

AEROSPORT MODELING & DESIGN, INC.

AUTOMATING SEAT UPHOLSTERY DESIGN SPEEDS TIME-TO-MARKET
WITH SOLIDWORKS AND EXACTFLAT SOLUTIONS



Using the combination of SOLIDWORKS Professional design and ExactFlat Design Studio 3D-to-2D flattening software, Aerosport has replaced its manual seat-pattern-making upholstery process with an automated digital approach, substantially reducing time-to-market and production costs.

Challenge:

Streamline and automate aircraft and automotive seat upholstery design and production—historically a manual process—to save time, reduce costs, and accelerate time-to-market.

Solution:

Implement SOLIDWORKS Professional 3D design software, SOLIDWORKS Composer technical communication software, and SOLIDWORKS Gold Solution Partner Tri-D Technologies, Inc.'s ExactFlat Design Studio 3D-to-2D flattening software solutions.

Benefits:

- Reduced time-to-market by 50 percent
- Cut seat upholstery production costs by 30 percent
- Shortened seat upholstery pattern creation from one week to one hour
- Improved accuracy and quality of complex seat upholstery

Geoff Combs' passion for models, design, and aviation—he once competed as a sponsored radio-controlled aircraft flyer—led him to found Aerosport Modeling & Design, Inc., in 1996. Although the product development, prototyping, and manufacturing services company has deep roots in aviation, Aerosport has worked with thousands of satisfied clients in the automotive, medical, electronic, military, aviation, toy, and consumer products industries. The firm produces high-quality prototypes, appearance models, working models, and machined parts, and also serves as an extension to its clients' design and engineering teams.

Aerosport owner Combs cites ongoing investments in research and the latest design, prototyping, and manufacturing technologies as critical to the company's growth, competitiveness, and success. While Aerosport began as a prototype model shop working primarily in the custom model airplane industry, its business soon grew into design, prototyping, and manufacturing services for a range of other industries, operations for which it needed a robust 3D CAD solution.

"When we started handling work that went far beyond model airplanes—such as medical devices and automotive fixtures—we needed to add an effective design and engineering capability," Combs recalls. "I asked around and decided to evaluate the Pro/ENGINEER® and SOLIDWORKS® 3D CAD packages. Once I started working with demo copies of the software, it became obvious that SOLIDWORKS had a better interface, was more intuitive, and was easier to use.

"Acquiring SOLIDWORKS Professional design software turned out to be the right decision because more and more of our customers use SOLIDWORKS, which makes collaboration much more efficient," Combs adds. "We recently added the SOLIDWORKS Composer™ package to automate the development of instruction manuals."

While Aerosport realized significant productivity gains by implementing SOLIDWORKS design software, allowing the company to take advantage of a range of new business opportunities, there was one area of its traditional business that required an additional solution: providing upholstery services for aircraft and automotive seats, including both prototypes and final products.

"Once we began working on the interiors of cars and planes, we needed to upholster seats," Combs explains. "Upholstering a seat began as a completely manual process for us. To create patterns, we would draw sew lines on the foam seat bun with black magic marker, pin a sheet of cotton over the bun under a piece of drafting mylar, and follow the black marker lines to notch the pattern, adding salvage before sewing it up on our sewing machine. That was a time-consuming process for which we needed a better solution."

Combs was researching upholstery-related applications when a supplier suggested the ExactFlat® Design Studio 3D-to-2D flattening application, for use on composites, industrial fabrics, leathers, and other types of technical textiles, from SOLIDWORKS Gold Solution Partner Tri-D Technologies, Inc.



"With SOLIDWORKS and ExactFlat, we can finish a pattern in an hour.

This solution is saving time and money, as well as enabling us to increase throughput."

— Geoff Combs, Owner

DIGITAL AUTOMATION REPLACES MANUAL EFFORT

Using the combination of SOLIDWORKS and ExactFlat software, Aerosport has replaced its manual seat-pattern-making upholstery process with an automated digital approach. The process begins with scanning the seat foam bun, or acquiring a model of it from the manufacturer, to create a 3D solid model in SOLIDWORKS software. Combs then creates the pattern for the seat upholstery using ExactFlat from inside SOLIDWORKS software.

"The new digital approach is much better than doing it by hand," Combs stresses. "Creating a seat pattern used to take a week or longer, depending on the complexity of the seat. With SOLIDWORKS and ExactFlat, we can finish a pattern in an hour. This solution is saving time and money, as well as enabling us to increase throughput."

FASTER TIME-TO-MARKET, IMPROVED QUALITY, AND REDUCED COSTS

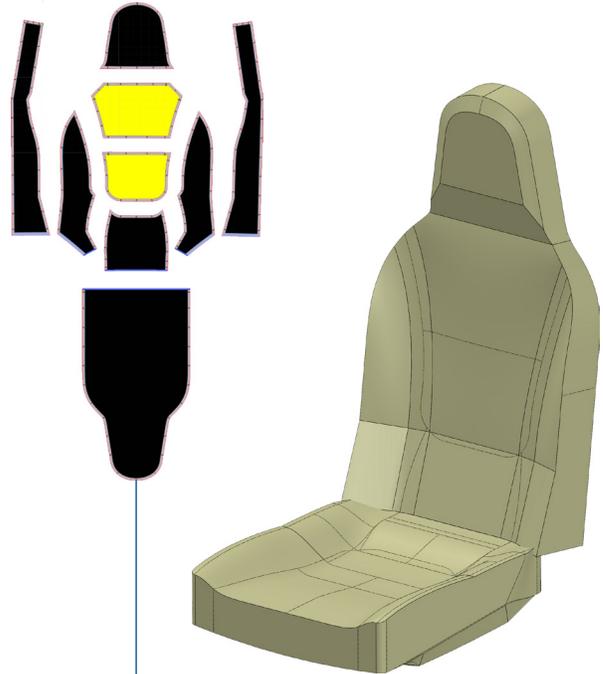
Because SOLIDWORKS and ExactFlat automate the creation of upholstery patterns, Aerosport has cut its time-to-market by 50 percent and reduced upholstery production costs by 30 percent. The combined solution has also enabled the company to increase its seat pattern accuracy, resulting in material savings through ExactFlat nesting capabilities and an improved finish, particularly when working with the latest generation of seat designs.

"With newer, more complex seats, we used to add a layer of foam along the sides to make the upholstery fit," Combs notes. "SOLIDWORKS and ExactFlat have improved our pattern accuracy to the extent that we no longer have to add any foam. I'm amazed at how well our patterns now sew together. SOLIDWORKS and ExactFlat have really helped us to streamline the process."

FLATTENING APPLICATIONS BEYOND UPHOLSTERY

In addition to automating seat upholstery operations, the combination of SOLIDWORKS design and ExactFlat flattening solutions supports other projects requiring patterns or coatings. For example, Aerosport used the solution to develop the pattern for a de-icing sheet used to prevent ice buildup on high-flying drone aircraft.

"Using SOLIDWORKS and ExactFlat on the drone de-icing sheet project helped us enhance accuracy," Combs points out. "Even though we mainly use the combined solution for seat upholstery, we expect it to come in handy for any designs that require a flat pattern, such as applying composite or fiberglass lay-ups in a model."



In addition to saving time and money, the combination of SOLIDWORKS Professional design and ExactFlat Design Studio 3D-to-2D flattening software to drive Aerosport's seat-pattern-making upholstery process has improved quality by increasing seat pattern accuracy, resulting in material savings through ExactFlat nesting capabilities and an improved finish, particularly when working with the latest generation of seat designs.

Focus on Aerosport Modeling & Design
VAR: 3DVision Technologies Corp., Columbus, Ohio, USA

Headquarters: 8090 Howe Industrial Parkway
Canal Winchester, OH 43110
USA
Phone: +1 614 834 5227

For more information
www.aerosportmodeling.com

Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 190,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com.



3DEXPERIENCE

 | The **3DEXPERIENCE**® Company

Corporate Headquarters
Dassault Systèmes
10, rue Marcel Dassault
CS 40501
78946 Vélizy-Villacoublay Cedex
France

Americas
Dassault Systèmes SolidWorks Corporation
175 Wyman Street
Waltham, MA 02451 USA
Phone: 1 800 693 9000
Outside the US: +1 781 810 5011
Email: generalinfo@solidworks.com

Asia-Pacific
Dassault Systèmes K.K.
ThinkPark Tower
2-1-1 Osaki, Shinagawa-ku,
Tokyo 141-6020
Japan