

PRESSEINFORMATION

PRESS RELEASE18. April 2018 || Seite 1 | 4

Digital workplace design in production

Fraunhofer IEM shows opportunities of digital work at the Hannover Messe 2018

The automotive supplier HELLA and the Fraunhofer Institute for Mechatronic Systems Design IEM are planning a new assembly station with augmented reality. In the future, the so-called mixed mock-up could not only enable efficient workplace planning, but also revolutionize the collaboration of development teams. The project will be presented at the OWL-Gemeinschaftsstand (Hall 16, Stand A04) at the Hannover Messe.

Is the work surface set to the correct height? Is there enough room for arm and hand movements? Does the fitter have all tools and components in view and within reach? The HELLA development team plans a new assembly workstation for each headlamp generation in order to figure out the best possible production processes, for example. Long before the new headlamp is produced, the workplace is first built as a cardboard mock-up and then discussed and tested in a team. At this early stage, the most important thing is often still missing: the real components of the headlamp and the required tools.

Components via Augmented Reality

Using Augmented reality data glasses, HELLA and the Fraunhofer IEM projected virtual components and tools onto the cardboard prototypes - the mock-up becomes a mixed mock-up. The future workplace and the individual assembly steps can thus be tested very realistically. The potential for early and efficient production system planning is obvious: "Since we always have the current design status in mind, we will be able to design and develop the production line much earlier in the future, parallel to product development. We combine the creative potential of collaborative work with the speed of digital product development," explains Matthias Pretzlaff, who is responsible for Operational Excellence & Industrial Engineering at HELLA Lichtwerk in Lippstadt. HELLA plans to further develop the results of the pilot project and to integrate them into real development processes at short notice.

Working in a team is redefined

In addition to optimizing production planning, the project team also examined the effects of digital work equipment on employees and processes - with very positive results: The cooperation in the project team, but also the communication between production and

Contact

Kirsten Harting | Fraunhofer IEM | Phone +49 5251 54 65-107

Zukunftsmeile 1 | 33102 Paderborn | www.iem.fraunhofer.de | kirsten.harting@iem.fraunhofer.de

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development is significantly improved. Designers, for example, are directly involved because they supply the latest design data. Augmented Reality technology sets no limits to team creativity for the time being. Another advantage of the technology is that planning scenarios can be documented and reused or modified as often as required. "The mixed mock-up is a good example of the great benefits of digital work tools: it enables the HELLA development team to work more efficiently, interdisciplinary and also more creatively, and motivates new workshop and interaction methods," explains Prof. Dr.-Ing. Roman Dumitrescu, Director at Fraunhofer IEM and head of the the subject of "Work of the Future" in the leading edge cluster it' s OWL. The project can be seen at the OWL-Gemeinschaftsstand (**Hall 16, Stand A04**) at the Hannover Messe from 23-27 April 2018.

PRESS RELEASE18. April 2018 || Seite 2 | 4

Further perspectives of digital work at the Hanover Fair

Fraunhofer IEM will be demonstrating the possibilities of collaborative robot technology for the cost-effective, efficient automation of manufacturing processes at the joint stand of the Fraunhofer-Verbund Produktion in **Hall 17, Stand C24**. With the aid of intelligent sensors, the robot independently adjusts the welding process to each new workpiece, thus enabling efficient production even of small quantities and batch size 1. Employees do not require programming skills to operate the robot, which in addition to precise welding also helps them with heavy physical work.

Visitors to the **BMW joint stand in Hall 2, Stand C28** will see how service technicians and employees are supported by digital real-time instructions. Together with Krause-Biagosch, Fraunhofer IEM will show Augmented reality repair instructions on a machine for Computer-to-plate printing.

All Fraunhofer IEM exhibits at the Hannover Messe 2018 can be found at www.iem.fraunhofer.de/HannoverMesse

About the Fraunhofer IEM

The Fraunhofer Institute for Mechatronic Systems Design IEM is an expert for intelligent mechatronics in the context of industry 4.0. Scientists from the fields of mechanical engineering, software engineering and electrical engineering collaborate interdisciplinary at the Paderborn site. Focusing on "Advanced Systems Engineering", Fraunhofer IEM explores innovative methods and tools for the development of intelligent products, production systems and services. Underlying core competencies are intelligence in mechatronic systems, Systems Engineering and Virtual Prototyping.

Diese Pressemitteilung finden Sie im Internet <https://www.iem.fraunhofer.de/de/presseundnews.html>

Contact

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FRAUNHOFER INSTITUTE FOR MECHATRONIC SYSTEMS DESIGN IEM



PRESS RELEASE

18. April 2018 || Seite 3 | 4

Subtitle (both): Using data glasses, Fraunhofer IEM projects virtual components and tools onto cardboard prototypes.

@Fraunhofer IEM

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FRAUNHOFER INSTITUTE FOR MECHATRONIC SYSTEMS DESIGN IEM



PRESS RELEASE

18. April 2018 || Seite 4 | 4

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