



SITUATION

Cambridge Adaptive Communications (CAC) was established by David Mason after a chance conversation with world-renowned scientist Professor Stephen Hawking. This resulted in Mason providing Hawking, who suffers from motor neuron disease, with a truly portable computer that could be mounted on a wheelchair.

Since then CAC has carved out a niche supplying computer equipment for people, particularly children, with disabilities that impede their ability to communicate through normal speech. In 1996, CAC introduced the award-winning Cameleon, the first product to incorporate all components into the monitor unit, eliminating the accompanying bulky box.

CAC always emphasized product function rather than aesthetic appeal, but soon it was receiving requests from its customers and its European distributor for products with more color and style.

Mason was concerned that such a product would require high-volume production entailing a large capital outlay. However, he decided to act on customer feedback and have the Cameleon redesigned. To perform that task, he chose Rodd Industrial Design (RID), which had recently purchased I-DEAS® Artisan™.

OBJECTIVES

- ✓ Design and develop a contemporary product to appeal to fashion-conscious young users.
- ✓ Reduce the overall size; make it lighter yet robust enough to withstand knocks and dropping; and keep the monitor large enough to allow for touch screen operation.
- ✓ Make the back, which faces outward from the user, as attractive as the front, and design the unit for desk, floor or chair use.
- ✓ Enable customization by allowing the frame around the monitor to be changed easily to one of a different color.

PROCESS VISION

- ✓ Use computer-aided design to enable low-volume manufacturing techniques.
- ✓ Utilize vacuum cast plastic to create a product with consumer electronics appeal.
- ✓ Design the new exterior around existing components.

CAC's Cameleon Changes Its Color With 3D

"The use of I-DEAS Artisan to design this product for manufacture at low volume is transforming our customers' view of us. While we were initially recognized for providing engineering-driven solutions, we are now regarded as a consumer-driven company."

- David Mason
Owner
Cambridge Adaptive
Communications



Get
There
Faster™

CAC's Cameleon Changes Its Color With 3D

ACTIONS

- ✓ The designers from RID visited schools where children were using the Cameleon and asked the users, teachers and helpers what they wanted.
- ✓ Early concept visuals were approved, and the designers began to model the electronic components, the molded coverset and the metal chassis within I-DEAS. The 3D model allowed the RID designers to fit the motherboard, speakers, batteries and connectors into the smallest possible space.
- ✓ At the same time, the designers used foam models to develop the shape and the curves around the internal space. These were used, along with visuals from the 3D model, in a focus group session organized by CAC's European distributor. RID received very positive feedback, and the final design was approved.
- ✓ The detail of the 3D model was quickly developed and refined. The data was exported to an STL file and passed to a local supplier who made a stereolithographic model. This was used as a master for vacuum casting, which allowed up to 25 units to be made from one tool.
- ✓ Visuals from the 3D model were imported into a photographic package to create sales literature showing the computer in use.

RESULTS

- ✓ The Cameleon 3 was an immediate success. The CAC sales team reported a 400% increase in interest. The original Cameleon product sold 400 units over three years. CAC expects to sell at least 1000 Cameleon 3 units over the same period of time.
- ✓ The use of 3D enabled the designers to achieve the fashionable shape and feel that they required. They were confident that the integrity of their design would be maintained within the final product as it was not open to interpretation at the tooling stage.
- ✓ Production was achieved with minimal risk because CAC avoided the high cost of injection tooling. Also the total cost of development was cut because several stages of physical models were eliminated.

PLANS

CAC was so impressed by RID's use of 3D and the success of the project, that it continues to work with RID, and the two companies are currently using the Cameleon 3 as the basis for a new range of products.

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