



## Summary



**Customer**  
TAS GmbH



**Partner**  
ID Engineering

**Industry**  
Automotive

### Challenge

TAS GmbH provides crucial automotive components to the automotive sector, specifically focusing on the precise finishing of the covers for battery compartments in electric vehicles. To ensure consistently best-in-class output, TAS acquired a camera solution by ID Engineering, powered by Aurora Vision Studio by Zebra.

### Benefits/Outcomes

- Increased and consistent product quality
- A machine learning system that improves as it is used, ensuring TAS retains its competitive edge
- Increased reliability, precision and safety

### Solution

- Aurora Vision Studio™ by Zebra

# TAS GmbH Leverages Zebra Software Driven By Deep Learning to Safely Power Electric Vehicles

TAS GmbH specializes in surface technologies. Thanks to its precise finishing of metal surfaces, the company plays a decisive role in the manufacture of automotive components - especially in the covers for battery compartments in electric vehicles, in which the high-voltage batteries are installed. They protect the high-voltage batteries from external influences such as moisture, as they could otherwise burst into flames due to corrosion. The battery compartments must therefore be precisely sealed with the covers.

TAS GmbH comprehensively inspects every part for defects and improves its system's ability to recognise them using camera technology and sophisticated image processing software. This is a testament to the skilled engineering team behind the image processing solution, which is based on the Aurora Vision Studio with its Deep Learning add-on - a machine vision integrated development environment from Zebra.

## Strategic Solutions

TAS GmbH relies on a meticulous process to ensure a precise finish for every component and to meet the high demands of the automotive industry. A robot arm handles the covers for the battery compartments and feeds each one to an inspection device. Here, a camera system checks the covers for possible defects such as irregularities in the coating, scratches in the surface or problems with the laser marking that could affect the quality. The cameras are conceptually arranged in such a way that they can capture the covers in their entirety. The camera system was customised for TAS GmbH by ID Engineering, a Zebra Registered Reseller and Industrial Automation System Integrator.

The special feature of this image processing solution is the deep learning technology of Zebra Aurora Vision Studio. It can be trained to recognise and classify certain types of defects using images.

To do this, previously selected image data sets are annotated and fed to the system. The system can then be retrained to recognise new inspection criteria based on the information or fine-tuned for defects already known to the system. As a result, the image processing solution can be constantly developed and improved using deep learning technology.

"With Zebra's machine vision system, we have shown we can meet the high-quality standards of the automotive industry. Zebra's solutions have fully met our expectations, and we are already planning to implement this technology in future projects," says Temel Tas, Managing Director at TAS GmbH.

### Sophisticated Safety

A core benefit to the system's deep learning capability is that the inspection process remains flexible even when the industrial conditions change. This is a significant advantage over image processing solutions with traditional tools, which may not be as durable or adapt well to changing production conditions.

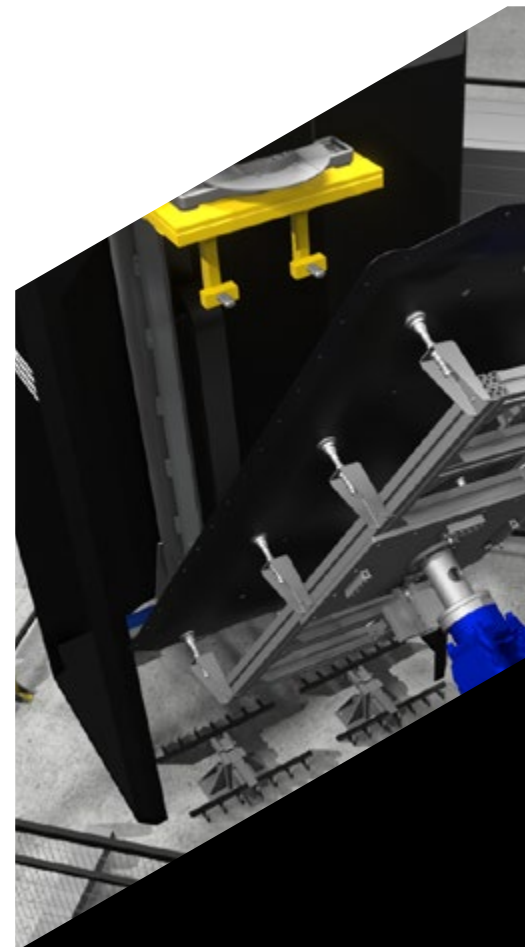
The need for precision and reliability in detecting even the smallest surface defects that could compromise the reliable sealing of electric vehicle battery compartments with the corresponding covers was the deciding factor for the customised camera system and image processing solution. Thanks to the adaptability of Aurora Vision Studio with the Deep Learning add-on, these safety measures continue to gain in precision and efficiency.

### Competitively Coded

The flowchart-based image processing solution with deep learning technology used by TAS GmbH follows a no-code approach. This enables convenient and fast training of the image processing solution while maintaining consistent quality, which underlines TAS GmbH's commitment to quality and puts the requirements of the automotive industry first.

"The main advantages of Zebra's Aurora Vision Studio are its speed in development and in execution. The scalable Zebra system is easy to use and it's no code solution meant a fast development. In addition, the execution time when analysing many and sometimes large image files simultaneously is much faster than with other technologies that we have tested. Beyond the technology, we appreciate the valuable support from Zebra and their fast reaction times," says Michael Sartor, Head of Machine Vision Department at ID Engineering.

"The solution from ID Engineering and TAS GmbH is a good example of how learning algorithms can be used and ensure better quality in industrial

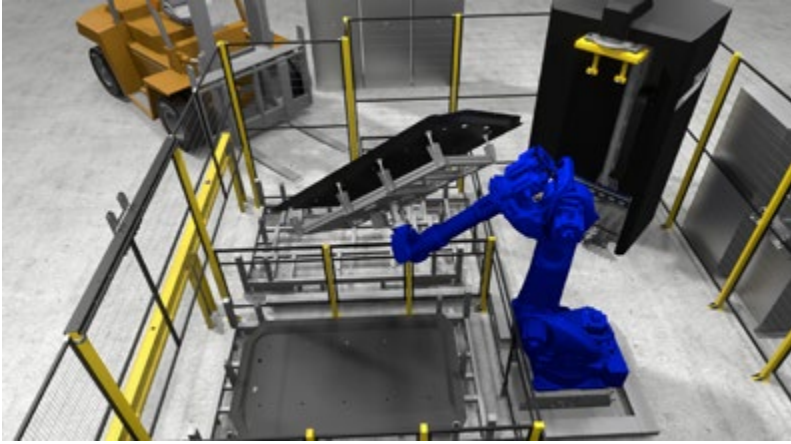


"The solution from ID Engineering and TAS GmbH is a good example of how learning algorithms can be used and ensure better quality in industrial production. With Aurora Vision Studio and the deep learning add-on, we are providing a basis on which even huge amounts of data can be processed and utilised. This is our contribution to the manufacturing technology of the future."

**Rudolf Schambeck,**  
**Sales and Channel Manager**  
**Machine Vision DACH**

production. With Aurora Vision Studio and the deep learning add-on, we are providing a basis on which even huge amounts of data can be processed and utilised. This is our contribution to the manufacturing technology of the future," says Rudolf Schambeck, Senior Manager Machine Vision Solutions DACH at Zebra Technologies.

Through the combination of advanced surface technology, a customised quality control system and deep learning technology, TAS GmbH represents a significant advance in quality control in the automotive industry. Zebra's machine learning technologies enable the company to demonstrate its strong and continuous commitment to innovation and quality in the industry.



To learn more please visit [www.zebra.com](http://www.zebra.com)



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