a computer model of a car and "hear" what the doors sound like when slammed shut or the noise of the windshield wipers with windows down or up.

Auralization, GSA designers explain, takes into account the dimensions and shapes of an acoustic space, the materials used in construction of that space and the placement and movement of objects and observers within the space.

And the technology also simulates a point of origin for the sounds, whether behind, above, below or in front of the listener.

The research will allow designers to experience almost every auditory aspect of the vehicle driving experience before any "real" prototypes are built. That includes the effects of a car's shape and dimensions

on the quality of the car's stereo or how engine noise affects conversation with a passenger.

Another technology on display included a "digital puppet" that allows designers to simulate - via a computer model - how drivers and passengers physically interact .

With data on a wide array of human motion, its joints and bone structure can be programmed to represent an extensive range of occupants - from a young person to an arthritic older person - to evaluate how easy it is, for instance, to enter and exit a vehicle.

"Visionmaker PS," a computerized drawing board manufactured by Input Technologies Inc. of Toronto, was also on the tour. It is basically a big, flat, touch-sensitive computer screen that allows designers to create drawings on the computer much like they would on an artist's sketchpad, with big, sweeping motions. Another benefit: The big format allows a group of designers to easily gather and discuss a design as they work - as they used to do in the "olden" days.

**Currently, computer models are superimposed on special videos to see how they look in the "real" world (left), but what automakers really want are full-size holograms. Digital puppets (below) allow designers to evaluate how humans interact with vehicle designs.**

**Several** suppliers also showed off holographic and VR technology in various stages of development - from 3D images projected inside the equivalent of a small CRT box, to a big 3D projection of the Space Shuttle hull on a 90-in. (228-cm) diagonal table using special lightweight goggles similar to regular eyewear. Meanwhile, Ford continues to sponsor more research in pure holograms, and is making steady progress, Mr. Scott says. He expects to reveal some major new developments in about a year.

1 800 CHAVANT  
1 800 242 8268