

THE THIRD DIMENSION OF PRODUCT DESIGN

3D SCANNER FOR VISUALIZATION OF HANDMADE MODELS

Aesthetic and functional aspects play an important role in the creation and development of new products. Initial ideas are sketched out with pencil and paper, producing a 2D view. The product designer introduces the third dimension in the workshop, using clay, modeling clay or soft modeling foam. It is here that the crucial steps in the development of a product take place — this is where the idea becomes real. Volumes, shapes, surface transitions and ergonomic aspects come to the fore. It would be easy to assume that the requirements of the designer are fulfilled at this stage, as the product has taken shape, but the University of Applied Sciences and Arts (HAWK) in Hildesheim, Germany goes even further.

DIGITAL DESIGN TECHNIQUES

The Faculty of Design has been operating a rapid prototyping laboratory alongside its CAD pools since 2008. This laboratory is equipped with eight computer workstations that are used to generate CAD data that form the basis for the construction of the products. Techniques such as CNC processing, 3D powder printing or FDM printing enable the virtual CAD data to be converted into real objects using state-of-the-art technology.

The course at the HAWK Faculty of Design is entitled “Digital Design Techniques” and covers the whole product development process, from conceptual sketches to the exploded drawings of the finished CAD designs and high-quality renderings. “We are so much closer to the finished product and our students have the right expertise

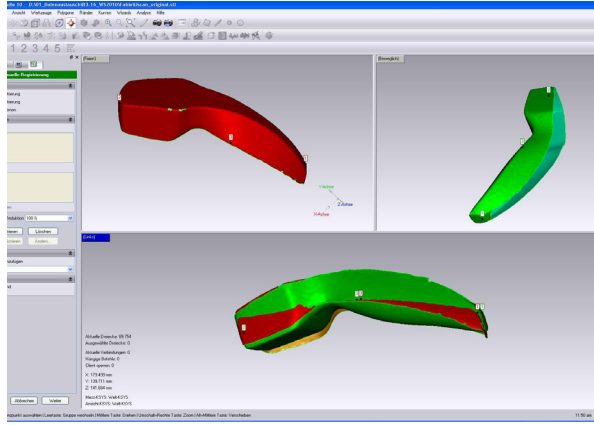


to see the product through the engineering stage of the design process,” says Reiner Schneider (Dipl. Des., research associate/lab manager).

3D SCANNING

The REVscan 3D laser scanner acts as an important link between handmade models from the workshop and virtual data on the computer. The handheld scanner is part of the Creaform

Handyscan 3D range. The handheld measuring system is ready for use in less than two minutes and produces accurate, repeatable, high-resolution 3D data that are visualized in real time.



“Creaform’s 3D scanner allows us to create a perfect link between manual work steps in a traditional design model and computer-assisted processing. An exact digital copy of our workshop models can be produced within an hour,” adds Mr. Schneider.

By using this system, the Hildesheim designers prevent errors from being introduced during the transfer of the geometry to the computer, which would otherwise lead to complex and costly corrections.

HISTORY OF HAWK

HAWK University of Hildesheim/Holzminden/Göttingen (HAWK for short) in Germany is an amalgamation of several previous establishments that specialized in arts, construction and social education with sites in Hildesheim, Holzminden and Göttingen. The university also previously included a site in Buxtehude, which has now closed.

Since 2000, the University has been known as the University of Applied Sciences Hildesheim/Holzminden/Göttingen and started using its extended name of University of Applied Sciences and Arts (HAWK — Hochschule für angewandte Wissenschaft und Kunst) in 2003.

HAWK consists of the Faculties of Construction (Hildesheim), Design (Hildesheim), Preservation of Cultural Heritage (former department of Conservation and Restoration, Hildesheim), Management, Social Work, Construction (Holzminden), Science and Technology (Göttingen), Resource Management (Göttingen) and Social Work and Health (Hildesheim).

The Faculty of Design offers courses in nine different specialist fields of design — 550 students are currently studying for a Bachelor’s degree (3-year course) and 70 for a Master’s degree (2-year course). A new building to house the faculty is planned for 2014.