Noomeo – 3D at your fingertips

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Vincent Lemonde CEO, Noomeo

Noomeo has perfected the design of its new generation 3D scanner thanks to digital image processing using the Dassault Systèmes PLM collaborative offering. Its mission: provide companies that want to work in 3D with innovative solutions based on ultra-portable and user-friendly systems.

Thanks to its strong emphasis on R&D, numerous partnerships, and close collaboration with research laboratories (LAAS-CNRS, CEMES-CNRS and Ecole des Mines d'Albi-Carmaux), Noomeo has developed scanning solutions based on digital processing of optical, non-laser images.

IT STARTED WITH AN INNOVATIVE CONCEPT

Since its founding in 2007 in Toulouse, Noomeo has been designing and developing innovative scanning solutions to meet its customer needs: user-friendliness, comprehensive, rapid and automated modeling processes, accessible pricing and maintenance.

Noomeo President Vincent Lemonde and Scienctific Director Ludovic Brèthes have built a skilled team expertly taking care of product development and customer relations. "We have developed an innovative video capture concept, integrating an optical scanner coupled with software creating reconstructions based on real forms, all in 3D, so the model is scanned without the need for special preparation," said Vincent Lemonde. Noomeo provides professionals with packaged and tailored solutions designed to simplify and facilitate the creation of 3D models.

3D – KEEPING IT SIMPLE

Responding to market demand, Noomeo developed its first operational prototype OptiNum™. With models such as small statues, mechanical parts or faces, scanning only takes a few seconds to create a screen display, offering full-color results, totally manipulable on dedicated software.

Ultra-portable (less than two kg) and easy to handle, OptiNum™ enables the operator to scan anywhere without external power supply considerations or cumbersome and complicated handling issues. No need for patches, targets or other means of spatial positioning. Everything is done automatically without the end user having to prepare the model. "The addition of algorithms, which do not require external sets, enables the device to position itself in relation to the subject," explained Ludovic Brèthes. The scanner can scan objects without touching them to an accuracy of more or less microns per cubic meter.

This new solution will help Noomeo democratize the use of the 3D scanner, previously reserved for large industrial groups. Its target markets are industry in general (reverse engineering and design, digital modelling), the mechanical sector (CAD, prototyping), the paramedical sector (cosmetic surgery, prosthetics, health care traceability) or the heritage sector (virtual museums, digital archiving).

OptiNum scanner - original version

OptiNum scanner - new design realized by the Design Studio

A DECISIVE ENCOUNTER

"OptiNum is the result of two years of R & D," stated Lemonde. "We marketed the first version of our product to a few partners, and these on-site tests enabled us to collect their feedback for product improvement purposes."

In early 2009, encouraged by the demand from the market, the company decided to launch the industrial version of the product. Together with its partners, it then worked jointly on the product's ergonomics, robustness and reliability. Noomeo's encounter with the Dassault Systèmes Design Studio at the February 2009 Imagina trade show in Monaco marked a major step forward for the product.

COLLABORATION: THE KEY TO SUCCESS

The project was launched in June 2009 after Noomeo and the Design Studio had worked collaboratively on the new scanner design, using the CATIA platform. "Engineers and designers don't usually speak the same language. The collaborative CATIA platform and the power of 3D enabled us to communicate in a way we could all understand," said Sébastien Rosel, Design Studio Manager.

Four major steps constituted the design process: product analysis, architecture definition, concept proposal and development.

ANALYSIS AND ARCHITECTURE DEFINITION

Technological complexity and constraints in terms of integration, usage, ergonomics, styling and production costs represented a major challenge, but one which the Design Studio relished. Noomeo provided two engineers working alongside the Design Studio, so that each step of the process could be validated in real time.

The project began with an analysis phase, to synthesize technical, marketing and competitive data. This resulted in the choice of 'vertical' architecture, breaking with the codes used by competitors. The device had to be compact and mono-block. The concept research could now begin.

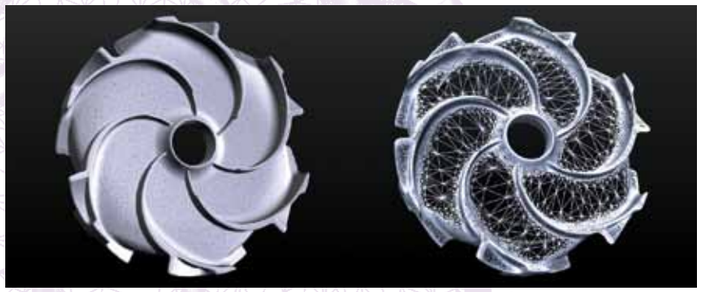
CONCEPT AND DEVELOPMENT

The ergonomics were worked out using the DELMIA virtual manikin, thereby limiting the proliferation of validation prototypes. CATIA Modules Imagine & Shape and Generative Shape Design were used from concept formalization to development, right up to the definition of the final components. Two weeks later, two 3D concepts were proposed and one was selected.

The 3D model produced by the Design Studio takes manufacturing constraints into account, including the clearance angles of the plastic components and internal mechanical parts. The entire digital model was adapted on a daily basis. Four weeks sufficed – as opposed to the several months usually required – to complete and validate the final product design. The model required no modification or reconstruction at the manufacturing phase.

The first new OptiNum ™ scanner was unveiled at the European Customer Forum trade fair in November 2009 in Marne La Vallee, France. "The innovative DS approach enabled the various players to perfect an industry-ready design in just four weeks. It was the combination of DS solutions and an efficient validation process that helped us achieve this," said Rosel.

DS supported Noomeo throughout the marketing stage, including via DS's e-business platform PLM Marketplace. Noomeo, as every privileged partner, benefits from an extensive sales network to propose its solution. The successful launch of its new product demonstrates the power of collaboration when it comes to creativity and innovation •



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