DASSAULT SYSTEMES

SOLIDWORKS

ELLIPTIGO INC.

GROWING ELLIPTICAL BIKE BUSINESS WITH SOLIDWORKS PREMIUM

Using SOLIDWORKS Premium software, ElliptiGO has supported rapid growth by efficiently and cost-effectively expanding its product offering from one model to four elliptical bike models and a complete line of accessories.

ELLIPTIGO®

Challenge:
Grow a leading developer of elliptical bikes by efficiently and cost-effectively expanding its line of products and accessories.

Solution:
Leverage SOLIDWORKS Premium product development software.

Benefits:
- Shortened time-to-market
- Improved product performance and quality
- Reduced manufacturing costs
- Expanded line of revolutionary, first-of-its-kind product

What began as an effort to help former Ironman triathlete Bryan Pate find an outdoor, low-impact workout following knee and hip injuries has led to ElliptiGO Inc., a rapidly growing manufacturer of the world's first elliptical bicycles. Distance runners like Pate face a common problem: The continual impact and pounding of running over time frequently results in leg, foot, or hip problems. While cycling is often seen as a low-impact alternative, many people find the bicycle saddle and riding position to be uncomfortable, so it's not a solution for everyone.

Pate's preference for the elliptical trainer, which emulates the running motion without the constant impact of hitting the ground, combined with his frustration over being restricted to a gym, prompted him to seek out an elliptical trainer on wheels that he could use outside. When he couldn't find one, he contacted Brent Teal—also an Ironman triathlete, as well as a mechanical engineer—to discuss his idea for an elliptical bike. In July 2005, the pair sat down at a coffee shop in Solana Beach, California; sketched out a concept drawing for an elliptical bike on a newspaper; and started working on making this concept a reality. Ten years later, the company has secured 23 issued U.S. and international patents, has sold more than 16,000 elliptical bikes, and counts many professional athletes as customers.

To develop this innovative product, Teal says that he needed access to advanced 3D design and simulation technology. "Without a 3D design tool, it would have been much more difficult to develop the first ElliptiGO, then build out the product line," Teal explains. "There was so much trial and error involved in engineering an elliptical bike that we needed a powerful design and simulation environment for iterating and gaining insight into our design, then efficiently and cost-effectively expanding our product line."

Teal had used both Pro/ENGINEER® and SOLIDWORKS® 3D design software before founding ElliptiGO. He chose SOLIDWORKS Premium software to develop elliptical bikes at ElliptiGO because the software is easy to use, provides integrated design simulation and visualization capabilities, and supports manufacturing requirements.

"I knew that we would need to do a ton of iterations and analysis studies to get the design ready for commercialization and production, and then to fill out the product line," Teal stresses. "SOLIDWORKS simply provided the best set of tools for the job."

BUILDING A COMPANY

Using SOLIDWORKS Premium software, ElliptiGO has supported rapid growth by efficiently and cost-effectively expanding its offering from its initial product—the ElliptiGO 8S—to four elliptical bike models and a complete line of accessories. "SOLIDWORKS has played a significant role in helping us build out the product offering of the company," Teal notes. "I've used SOLIDWORKS design and simulation tools for more than 10 years because the software enabled us to introduce a revolutionary, first-of-its-kind product, and then refine the concept to offer additional models while simultaneously keeping costs down.

"Our elliptical bikes use the same frame but with different gear packages—three, eight, or eleven speeds—product features, and materials," Teal adds. "We have benefited from using SOLIDWORKS configuration tools to streamline development of these different models and options."

"SOLIDWORKS has played a significant role in helping us build out the product offering of the company. I've used SOLIDWORKS design and simulation tools for more than 10 years because the software enabled us to introduce a revolutionary, first-of-its-kind product, and then refine the concept to offer additional models while simultaneously keeping costs down."

— Brent Teal, Co-Founder and Co-President

CUTTING WEIGHT, REDUCING COSTS

ElliptiGO extensively leveraged integrated SOLIDWORKS dynamic motion and finite element analysis (FEA) tools to extend its product offering while improving performance and keeping manufacturing costs down. "With SOLIDWORKS Premium software, we run linear static stress and fatigue studies to identify stress concentrations, which helps us shave weight and material, and reduce manufacturing and testing costs," Teal says.

Focus on ElliptiGO Inc.
VAR: Go Engineer, San Diego, CA, USA

Headquarters: 722 Genevieve St., Suite O
Solana Beach, CA 92075
USA
Phone: +1 858 876 8677

For more information
www.elliptigo.com

"We also utilize a lot of multi-body parts," Teal continues. "The robustness of the FEA in SOLIDWORKS Premium is leaps and bounds ahead of other packages that I've seen because we can analyze these parts as assemblies. These tools save a lot of time—during both iterations on the design and testing."

ADVANCING STATE OF THE ART IN ELLIPTICAL BIKES

SOLIDWORKS Premium software also supports the company's efforts to innovate and advance elliptical bike technology. For example, one of ElliptiGO's new models is the limited edition Meb 8S, which honors the winner of the 2014 Boston Marathon, Meb Keflezighi, the only American to win both the New York and Boston marathons. The Meb 8S, which incorporates lighter carbon fiber drive arms and a patriotic-themed paint job, quickly sold out.

"As we continue to push elliptical bike development, we need to explore the use of advanced materials and manufacturing processes," Teal says. "With SOLIDWORKS Premium, we have the tool we need not only to create new designs but also to analyze performance and manufacturability."

ElliptiGO relies on integrated SOLIDWORKS dynamic motion, finite element analysis, and design configuration tools to extend its product offering while improving performance and keeping manufacturing costs down.

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

Dassault Systèmes, the **3D**EXPERIENCE® 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**.

DASSAULT SYSTEMES | The **3D**EXPERIENCE® Company

Americas
Dassault Systèmes
175 Wyman Street
Waltham, Massachusetts
02451-1223
USA

Europe/Middle East/Africa
Dassault Systèmes
10, rue Marcel Dassault
CS 40501
78946 Vélizy-Villacoublay Cedex
France

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