

case study

The challenge

Developing groundbreaking cancer treatment technology requires years of research but actually being first to market with new products is a race against time. The challenge facing Photo Therapeutics and Lucid Innovation Group was to convert the concept for a groundbreaking non-surgical skin cancer treatment into a shipping product in the shortest possible timeframe.

The solution

Lucid designed and modelled the pioneering skin cancer treatment device using SolidWorks 3D mechanical design software. The company used eDrawings and PhotoWorks to collaborate with clinicians, engineers, marketers and toolmakers around the world.

Developing cancer treatment technology requires years of research but actually being first to market with products for doctors to use is a race against time. Using SolidWorks 3D Lucid was able to convert the concept for a non-surgical skin cancer treatment into a shipping product within ten months, meeting a tight deadline and getting the product to market ahead of any competitors.

Cancer treatment first to market with SolidWorks 3D

The companies at the forefront of medical device technology not only want to speed the development of new products to make technology available to patients, they also want to be the first to establish new markets. Such was the case with UK-based Photo Therapeutics. The company wanted to capitalise on the latest research showing how a combination of medication and exposure to special LED lights could effectively treat non-melanoma skin conditions previously treated with painful and expensive surgery. The company contacted Lucid Innovation Group to convert the concept into a working product that could be used in doctors' surgeries around the world. The result was the Omnilux, the first non-surgical treatment device for non-melanoma skin conditions.

The design engineers at Lucid use SolidWorks 3D and have earned a reputation for creativity, quality and rapid product delivery. The powerful SolidWorks mechanical design software proved

vital when it came to meeting Photo Therapeutics' requirements for performance, dependability, aesthetics and fast turnaround.

"Our business had no established product to emulate. We were starting from a clean sheet, developing a complex system," explained Photo Therapeutics director Phil Charlton. "We needed design and manufacturing partners with people and technology that could work together quickly and effectively, communicating ideas with our team and our customers all over the world. We hired Lucid largely on the basis of its long track record using SolidWorks, not just as a technical design tool, but as a way of clearly visualising ideas."

Finalising the concept

Lucid's first task was to solicit input from a focus group consisting of doctors, clinicians, marketing professionals and patients about the functional requirements of the product. The engineers at Lucid applied that feedback to rough sketches that they quickly modelled in 3D using SolidWorks. These 3D images were easy for the focus group to review, understand and comment on, enabling the engineers to continue refining the basic design until everyone approved it.



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Summary and results

Using SolidWorks 3D Lucid was able quickly to build and review solid models of Photo Therapeutics' concept device. The result was the Omnilux, the first non-surgical treatment device for non-melanoma skin conditions. Lucid took the Omnilux from concept to shipped product in ten months, meeting Photo Therapeutics' tight deadline and getting the product to market ahead of any competitors.

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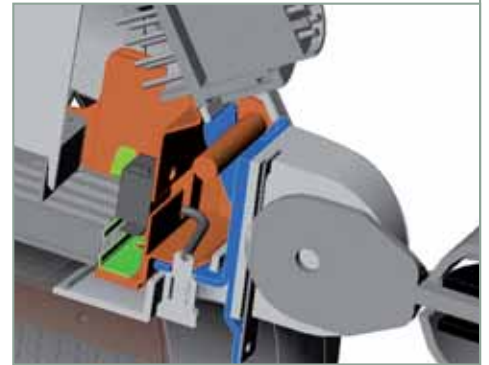
Alistair Williamson,
managing director,
Lucid Innovation Group

"There was no product before this. We were blazing a new trail so we had to get plenty of input up front," said Alistair Williamson, Lucid's managing director. "The timeframe meant we had to get it right first time. Using SolidWorks we were able to get quick verification of design ideas from those who would be using the product. That kind of input is crucial to product functionality. Quickly turning that input into solid models for prototyping is paramount for meeting tight production schedules."

Lucid kept this focus group informed and solicited its feedback using the SolidWorks email-enabled design communication tool, eDrawings. With eDrawings, Lucid engineers could send easy-to-understand solid models that doctors could review and comment on without downloading software or needing to understand engineering details. Lucid also used eDrawings to communicate design concepts to parts makers in Taiwan. It used PhotoWorks, the SolidWorks photorealistic rendering tool to provide life-like images of the device for marketing purposes. "eDrawings created a common language among our engineers, the engineers in Taiwan, and the doctors, clinicians and marketers reviewing the product," said Williamson.

On-time delivery

SolidWorks' intuitive environment allowed Lucid engineers quickly to build solid models of the Omnilux device and troubleshoot issues such as part interference. The software's surfacing capabilities enabled the team to create the sweeping shapes that make the Omnilux's structure rigid yet elegant.



The team used Solidworks' COSMOSXpress design validation tool to ensure that the Omnilux's multi-position arm, which held the LED light source, would be lightweight enough to use, cost effective enough to make and strong enough to stand up to constant use.

Lucid took the Omnilux from concept to shipped product in ten months, meeting Photo Therapeutics' tight deadline and getting the product to market ahead of any competitors. Since the product's debut in 2002, Lucid has adapted the technology to create products that treat acne and rejuvenate skin. Now there are more than 2,000 units in use around the world.

"The complexity of electro-mechanical assemblies and mechanisms that move in several directions means we have to use 3D modeling," said Andrew Hodgkin, Lucid's director of innovation. "Our people get a kick out of using SolidWorks because it helps them do their jobs better, delivering faster design and automating essential but mundane tasks like creating bills of materials. SolidWorks gives our designers the tools to work as a team with anyone and teamwork grows our business."

www.lucidinnovation.com

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