Fraunhofer IPM

FRAUNHOFER INSTITUTE FOR PHYSICAL MEASUREMENT TECHNIQUES IPM

PRESS INFORMATION

Marker-free component tracking in the production process – project »Track-4-Quality« is launched

The function and longevity of expensive component groups and finished products depends on the quality of their individual components and semi-finished products – even if these cost just a few cents. In the context of the recently started »Track-4-Quality« research project, Fraunhofer IPM together with partners from the industrial and research fields develops a cost-effective, marker-free tracing procedure especially for mass-produced parts.

On December 10, 2015, the »Track-4-Quality« research project officially started with a kick-off meeting at Fraunhofer IPM. The objective of the project is a marker-free tracing procedure that recognizes even very small components based on their surface structure and allows traceability through complex industrial production processes. Seamless tracing across the entire production process is an important prerequisite for sustainable quality assurance and process optimization in industrial production.

Components and semi-finished products are already marked more and more frequently so that they can be clearly identified during production and beyond. However, for many mass-produced parts marking is often not feasible, due to the products' size, function or for hygiene reasons, or simply too expensive. That is why the »Track-4-Quality« partners opted for marker-free identification, which detects components based on their surface structure alone. Under the microscope, technical surfaces have specific material structures that are unique to every component – like a fingerprint. To detect these structures in the production process at high cycle rates, the scientists at Fraunhofer IPM developed a camera-based system that calculates a digital component signature from a recorded image in real-time to clearly identify the component. Among other things, the procedure is to be tested in the cast production of metal and plastic parts.

In their kick-off meeting, the project partners emphasized the opportunities and far-reaching consequences of the concept in the context of the Industry 4.0. »Tracing even the last screw – there's enormous potential there,« Dr Daniel Carl, project coordinator at Fraunhofer IPM explains. »If we succeed in achieving cost-effective tracing of every component to very early production stages, we can reveal systematic errors and improve processes. In the end, the consequences of seamless traceability would even affect questions of liability.«

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The joint project is funded by the Federal Ministry of Education and Research (BMBF) within the framework of the »Sensorbased electronic systems for Industry 4.0 applications« (SElektI 4.0) program.

The »Track-4-Quality« project

The »Track-4-Quality« project is planned to last for two and a half years and involves an investment volume of 1.73 million Euros. Aside from Fraunhofer IPM (coordination), the project partners are Hahn-Schickard Stuttgart as well as the industrial companies Otto Klumpp GmbH, Balingen, Seuffer GmbH & Co KG, Calw, Georg Fischer Automobilguss GmbH, Singen, and Sensopart Industriesensorik, Gottenheim (associate partner).

GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

During the kick-off meeting of the »Track-4-Quality« project on December 10, 2015, the project partners emphasized the opportunities of seamless tracing of components and semi-finished products across complex industrial processes. Over the next two and a half years, they want to develop the procedure and test it on a wide range of metal and plastic parts with a great variety of surfaces. © Fraunhofer IPM, image in color and printing quality: www.ipm.fraunhofer.de

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