SUCCESS STORY

CUSTOMER

- ALFATEC – IDF (The Institute of Design and Manufacturing Research)
- Prime contractor: Álava Ingenieros
- Amount: 140.000 €
- Implementation: 2016-2017

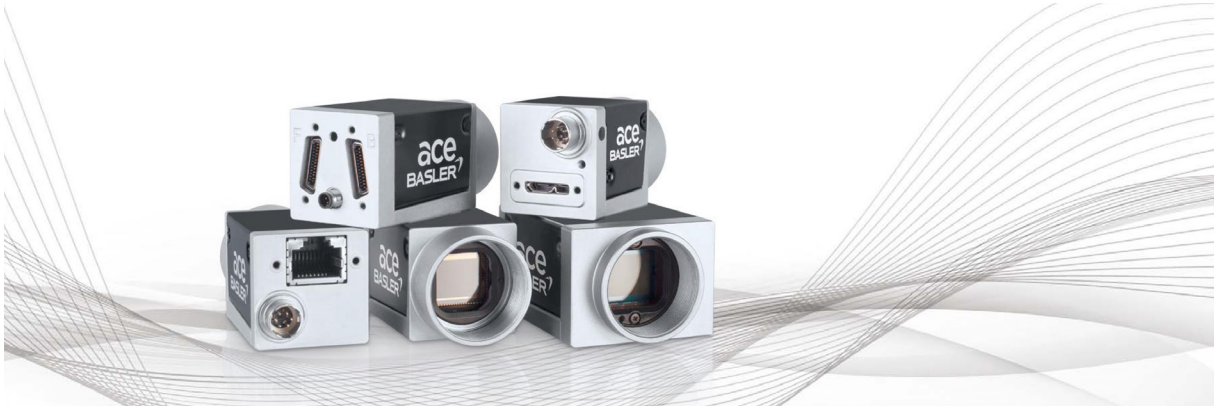
PROJECT AND SOLUTION

The Institute of Design and Manufacturing Research (Instituto de Investigación en Diseño y Fabricación, IDF) is a research institute linked to the Polytechnic University of Valencia, which runs research and development projects on design, manufacturing and automation. It focuses its activities on the automotive industry, combining the potential and competitiveness of the business partnership within a firmly committed university environment with research and development (R&D), to create an organization capable of undertaking a wide range of activities.

In this context, Grupo Álava worked with the IDF to create a system based on artificial vision technology to improve the detection and control of flaws on bodywork, currently used by well-known and competitive automotive manufactures such as Mercedes Benz in its Vitoria plant, and Volkswagen in its Pamplona plant (both in Spain).

To achieve this, Grupo Álava designed and supplied an automated inspection system (inspection tunnel) to precisely and effectively detect and control defects on bodywork. The system comprises: a vision subsystem based on cameras capable of classifying and detecting defects thanks to the development of sophisticated algorithms; a mechanical cartesian robotic structure that supports the acquisition devices (the cameras) and moves the lighting components; and a set of screens that acts as an interface for the operators, where defects are highlighted for manual repair.

In addition, the image acquisition subsystem is comprised of 32 high-resolution Basler AG CMOS digital cameras capable of acquiring images at a rate of 20 frames per second, assembled with high-quality adjustable-optical zoom lenses. Each camera visualizes a part of the bodywork, with sufficient safety margins to ensure they



don’t damage the surface. The cameras are quick enough to acquire images within the timeframe permitted by inline production. They are connected to capture cards that run on an industrial Matrox computer.

The lighting subsystem uses high-frequency fluorescent tubes mounted on 11 arches that move at a constant speed over the bodywork. The cartesian robot supports the cameras, which are fixed, while moving the structure of lighting arches.

In addition supplying and installing equipment, Grupo Álava also provided a consultancy service on the most suitable hardware architecture and provided both the hardware (cameras, lenses, industrial computer) and software (image processing libraries). This system has also fulfilled the objectives of the end clients, and over the next couple of years will be installed in other Mercedes and Volkswagen plants in Germany.