



MACHINE VISION & AUTOMATION

CREAM OF THE CROP - THE GROWTH OF AGRI-TECH

PRODUCT SPOTLIGHT:
FRAME GRABBERS

INFLUENCER INSIGHT:
NEUROMORPHIC VISION EXPLAINED

ROBOTICS:
THE IMPACT OF COBOTS

THE 3D IMPACT IN AUTOMOTIVE PRODUCTION

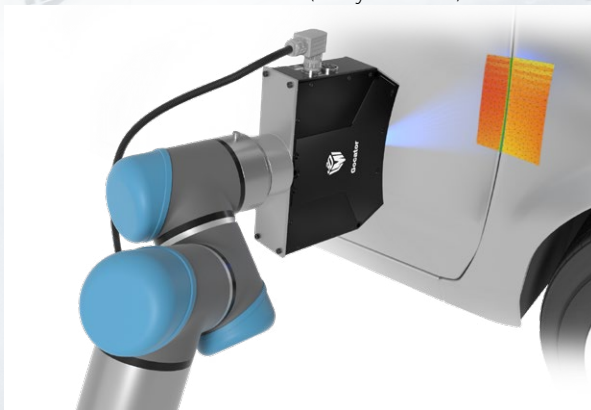
LMI Technologies share a case study on how cobot-mounted Gocator 3D snapshot sensors perform automotive gap and flush measurement and inspection.

THE CLIENT

Kibele-PIMS is an industrial imaging and robotic automation company with its main management office and R&D center in Izmir, Turkey, and a branch office in Istanbul. Founded in 2002, Kibele-PIMS produces dimensional control, surface control and sorting machines. Kibele-PIMS makes mechatronic applications using advanced software applications and various advanced imaging systems under factory conditions and offers a holistic automation solution with robotic applications.

THE APPLICATION

This application involves inspecting unpainted, bare metal automotive car bodies (body-in white) for correct



door and panel gap and flushness measurements in order to verify critical assembly tolerances are met.

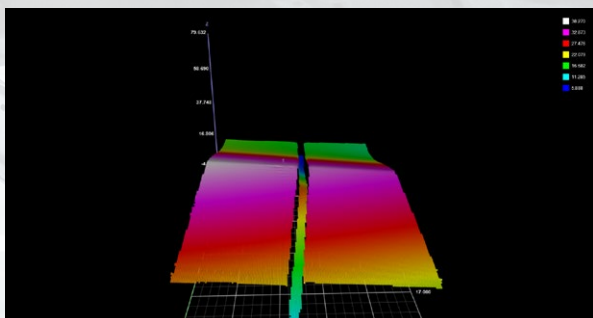
THE CHALLENGE

Manual inspection of car bodies at this stage in the manufacturing process is very difficult because the car body consists of bare metal with sharp and shiny edges that require multiple inspections. These inspections demand custom filtering and feature measurement tools for completion in a very short cycle-time.

In addition, in this particular plant, car bodies are manufactured using a mixed-model production methodology, which means every car that passes on the line is potentially a different model from the previous. The robot and 3D vision system must be able to communicate directly with the manufacturing controllers and key factory systems in order to adapt to inline production model changes, in real-time. The data reporting from this system must also be very detailed, providing insight to the operator at the retouch station.

THE SOLUTION

Gocator 3D snapshot sensors provide high precision 3D surface data with excellent performance on shiny edges and metal surfaces. Together with fast scan rates of up to 6Hz (using GPU acceleration) and onboard measurement processing, Gocator can maintain

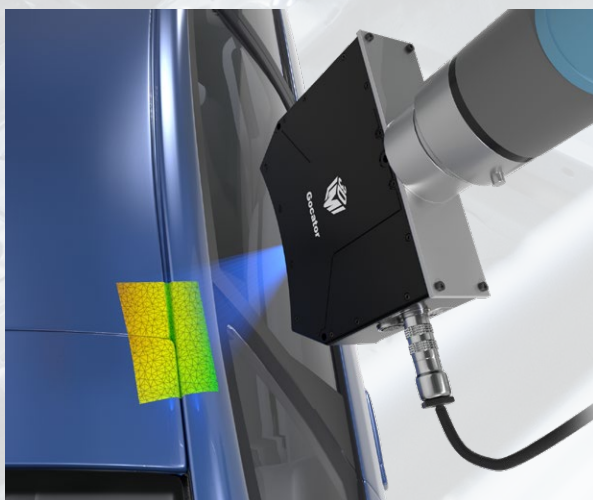


production throughput while delivering highly repeatable measurement results.

The PC-based GoX Accelerator software package was used to share the processing load and complete all analyses in the required cycle-time. Once set up, direct communication between the Gocator sensor and workstation was easy to program and fast to communicate via a custom-made front-end HMI software, which was also used for coordinating Gocator sensors and industrial cobots. The Gocator sensors were seamlessly integrated into the customer's proprietary code in order to solve all the detailed reporting and communication problems.

THE GOCATOR® ADVANTAGE

- High-precision and reliable measurements on shiny metal objects
- Easy integration with factory systems, software, and industrial robots
- Easy job setup, job switching, and measurement tool customisation



- Communication flexibility and capabilities to connect any well-known robot which is good for the project because engineers are not limited strictly to using UR, they could also use KUKA, Omron, or other brand name cobots.

THE RESULT

Shorter cycle times and increased number of inspection points for more robust measurement and quality inspection.

Why Factory Automation?

- Reliable, consistent, precise measurement in a challenging environment (unpainted, changing models, moving assembly line)
- Eliminates safety risks (operators interacting with sharp metal edges)
- Identifies rework before downstream processes attempt to mate panels that won't fit due to incorrect or missing assembly features



TESTIMONIAL

Erdal Basaraner, managing director of Kibele-PIMS.

"Kibele PIMS A.S. chose Gocator for this project not only because it's a perfect fit for the measurement requirements, but also because of its proven industrial reliability, high-precision, and overall measurement stability. Our engineers were happy to program and integrate Gocator sensors because of the easy integration and programming flexibility." **MV**