Documenting complex plant and facilities using TachyCAD, PointCloud and PhoToPlan

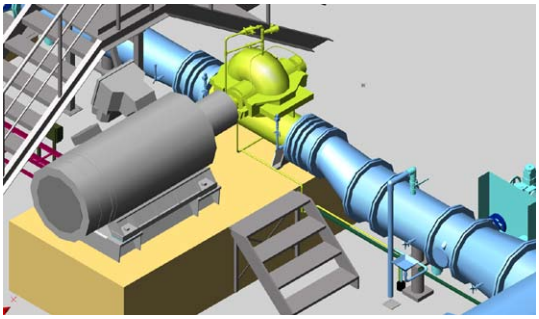
Integration of different measuring methods for the efficient generation of 3D data models

Operators of large-scale plants, e.g. electric power stations or water works, need precise 'as-built' information. In case of damage, for maintenance reasons or for the planning of reconstruction, plans and sectional drawings are often needed at short notice. In many cases, it is very difficult to survey a plant without disrupting its operation. One solution to this problem is to generate and maintain a 3D model of the plant and, if needed, to extract the required information from it as, for example, ground plans and sectional drawings.

The Giersch engineering company of Strausberg, Germany recently won a contract for a feasibility study into the use of 3D models in this way. As example objects, a transformer station and a sewage plant were to be surveyed as efficiently as possible. The company's engineers decided to generate the model in AutoCAD using kubit applications and the most cost-effective and fastest survey methods.

Photographs were taken of simple geometries such as the exterior of the transformer station and the walls of the clarifier. The pictures were rectified to scale in AutoCAD using PhoToPlan and drawn out as CAD plans. For surveying complex interior rooms, a laser scanner was used. The resulting point clouds were analyzed with AutoCAD using PointCloud. Pipe systems and undocumented parts of the stations were measured with Tachymeter, Distometer and a measuring tape. During measurement, the objects were modelled on site with AutoCAD using TachyCAD and DisToPlan. The result was a 3D model from which different sectional drawings were extracted for demonstration purposes.

The appropriateness of 3D models for administration purposes was shown very successfully by the pilot study. Furthermore, it showed how the data from different sensors could be efficiently transformed into CAD plans through the use of kubit applications.



We have been enthusiastic users of kubit software for many years. This experience has been reinforced by the successful outcome of the pilot study.

Dieter Giersch, Chief Executive Officer

Task
Feasibility study into the documentation of industrial facilities as 3D models

Customer
Survey company Giersch
Hegermühlenstr. 58
15344 Strausberg
Germany

Timeframe
Data acquisition: 1 day
Data evaluation: 7 days
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Results
3D model of a transformer station and sewage plant

Advantages
Rapid survey and evaluation of data from different sensors within a CAD environment

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