

PC & Industrie

10/2024 · October 2024

UNOFFICIAL ENGLISH TRANSLATION

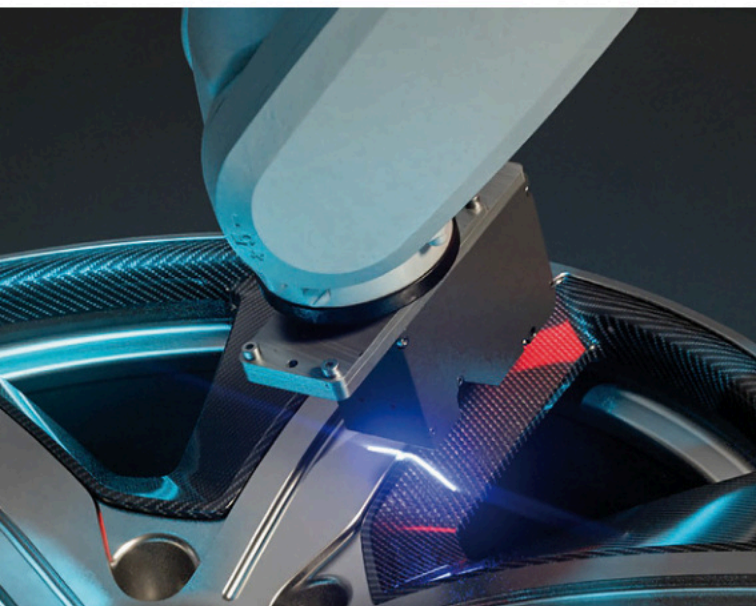
The original article was published in German in PC & Industrie, a trade magazine published in Germany. Prepared for CRETEC. The German original remains the reference.



A modular system packed with machine-vision flexibility

The unrelated ISW article on the second article page remains in German. Original publisher artwork, logos and advertisements are retained in their original language.

A modular system packed with machine-vision flexibility



A complete turnkey solution for 360° quality control of automotive wheels, inspecting numerous features in a fully automated process with machine-vision precision in the µm range.



Cretec GmbH currently provides the only ISO-certified experts in industrial machine vision in Europe.



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The unique modular QBIC vision platform is the result of consistent synergies between networked, scalable, complete vision solutions. From the feasibility study to the complete system solution, it enables simple, fast installation and affordable, highly flexible precision automation with minimal maintenance.

Added value through QBIC

Users in a wide range of industries are now achieving a chain of added value with QBIC: from an informative technological and economic feasibility study, through the entire product value chain, to automated quality assurance with the highest precision and documentation for perfect traceability.

Flawless automotive wheels

In the premium automotive segment, a perfect appearance is a very important part of brand image and marketing. Buyers can be extremely exacting. Components must therefore be highly precise, while no visible surface defects may

spoil their flawless appearance. The human eye can easily overlook something when lighting conditions vary slightly. Here, perfection in quality control is guaranteed only by high-performance 3D machine vision.

Unambiguous defect detection

The feasibility study for the automotive company used a 3D image scan to detect defects unequivocally at numerous measuring points relating to the precise positioning of plastic blades fitted into aluminium wheels. The 3D vision system had to provide measured evidence that every blade met the specified permissible gap and height difference relative to the aluminium surface. Alongside a more elaborate inline solution, the compact QBIC platform offered, as a stand-alone flexible system, convincing technological and economic advantages for industrial series production.

Documenting condition

Each wheel is placed manually or automatically in the vision system's drawer and moved

into the measuring position. From above, a 20 MP camera records the wheel's exact centring, rotational position and type with an inspection accuracy of 0.3 mm. This also documents its flawless condition. A six-axis robot moves the 3D camera measuring head to the respective inspection positions.

Patented measuring concept

Cretec's measuring concept, patented for both inline and offline use, guarantees an accuracy per measuring point of less than 10 µm in all three dimensions during wheel inspection. MSA measurement accuracy is better than 100 µm. This ensures very high accuracy and flexibility, because each inspection feature can be adjusted individually at any time. The cycle time for a complete wheel inspection in QBIC is less than one minute.

Using QBIC as early as the feasibility study allowed the study to be completed with around 50% less time. Further time savings came from faster final project implementation



Integrated retractable wheels simplify delivery and allow the complete QBIC module to be relocated quickly at the user's site.

and quicker, simpler installation and integration into production. Accelerated project delivery also proved to be an important economic factor. In the event of a complaint, the documentation provides the measuring-point data, all measured values and every wheel type. This supplies evidence that the wheel was in flawless condition when delivered.

Versatile vision modules in a minimal space

The mobile platform with its minimal footprint and modular hardware and software ensures exceptional flexibility for complete vision-system solutions. This shortens project development, installation and adaptation to new product variants. Versatile QBIC modules, each with a broad range of capabilities, are linked directly into an autonomous system through control, data analysis and communication.

QBIC platform

The hexagonal design of the Cretec vision system provides excellent access from all sides and great flexibility in designing particularly compact, mobile solutions. Depending on the version, the complete QBIC module requires a footprint of only 0.8 m x 0.8 m or 1.2 m x 1.2 m, with a maximum height of 2 m. Integrated retractable wheels allow it to be moved quickly for delivery or relocation and connected to other QBIC units.

Automating numerous vision tasks

The complete solution economically and sustainably automates numerous vision tasks simultaneously in a minimal space. Integration options include electrical equipment, controls, a high-performance PC, cameras, the VisionTube code

verifier, a cobot or robot, different vision modules, intelligent lighting, a large touchscreen monitor and Industry 4.0 communication modules, from OPC UA to IOTA.

Independent power supply

A mains-independent power supply maintains operation even during a power failure, preventing data loss. It even allows the system to be relocated while operating. Integrated high-performance PCs also make these solutions suitable for demanding artificial-intelligence tasks using deep learning.

Applications

Complete QBIC solutions cover a broad range of applications: pick-and-place, registration and classification tasks, ID codes, inspection, 2D and 3D measurement, surface inspection, decision-making and sorting processes.



Versatile QBIC modules form a highly flexible complete solution with a broad range of capabilities. Control, data analysis and communication are linked directly into an autonomous system.



ISW GmbH: Ein bedeutender Schritt in die Zukunft

Seit ihrer Gründung im Jahr 1992 steht die ISW GmbH für Präzision, Innovation und fortschrittliche Technologien im Bereich der Sensor- und Bildverarbeitungssysteme. Was einst von Thomas und Angelika Wichmann ins Leben gerufen wurde, hat sich zu einem führenden Unternehmen in der Bildverarbeitung entwickelt. Unter der Leitung der Familie Wichmann und dem weiteren Geschäftsführer Tobias Wichmann schreitet die Entwicklung in der zweiten Generation kontinuierlich voran.

Mit dem neuen Werk 2 setzt die ISW GmbH einen bedeutenden Meilenstein in ihrer Unternehmensgeschichte. Der Umzug in das neue Gebäude bedeutet nicht nur eine Erweiterung der Arbeitsfläche, sondern auch einen erheblichen Fortschritt in der technologischen Ausstattung. Das neue Werk ist mit modernster Technologie ausgerüstet und bereit, Branchenstandards neu zu definieren.

Durch die Erweiterung des Unternehmens werden nicht nur die internen Kapazitäten erhöht, sondern auch die Zusammenarbeit mit den Kunden intensiviert. Die enge Kooperation mit Partnern und die Expertise der ISW-Mitarbeiter garantieren Lösungen, die den Kunden echte Wettbewerbsvorteile verschaffen und den Markt nachhaltig prägen.

„Unser Ziel ist es, unseren Kunden durch fortschrittliche Technologien und maßgeschneiderte Lösungen einen klaren Wettbewerbsvorteil zu verschaffen“, betont Geschäftsführer Tobias Wichmann.

Mit dem neuen Werk 2 setzt das Unternehmen ein klares Zeichen für Wachstum und Innovation und unterstreicht einmal mehr seine führende Rolle in der Bildverarbeitungstechnologie – zum Vorteil aller Kunden und Partner.



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