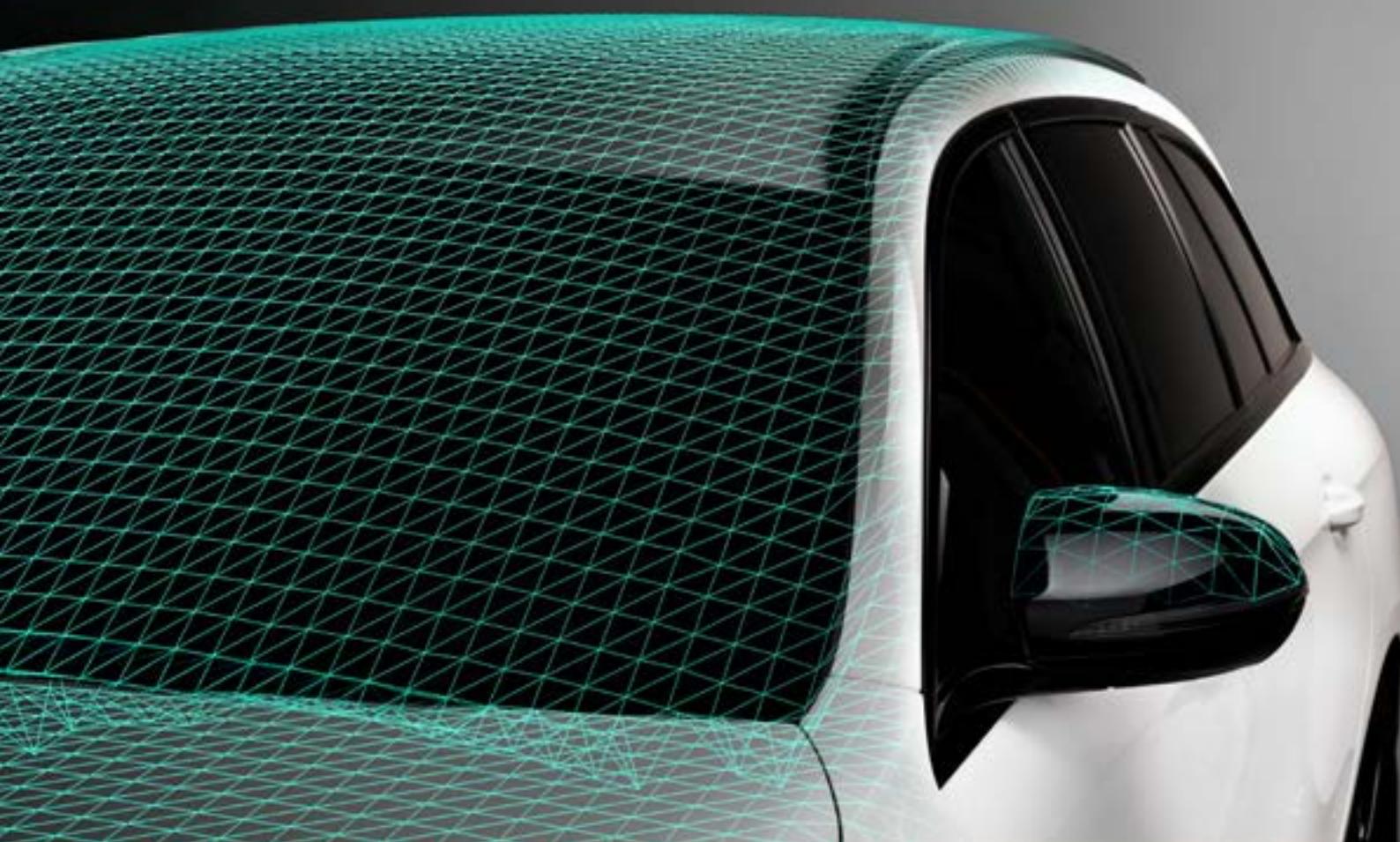


# New dimensions of 3D image processing

Point cloud-based 3D positioning with  
VMT™ OSC



**VMT**  
PEPPERL+FUCHS



## VMT™ OSC

### Form rather than feature

#### 3D measurement method with VMT™ OSC

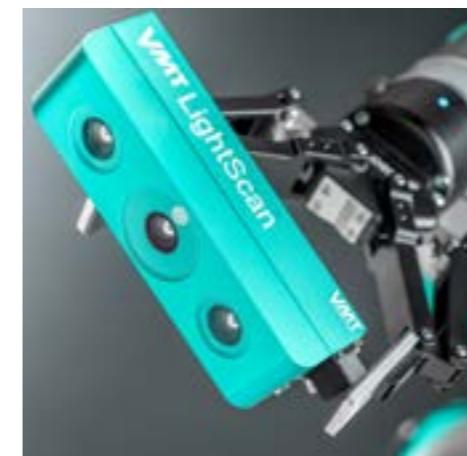


VMT™ OSC uses a shape-based measuring method for optical three-dimensional position determination. Instead of edges, holes or other concise object features, the geometric outer contour of a component or workpiece is used wholly or partially in order to determine its position or location and orientation.

It is no longer individual features that are used to determine the 3D position of an object, but its surface geometry or sections thereof. This is recorded with the help of special 3D sensors, whereby millions of individual 3D points, i.e., individual measured values, are combined to form what is known as a 'point cloud'. This data forms the basis for a completely new metrological approach for determining the spatial position and orientation of any components in an industrial environment.

Using special 3D matching with CAD reference data, the system can precisely calculate the actual component position for guiding arbitrary handling units, for example, a 6-axis robot.

#### Expertise in sensor technology

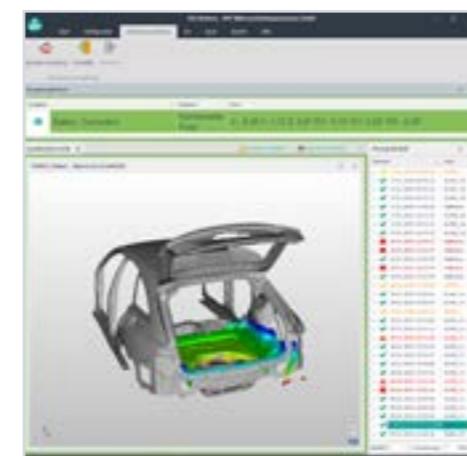


VMT™ OSC uses state-of-the-art 3D sensors for shape-based 3D measurement of the position and orientation of objects. Based on the stereo matching principle, the component is detected by two image sensors to calculate, for example, the 3D position of each individual pixel, regardless of its color, and in a manner that is resistant to extraneous light influences.

The result is a high-resolution 3D point cloud, giving a precise image of the object in the space. VMT™ OSC compares this with the stored CAD reference data and calculates three-dimensional contour, position and orientation values, which are used for guiding the robots.

In order to meet the highest requirements for accuracy, VMT™ has developed special multi-stage matching algorithms with its experienced development team, which guarantee the highest possible accuracy with low calculation times. VMT™ uses the optimal 3D sensor available on the market for the specific application to best meet the respective process requirements.

#### Application software VMT™ MSS



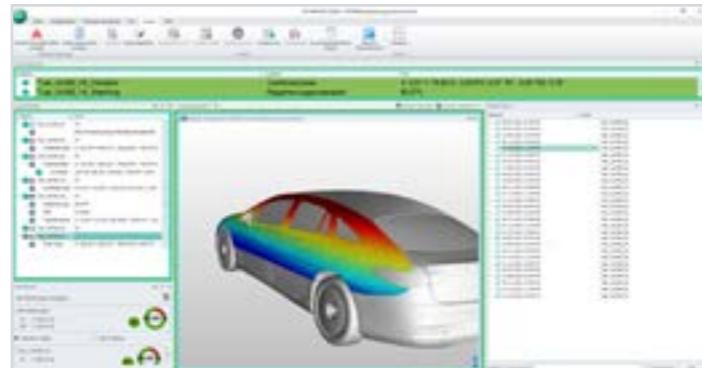
At the core of each VMT™ system solution is the proprietary image processing software. It doesn't matter whether the image information comes from cameras, or from laser or 3D sensors. Native support for a wide range of interfaces, including robot controllers, cell control systems and cloud servers, enables fast and straightforward integration into new and existing environments.

Online logging and statistics provide the user with relevant process data. Test results and images can be archived in a wide variety of formats and tied to an identification number, and can also be visualized using special tools even outside of the VMT software.

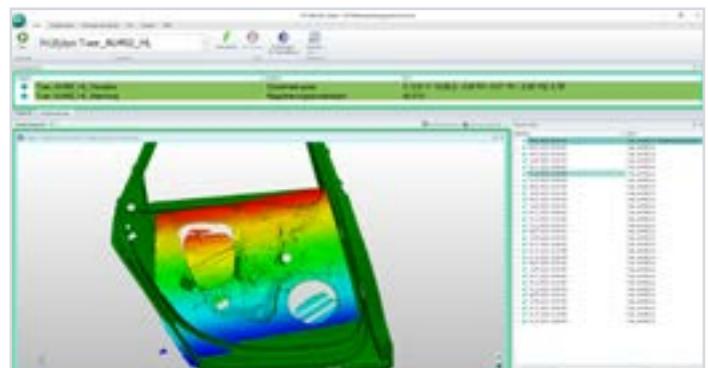
An intuitive user interface and clear presentation enables implementation of even highly complex tasks, in all common national languages. The systems can be expanded to almost any extent desired by means of additional sensors, variants and component types, either by users if they have been appropriately trained or, if desired, by VMT™ service teams.

## Possible applications

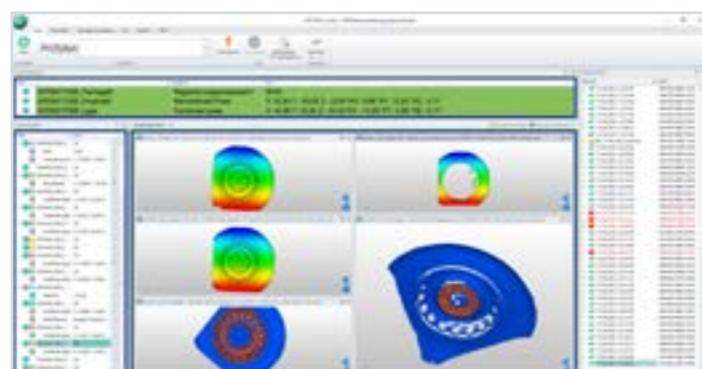
### Body position correction and crash protection



### Door handling in the assembly process



### Automated wheel fitting in assembly



## VMT™ vision solutions at a glance

With the use of modern 3D sensors in combination with its own software development, VMT™ allows consideration of completely new perspectives in industrial image processing.

VMT™ systems can be set up with minimal effort and can be commissioned completely virtually. VMT™ systems can fully meet the increasing demands for flexible and robust manufacturing processes with high quality standards.

With VMT™ as an expert in the field of industrial image processing and laser scanner technology, you'll always have the right partner by your side.

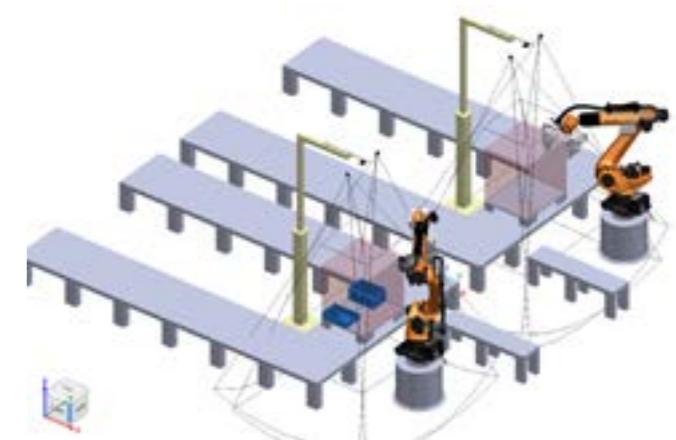
#### Highlights

- Worldwide sales, after-sales support, and service
- Best advice and feasibility studies
- Professional engineering and project management
- Manufacturing, installation and implementation from a single source
- In-house software development
- Extensive expertise in robotics
- Our own technology packages for robot controllers
- Easily configurable user software
- Modern and easy-to-understand visualization tools
- [Virtual commissioning options](#)
- Full spectrum of leading 3D sensor technologies can be used
- Expertise in 2D and 3D applications
- Process knowledge in almost all industrial sectors
- Execution of complete solutions, up to the entire cell
- Support for model maintenance and modernization

#### Virtual commissioning, that's how you do planning today

The image processing experts from VMT™ are able to plan and check complete test cells, concepts or camera arrangements at the "green table", using CAD data with software tools developed in-house. Even in the case of subsequent type extensions in existing systems, the test programs can be created or copied offline, and test tasks can be checked and activated immediately at the start of production.

The entire course of the project can thus be planned very precisely and effectively in advance with the help of virtual commissioning. Predictive planning, both in the production and set-up of the systems, as well as in the maintenance of later models of our image processing systems, is a substantial benefit for our customers.



# Solution Excellence for Your Vision

VMT Vision Machine Technic Bildverarbeitungssysteme GmbH is your leading automation partner for machine vision turnkey solutions worldwide. VMT® develops and supplies customized machine vision, robot vision, and laser sensor systems for all industrial sectors using our self-developed state-of-the-art hardware and software products. As a professional consultant, VMT® provides objective solutions tailored to individual applications. Our technical services cover the complete life cycle of your machine vision solution, including planning, commissioning, installation, and system integration as well as training, maintenance, and upgrade services. With more than 30 years of experience in industrial machine vision applications, you can be confident that VMT® will provide proven solutions for your operation that nobody else can match.



[www.vmt-systems.com](http://www.vmt-systems.com)

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