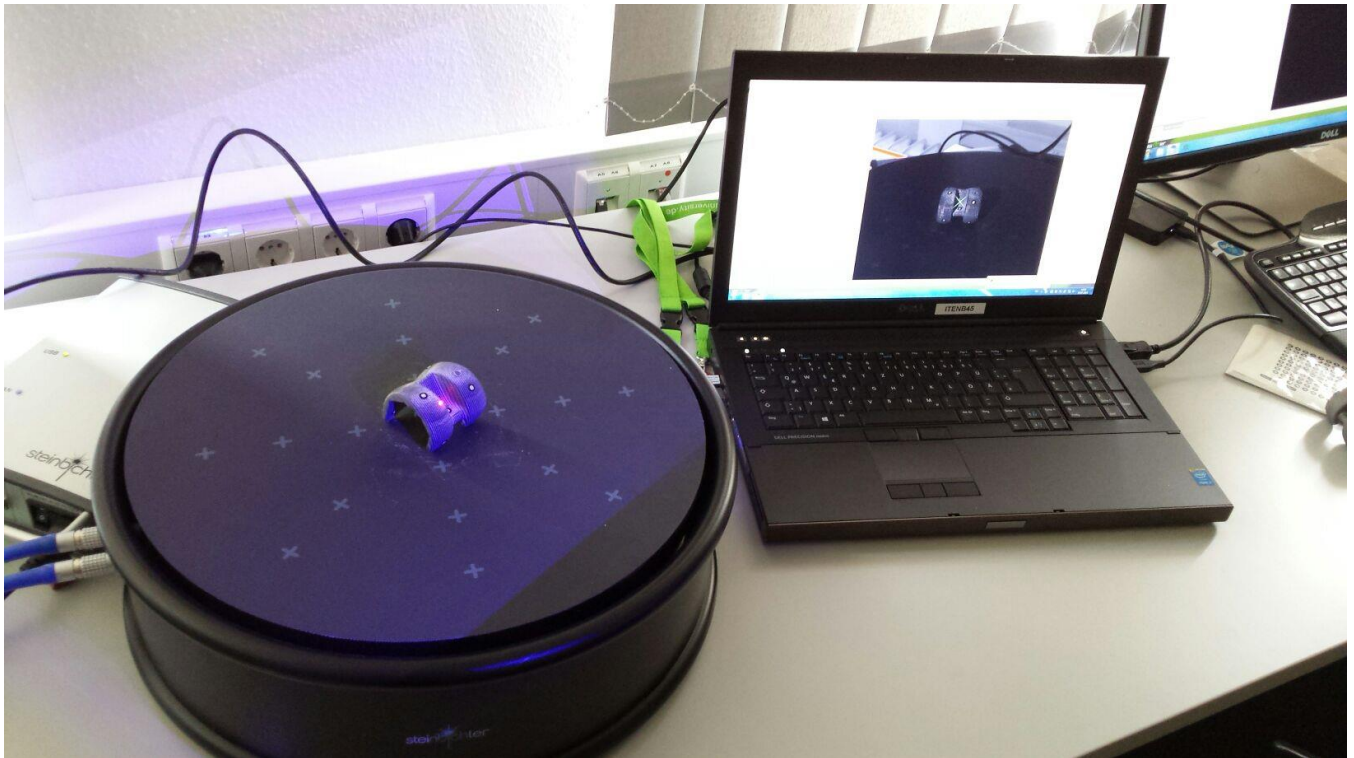


University campus in Tuttlingen chooses 3D sensor

COMET LED enables reverse engineering and quality assurance



| | |
|-----------------------------|---|
| SYSTEM / APPLICATION | COMET LED |
| FIELD | University / Education |
| CUSTOMER | Tuttlingen University Campus of Furtwangen University of Applied Sciences |

TASK

"Reach new heights" – that's the motto of the Furtwangen University of Applied Sciences. The most recent location of Furtwangen University, the university campus in Tuttlingen, underlines and clearly reflects this motto: Since it was opened and began admitting students in 2009, the university has utilised a Public Private Partnership (PPP) concept. The PPP is a new form of cooperation between the university, industry, and the government – the only one of its kind in Germany. The unique feature of the concept is that it gives industry participation rights and a say in matters through industry representatives and a presence in the academic commissions for the degree programs.

Only technical degrees such as Industrial Manufacturing and Industrial Med Tec are currently offered and taught on the Tuttlingen campus, as well as two master's degrees, Medical Devices & Healthcare Management and Mechatronic Systems.

The only PPP concept in Germany is just one hallmark of the Tuttlingen campus, alongside its cutting-edge laboratory equipment, which is amongst the country's most advanced. In order to maintain and develop this modern standard, the next step in 2014 was to look into obtaining a 3D scanner, which was to be used in future for teaching purposes. The university also planned to use the scanner for industrial purposes as a service in support of local companies.

The 3D scanner had to be suitable for various industries, such as medicine and dentistry (implants, dentures, etc.), as well as for other product portfolios. Parts to be scanned range primarily from 30 mm to 500 mm, although some parts can be up to 1000 mm in size. The minimal wall thicknesses measure 0.3 – 0.4 mm.

A further requirement of the Tuttlingen campus for a potential 3D scanner was that it had to be highly mobile.

SOLUTION AND PRODUCT

Once the Tuttlingen campus had gathered information on a number of 3D scanners from various companies, they opted for the powerful COMET L3D fringe projection sensor from Carl Zeiss Optotechnik GmbH, headquartered in Neubeuern (formerly Steinbichler Optotechnik GmbH).

In addition to the 3D sensor's superb resolution, extremely high accuracy and simple operation, its easy portability was a key criterion in the decision. Thanks to the interchangeable measuring fields, other winning features of the fringe projection sensor were its flexibility and resulting easy expandability of the measuring volume.



COMET L3D scanning a knee prosthesis

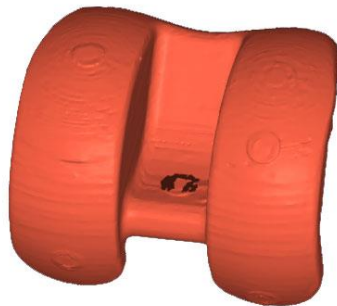
RESULT / BENEFITS FOR THE CUSTOMER

The COMET L3D is currently being used in all of the degree programmes and is available to students for project and thesis work. Companies which are members of the "Hochschulcampus Tuttlingen Förderverein e.V." also have access to the university's device.

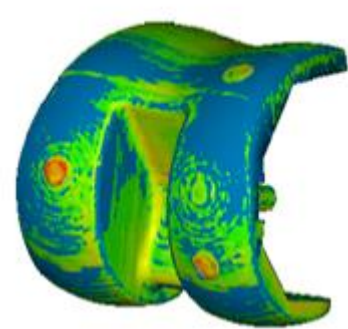
The COMET L3D can be used in a number of different fields, thanks to an entire range of new and continuously developing applications. The Tuttlingen campus sees particular potential for the COMET L3D in the area of reverse engineering of medical products as well as quality inspection of additively manufactured components using the INSPECTplus inspection software. This will make it possible to handle quality assurance matters in future.



Knee prosthesis



Triangular network after scanning



INSPECTplus inspection software enables quality testing

Thanks to the definite flexibility and portability of the system, the COMET L3D can also be used in industrial environments where necessary.

A further advantage is that the simple operation of the fringe project sensor gives not only metrology specialists but also students the opportunity to use the 3D scanner, providing an optimal setting for the students to deepen their theoretical knowledge with hands-on experience.

Following basic training at Carl Zeiss Optotechnik GmbH in Neubeuern, it took only a few days to introduce the fringe projection sensor.



ADVANTAGES / STATEMENT

- **Excellent flexibility and portability of the 3D sensor**
- **Easy operation of the COMET L3D, even for students**
- **Brief introduction period**
- **Quality inspection of parts possible**

"In addition to its excellent resolution, accuracy, easy operation and portability, another key criterion in the purchase decision was the flexibility of the COMET L3D, thanks to various interchangeable measuring fields and easy expansion of the measuring volume."

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