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SensAble Advances Its Touch-Enabled Modeling Technology for Industrial Designers

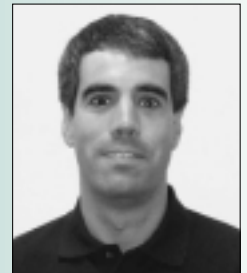
Freeform 4.0 Designed to Optimize Design Continuum of Form, Function

Users Laud Intuitive User Interface, Rapid Concept Development Capabilities

By TIM HICKEY

**“FREEFORM
TRANSFORMS IDEAS
DIRECTLY INTO
3D MODELS”**

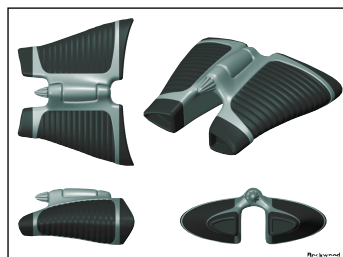
SensAble Technologies (Woburn, MA) launched FreeForm Version 4.0, a new release of its touch-enabled modeling technology for industrial designers. FreeForm is to our knowledge unique in offering force-feedback output as designers sculpt in virtual clay. With this release, SensAble has augmented its touch-based technology by adding modeling tools that increase both the flexibility and control over models, curve import and sketching capabilities that let users work with 3D curves, and global shape deformation capabilities



BILL AULET,
PRESIDENT,
SENSABLE TECHNOLOGIES



Courtesy of SensAble Technologies



Courtesy of SensAble Technologies

which allow users to shape their designs to predefined criteria.

The created model can be exported from the FreeForm system into various downstream engineering applications with design intent intact. According to SensAble, FreeForm 4.0 captures and protects the design intent by combining a physical interface and digital asset in one product. Said Bruce Boes, vice president of business strategy, “Whereas digital scanning technology erases design intent, such as color and resolution, and requires a model rebuild, FreeForm 4.0 offers an analog interface into the digital asset, allowing designers to rapidly explore alternatives and make changes on the fly.”

**FREEFORM'S UNIQUE
COMBINATION OF
PHYSICAL AND
DIGITAL MODELING
OFFERS A
REVOLUTIONARY
APPROACH TO
INDUSTRIAL DESIGN**

**"FREEFORM
DRASTICALLY
SHORTENS THE LEAD
TIME TO DEVELOP A
PRODUCT"**

Touch-based modeling is designed to provide simplicity with direct, intuitive interaction and fine control. The digital asset created is then transferable, measurable, editable and precise. As Boes puts it, "FreeForm transforms ideas directly into 3D models."

In our view, this unique combination of physical and digital modeling offers a revolutionary approach to industrial design. FreeForm 4.0 works manufacturability into the process, a concept often lost in this aesthetic stage of the product process. The ability to make precise geometric modifications by simply grabbing and moving objects, while maintaining manufacturability, merits careful attention from industrial designers limited by the constraints of 3D modeling systems, and manufacturers seeking to create multiple, differentiated products while speeding time to market.

In all, users Daratech spoke with had very positive things to say about the technology. One user, who performs benchmarking for the automotive industry, cites FreeForm's intuitive user interface as its major strength. "The user interface is very straightforward. With FreeForm, the workflow is more enjoyable." He added, "The tool doesn't fight your creative tendencies." This user believes SensAble's greatest strengths as a company are its skilled technical development team, and its willingness to implement user requests into the interface.

Another user praised FreeForm's ability to facilitate rapid concept development. "FreeForm drastically shortens the lead time to develop a product. We're able to produce multiple designs in a shorter period of time for marketing valuations. It really speeds the development cycle."

While the FreeForm approach holds great promise, challenges exist. Even in the largest companies, the number of industrial designers and stylists are notably fewer than the engineering design staff, so the market potential is not boundless. Also, while industrial designers and stylists are often cutting-edge and risk-taking when designing new products, it is less clear how progressive they are when it comes to changing the methods they use to design those products. For example, one user Daratech spoke with said, "Industrial designers are not the most willing of people to remove their current infrastructure to try new things."

Another challenge facing the company is to broaden the software's output capability into a wider range of engineering applications, such as CAD and molding packages. Currently, the FreeForm system exports models in the OBJ and STL formats, IGES 128 NURBS surfaces and IGES 102 curves.

FreeForm 4.0 is available in two distinct products: FreeForm, and FreeForm Plus, which adds more sophisticated shape creation and deformation techniques, designed to offer industrial designers extra control to ensure design criteria compliance.

Said Bill Aulet, president of SensAble Technologies, "FreeForm 4.0 takes a huge step forward by delivering the ease of use traditionally associated with physical media like clay and blue foam, maximizing the use of one of our most creative senses for design—touch; yet delivers the precision, control, and repeatability of a digital asset. Compared to FreeForm modeling, other packages are like working with your hands tied behind your back or with your model on the other side of a glass window."

FreeForm 4.0 includes an offset function, designed to assist with the creation of shell models, and a completely new suite of modeling tools, intended to help users interactively modify designs into functional products. FreeForm 4.0 is designed to enable users to deform shapes and perform global changes on either all or part of a model without losing detail.

SensAble boasts an impressive customer list, including Honda, Ford, Toyota, Michelin, Adidas, Hasbro, Motorola, Fisher-Price, Unilever and others. FreeForm 4.0 is available through direct and indirect reseller channels. The system runs on Windows NT and Windows 2000. FreeForm is listed at \$15,000 and FreeForm Plus is listed at \$24,000. □

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