

Solid Edge

Fripp Design and Research

Use of Solid Edge helps cut overall development time and reduce the financial risk of innovation

Industry

Medical devices,
industrial machinery,
consumer products

Business challenges

Maintain and improve leading position within design and research

Enable customers to explore commercial innovation with minimal financial risk

Keys to success

Synchronous technology enables easy manipulation of models, fostering design creativity

Integrated FEA supports the evolution of a design

Parts library eliminates duplication, reduces design time

Results

90 percent time reduction at certain stages of development

Overall development time cut by 30 percent, resulting in less financial risk for customers

Company's reputation for innovation and intellectual property enhanced

Pushing the boundaries of rapid prototyping and manufacturability with Solid Edge

Compatibility represents key factor to success

From the first notion of an idea to the fine detail of a complex and highly engineered item such as a facial prosthetic, award-winning Fripp Design and Research is recognized for its expertise in taking a concept through computer-aided design (CAD) realization and rapid prototyping to manufacture. Experienced in the registration of high-value intellectual property (IP) and the commercial development of additive manufactured products, the company provides a range of services that support innovation and business growth.

Fripp Design and Research's customers range from single inventors to large corporations such as Boots, Marks and Spencer, and Fellowes UK. Having built strong relationships with both commercial organizations and academic centers of excellence, the company has a track record of leading public/private collaborations and helping clients access grant funding to develop and establish IP. The CAD software that



Magnetic water filtration system.

the company's designers now turn to is Solid Edge® software from Siemens PLM Software.

"One of the problems we were having with our previous CAD software was compatibility," says Tom Fripp, managing director at Fripp Design and Research. "And this was not only with other CAD packages. A customer might send us a file created in a later version of our own package, but if we

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Fripp Design and Research

had not upgraded we would not be able to open it. We had to open a separate program, import the data and translate it into another file format, such as IGES (initial graphics exchange specification). The big problem with this was that we could not manipulate the content and, for us, this blocked potential modeling innovation.”

Later, when the company learned that support for the underlying operating system of its CAD software was going to be changed, he knew it was time to act. Realizing that the company would have to upgrade the CAD operating system to help safeguard the security of its own data and that of its customers provided the impetus to evaluate and upgrade its CAD software. “It was at this point that we attended a seminar put on by Siemens PLM Software partner Majenta. Immediately it was clear to us that Solid Edge offered exactly what we needed in a CAD package. We were particularly impressed by synchronous technology.” After just two days of training, designers at Fripp Design and Research were up and running.

Open to exploration and innovation

Compatibility is no longer an issue. “The nature of our business is that we are brought in to remedy an issue with a CAD file, prepare a file for rendering or to



Measured drinking cup designed for use by any person regardless of physical ability.

make it production-ready. As a result, we frequently take on a customer’s CAD file that has either been prepared in-house or by another designer. The use of Solid Edge allows us to open the file with ease and it is a major advantage to us that we do not have to spend time going through another CAD system to gain access to data that we are sent. Solid Edge with synchronous technology allows us to manipulate the existing model; this freedom to move around easily and play is the key to creativity.”

Advanced 3D CAD – processing of customized medical models from CT/MRI scans.



The company is sometimes asked by a customer to produce 3D prints in color. Neil Frewer, industrial designer at Fripp, explains that there are sometimes issues with certain parts such as sheet metal work, which end up being less than a millimeter thick when scaled down. There is one feature that he particularly appreciates: "The use of Solid Edge allows us to scale down and adjust dimensions on large models easily; we can therefore know that sections are not too small to print after a model is scaled down. It takes us very little time to determine reliable strength, yet retain overall proportions. This is very useful."

Integrated and intuitive FEA

Fripp describes the finite element analysis (FEA) functionality of their former CAD package as oriented towards users with an engineering or physics background. In contrast, he considers Solid Edge Simulation, the FEA within Solid Edge, to be set up for designers. "Solid Edge Simulation is not a late add-on, it is much more integrated within the development process," says Fripp. "What we need is a good general overview of FEA and the ability to dip in and out of it as a product evolves, and that is exactly what we get with Solid Edge."

Frewer notes, "It was easy to learn the FEA aspect of Solid Edge. Everything is on the front page; we do not have to dig deep and we have found that it is quicker to get results."

Accelerated development process

According to Fripp, Solid Edge is creating a 90 percent time-saving at certain stages of the development process: "It allows us to tweak things we receive from customers in record time. What would have taken 30 minutes using our previous CAD system now takes just three minutes using Solid Edge. Overall, development time has been reduced by about one-third, because we can create, reverse-engineer and render models with ease, as well as effectively integrate FEA."

Frewer adds, "Solid Edge is unbelievably easy to use compared to our previous package, and very reliable. It used to take so much set-up time before we could see something we could really trust. Even when we model from scratch, we are 20 to 30 percent quicker, because Solid Edge is so easy to use."

In addition, Fripp Design and Research makes particular use of the software's online library of parts, which is full of critical items, including a variety of washers, screws and valves used in manufacturing.

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3D printing of high-quality ocular prosthetics.



3D printed soft tissue prosthesis created via unique process pioneered by Fripp Design and Research.

Solutions/Services

Solid Edge
www.siemens.com/solidedge

Customer's primary business

Fripp Design and Research specializes in product design, industrial design, product research and development.
www.frippdesign.com

Customer location

Sheffield
United Kingdom

Partner

Majenta PLM

Digital analysis used to optimize the design of cast steel components.

"Because the online library is so well supported and sponsored, it is a great forum for us and extremely useful for our customers," says Frewer. "It is a real time saver. Whereas it could take three or four days to design contextual parts, we can pick them up from the library instantly, and it is easy and quick to bring in a non-native file or block model or a 2D drawing. It only takes about ten clicks, for example, to transfer from a simple 2D drawing to a 3D model."

An expanded business offering

Fripp concludes, "The use of Solid Edge is enabling us to increase our business offering to customers. What might have taken us three days now only takes one day, so we can reduce the cost and therefore the financial risk for our customers. Using Solid Edge with synchronous technology means that we have future-proofed the company; it definitely gives us a competitive edge."

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