

AT A GLANCE

Company:

Logitech Ireland Services

URL: www.logitech.com**Location:** Cork, Ireland**Industry:** Developer of high-end mice, digital pens and other pointing devices**Challenges**

→ Logitech's High-end Retail Pointing Devices department needed a way to quickly, accurately and cost effectively test new ideas while ensuring maximum confidentiality

Solution

→ The Eden™ 3-D Printing System from Objet

Results

→ Turnaround time on prototype parts reduced from three days to one day.

→ Faster, more collaborative process flow from concept to final design

→ Significant savings on the cost of changes particularly at the fit/form/function testing stages

→ Improved confidentiality

→ Time and cost savings on fixturings for measurement control

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Having Objet internally is a big bonus... Being able to spontaneously print a design has really changed the entire process flow of our product design

Kevin Forde
Design Engineer,
Cork Design Center

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Logitech Services save design costs and improve confidentiality thanks to Objet's Eden™ 3-D printing system

The Design Center at Logitech Ireland Services is a development hothouse for Logitech's popular high-end retail computer mice, digital pens, digital presenters, remote controls and other pointing devices. In seeking to improve their design process, the design team researched its 3-D printing options in depth. Early on, they discovered that the technology and solutions available at the time (in 2002 and 2003) did not meet their stringent requirements. They found the complexity and lack of accuracy of most systems, along with their high demands on operator time and skills, disappointing, and so decided to wait for a more complete solution.

“It was clear to us that fit, form & function tests were essential to our design process and so we absolutely had to have a system that could produce highly accurate, high-resolution parts,” said Dennis O’Keeffe Director Cork Design Center, Logitech Ireland Services.

Eden330 chosen for its accuracy and materials

After two years of research, Logitech selected Objet's Eden330™ 3-D printing system, choosing the Objet system for its high quality models and because of the variety of materials it supports. In particular Objet's FullCure® Tango line of flexible, rubber-like materials captured the design team's interest as it would enable them to model the "feel" as well as function of the grip elements of Logitech's electronic pointing devices. The Eden330 was installed in August 2004. For the past few years, it has enabled the Logitech design team to cost effectively and efficiently explore creative ideas, precisely test fit, form and function, reduce the cost of design errors, and preserve the confidentiality of its products in development.

"Having Objet internally is a big bonus," said Kevin Forde, Design Engineer at Logitech. "External prototyping of parts takes three days, but now I have my solution within one day. The ability to do 'unofficial prints' – when we spontaneously send a print for design – has changed the entire process flow of our product design."

Putting 3-D models to work at every stage

Logitech uses the Eden330 throughout the design process.

- *Concept modeling* – First, the concept model is printed, enabling close collaboration with the marketing department. Often, the team prints multiple variations of the same model, enabling all stakeholders to evaluate the various aspects of the product, such as thumb and grip positioning and button locations.
- *High-level design review* – Objet models are used to perform rough fit and form testing of the different components.
- *Lower-lever design review* – More in-depth fit and function tests are performed. All elements, such as shell, buttons and rollers, are produced on the Eden330 and fitted; the buttons and optical laser beam are also tested for function. The PCB is then fitted into the model, along with all components.
- *Production initiation* – The 3-D files are sent for manufacture in Logitech's manufacturing plant. The products are manufactured and assembled and then units are sent back to the Cork Design Lab for testing. The Objet prints are used here to build fixtures to help in the debug process, saving cost on expensive machined fixtures.

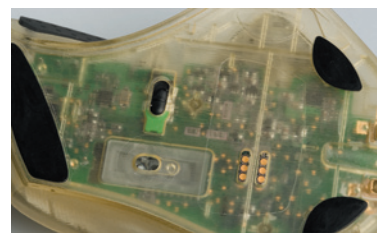
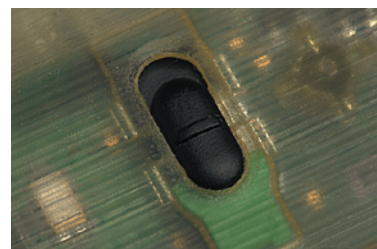
Kevin Forde noted: "Our products are getting more and more complex, requiring more accurate fit testing. Being able to print fixturings, which typically need to be altered two or three times, has saved vital time and costs. Whereas fixturings were commonly made of metal and outsourced at a high cost, we can now do this in-house."

Using 3-D modeling to support the creative process and ensure confidentiality

Logitech constantly strives to introduce real innovations to the market. Using the Eden330, designers are able to try out their ideas free from the cost and time constraints imposed by traditional outsourced prototyping.

"We don't need to think of the hassles that come with the standard prototyping and outsourcing of parts," said Kevin Forde. "Using the Eden330, we can print any part deemed necessary. That fundamentally encourages people to try different design solutions."

Keeping creative ideas confidential until a product is launched is critical in Logitech's highly competitive market. Commented Kevin Forde: "We live in a very aggressive market environment, with a lot of competition, so reducing the number of contacts with the outside world is indispensable for our product's success. Having Objet in-house helps us reduce exposure."



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