Ein Bild, das Zeichnung enthält.

Automatisch generierte Beschreibung

**Press RELEASE**

* **BBG relies** **on** **artificial intelligence in production automation**
* **Research project of Helmut Schmidt University/University of the Federal Armed Forces Hamburg with BBG and Weidmüller develops self-learning automation**

*Mindelheim/Germany, 17. May 2022.* A system partner for the plastics processing industry, BBG is collaborating within the framework of a research project to develop production automation based on artificial intelligence (AI). The project "EKI - Engineering für die KI-basierte Automation in Produktionsumgebungen *(Engineering for AI-based Automation in Production Environments)*" is funded by the dtec.bw – Zentrum für Digitalisierung- und Technologieforschung der Bundeswehr *(Center for Digitization and Technology Research of the German Armed Forces)*. Other partners besides BBG are the Helmut Schmidt University/University of the Federal Armed Forces Hamburg and Weidmüller Interface GmbH & Co. KG in Detmold, who are software specialists.

The project is intended to enable the self-learning adaptation of production systems to changing requirements and environmental conditions, for example in order to manufacture new variants of a product.

**Results are reviewed by BBG at Mindelheim**

At the Mindelheim-based company, an end-to-end line for finishing glass with polyurethane (PUR), one of BBG's core competencies, is being set up to demonstrate and test the research results. This includes various automation modules for preparing the encapsulation process, such as component priming and flash-off. This is complemented by the PUR encapsulation station, consisting of a metering machine, mold carrier system and encapsulation mold with automated release agent application. The feeding of inserts and the removal of finished components are also handled automatically. At the end of the process chain, there are further automation modules equipped with AI-based algorithms for finishing and quality control.

The joint project is familiar territory for BBG: As early as 2020, the company presented intelligent tools for use in industry 4.0 applications and in the smart factory environment.

**Focusing on artificial intelligence for five applications**

In total, the project partners have defined five specific use cases for which the research results will be implemented in everyday industrial practice and validated with the help of BBG's fully automated production line. Self-learning processes are to be developed for primer application during production preparation and trimming of the parting plane and sprue surface during finishing. Cloud-based formulation management, autonomous detection of the need for preventive maintenance and optimization of resource consumption via an energy management system are further research priorities.

The various tasks are scientifically supported in individual doctoral theses by the Helmut Schmidt University. The project is initially scheduled to run until 31 August 2024. For BBG, the use of AI is the next logical step in the further development of their own product range.

**Industrial manufacturers are under pressure – AI is designed to provide solutions**

The background to the research project is the increasing pressure on manufacturers. The demand for new products with a wide range of variants is contributing to this, as are demands for increased productivity, resource conservation and cost reductions. So far, mainly individual aspects such as line modularization, intuitive software, the improvement of mechatronic components and parameter optimization have been investigated.

The "EKI" research project is seeking a comprehensive solution. This is because AI and, above all, machine learning (ML) are currently giving rise to completely new automation approaches, especially for adaptive, i.e. variable, systems. These allow production processes to be created automatically and adapted to new requirements – instead of the previous manual conversion and adjustment work.

**Novel approaches to automation enabled by artificial intelligence**

The project partners are researching how such software components can be combined into end-to-end solutions that can be used in as many industrial fields of application as possible., The creation of AI/ML algorithms therefore also contributes to testing their usability in as many machine environments as possible. Thus, a new engineering approach with open interfaces is being developed in the project, which enables the integration of ML and AI software components into different manufacturing processes. One core idea is assistance functions to help plant manufacturers quickly select, adapt and integrate AI-based automation systems.

This enables BBG to offer their customers customized, flexible and highly productive solutions.

**BBG’s customers are active the world over**

BBG GmbH & Co. KG is an international system partner for the plastics processing industry with its own tool, machine and plant construction. In addition to end-to-end production lines, BBG designs, develops and manufactures molds for processing polyurethane (PUR), PVC, TPE and other elastomers, as well as a wide range of composite materials. This includes production processes such as PUR-CSM (PUR Composite Spray Molding), LFI (Long Fiber Injection), RTM (Resin Transfer Molding), SMC (Sheet Molding Compound) or GMT (Glass Mat reinforced Thermoplastics), which are selected depending on the desired qualities of the finished products. The company also focuses on solutions for lightweight construction, the processing of composites and the production of fiber composite components in a large number of industries. Since 2020, the company has also been developing and building packaging machines for pharmaceutical products and food supplements.

BBG, the family-owned business, which is run by Hans Brandner and is located in Mindelheim/Allgäu, supply their products to their customers all over the world, with the Asian market playing an important role in addition to the markets in Europe and North America. With a headcount of around 170, BBG generated worldwide sales to the tune of 13 million Euros in 2021.

**About detc.bw**

The dtec.bw - Center for Digitization and Technology Research of the Bundeswehr - is a scientific center jointly supported by both Bundeswehr universities (run by the German Federal Armed Forces). It is part of the federal government's economic stimulus package to overcome the COVID-19 crisis and is subject to academic self-governance. The funds with which the dtec.bw has been endowed will be used to finance research projects and knowledge and technology transfer projects at both Bundeswehr universities.

**Photos:**

Ein Bild, das Text, Person, Frau, drinnen enthält.

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Photo 1:

BBG integrates machine learning (ML) and artificial intelligence (AI) into production lines (Photo: BBG).

Ein Bild, das LEGO, Spielzeug enthält.

Automatisch generierte Beschreibung

Photo 2:

The research facility being set up at BBG in Mindelheim includes a robot-equipped BBG mold carrier for automated release agent application (photo: BBG).

Ein Bild, das Text, drinnen, Boden, Gerät enthält.

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Photo 3:

At BBG in Mindelheim, the research results are reviewed Photo: BBG).

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