

AUTOMAKERS SPEND BIG ON NEW COMPUTER DESIGN TOOLS*Ward's Auto World**February 1999**Page 32*

Computer geeks and Trekkies aren't the only ones dreaming of virtual reality cars and life imitating holodecks. Automakers are spending heavily to bring this technology to life in their design studios. The goal is to take computer-generated mathematical design data and turn it into production cars as quickly as possible, with a minimum of expensive physical prototypes and clay models.

But Mike Holmes, senior manager- design engineering services at Daimler- Chrysler Corp., says current computer display technology now has reached the end of its ability to eliminate any more prototypes. While much progress has been made, no executive in the auto industry is yet willing to sign off on a billion-dollar car program after only looking at a full-size 2-dimensional computer rendering. They want to see full-size representations in three dimensions. That means big clay models. "We need 3-D display, and the auto industry and industrial design community is poised and ready to spend money on devices that will help us eliminate physical models, whether it is holography or anything else. The ideal system - very simply put - is we want a Star Trek holodeck", says Daimler Chrysler's Mr. Holmes.

General Motors Corp. is giving the holodeck approach a shot. Its brand new virtual reality studio in Warren, MI, allows computer-generated designs of new cars and trucks to be viewed life-size and in 3-D with the aid of special glasses. The same images can be viewed simultaneously by GM's Adam Opel executives at a similar studio in Germany. In another section of the studio, computer-generated interior designs can be given life-size proportions and projected to become a 'virtual interior' that surrounds a "driver" or "passenger" wearing special glasses. Nonetheless, the glasses are cumbersome, and the images still lack a true life-like quality.

Ford Motor Co. is making a highly publicized push to get rid of the special glasses entirely and move the process toward full-blown holograms. It displayed the world's largest full-color display hologram - a 50% scale, 3-D image projected from a 40-sq.-ft. panel - last month at the North American International Auto Show in Detroit. Many show goers seemed to regard the image of a translucent red P2000 Prodigy concept car suspended in thin air as little more than an optical illusion, but the design community - and especially Ford - has high hopes for the technology.

The 3-D image of the P2000, which extends several feet into space, appears when a tiled panel of holographic film is illuminated by intense white light. The film panel contains 900,000 individual exposures taken directly from computer design data. The hologram has full parallax, which means a viewer stooping down will see the underbody of the car while a tall viewer will look down and see the roof, just like a real solid object.

Developed jointly by Ford and Zebra Imaging, Inc. in Austin, TX, Ford says it is easily the largest hologram of its kind ever displayed to the public. Previously, it is believed the largest full-color, full parallax hologram generated directly from computer data was just 4 ins. square.

The greater size is possible because the hologram is actually built-up and projected in sections that are then blended together to form a whole image - something that's never been tried before. Even larger images are possible by dividing the image further and adding more sections, says Tom Scott, director- Ford Advanced Design. Mr. Scott hopes holography will provide a better means to view work with complex mathematical design data in the future. "Our designers and engineers today work on a globally linked computer system that processes all data in three dimensions," Mr. Scott says. "What's missing is a fully interactive way to visualize that data. Holography appears to be the most promising technology to produce that breakthrough."

Experts at GM and Daimler Chrysler applaud Ford's efforts. But Gary Bertollini of GM's VR Design Studio says GM is emphasizing virtual reality technology with glasses because it already is completely interactive: design changes and updates can be displayed almost instantly with VR technology, holographic images

aren't interactive yet and take many hours to generate.

But Ford's Mr. Scott says interactive isn't far away. "This is just the beginning of a whole new world," he says.

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