

RESEARCH NEWS

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MS Wissenschaft exhibition in 2018: augmented reality in logistics **Stacking goods with an optical head-mounted display**

Digitalization in industry is often equated with a cut in jobs. Indeed, for many people, there is a very real fear that smart technologies, such as augmented reality, will put them out of work. However, with their new solution for the logistics sector, Fraunhofer researchers are now showing that digital assistance systems can also help lighten the load in the workplace.

With more and more consumers using the Internet, online retail is booming. When it comes to shipping all these goods, warehouse workers try to stack as many packages as possible on each pallet. This means that fewer trucks are needed for road transport, and the environment benefits as a result. Soon these workers may be using optical head-mounted displays (OHMDs), which will provide them with helpful information as they stack pallets. Based on a technology known as augmented reality, this digital assistant was designed by researchers from the Fraunhofer Institute for Material Flow and Logistics IML.

As the warehouse workers go about their job, information is displayed via the OHMD, telling them exactly what to do. For example, they see where to place individual boxes, so that they can be most effectively stacked on the pallets. This augmented reality system consists of a hardware and a software component. First, there is the OHMD itself – a Microsoft HoloLens – which comprises a binocular, see-through display that augments the wearer’s actual vision by means of supplementary information projected in the line of sight. Added to this is a software component developed by Fraunhofer IML, which determines the optimal stacking plan and then checks the result. That helps the warehouse workers do a better job. “It’s important to ensure, for example, that the gap between individual boxes is as small as possible,” explains Benedikt Mättig, scientist at Fraunhofer IML. “Our aim is that the human world and technology should complement each other. For example, the warehouse workers don’t have to slavishly follow the suggested stacking plan; they can also rely on their own experience.” Right now, the system is undergoing further development for industrial applications. Mättig and his colleagues intend to integrate other types of OHMD as well.

Innovationlab Hybrid Services in Logistics

This new digital assistant is just one of many innovations to emerge at the interface where people and technology interact. And it is here – especially in the area of retail and production logistics – that researchers from Fraunhofer IML are currently focusing

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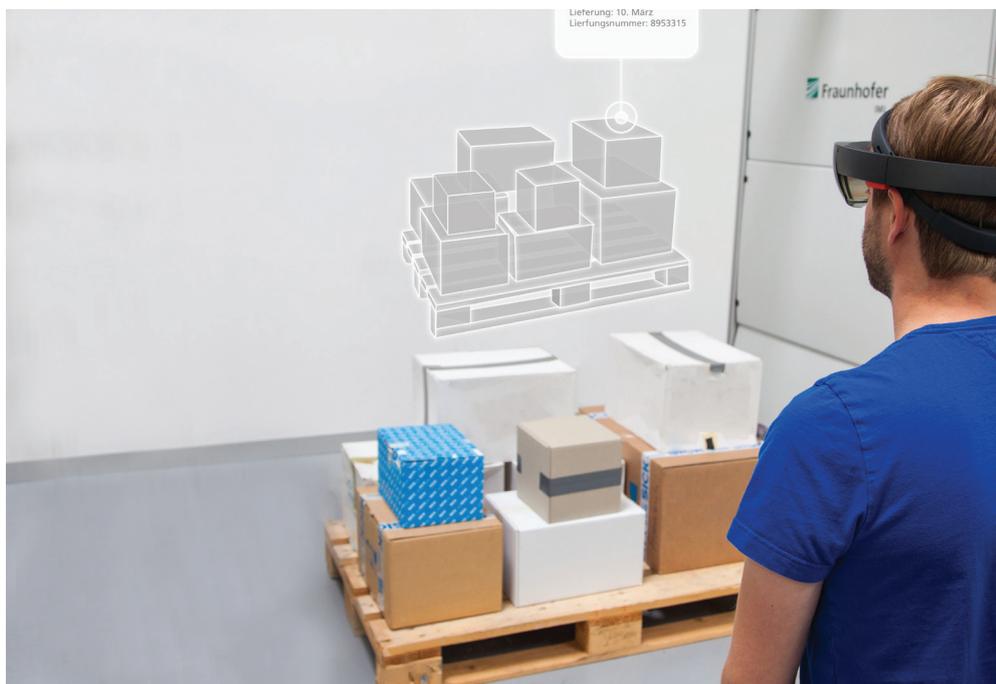
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their energies at the Innovationlab Hybrid Services in Logistics, a research initiative that aims to develop a “social networked industry” as an alternative to factories devoid of people.

Visitors to the exhibition on the MS Wissenschaft are able to try out the OHMD developed by Fraunhofer IML – and to try their hand at stacking boxes on a pallet. The goal is to place the boxes in such a way that they take up as little space as possible. The OHMD displays a hologram showing which box should be picked up next and where it should be stacked on the pallet. The exhibition aims to encourage a discussion on how digital technologies might be used in Industrie 4.0, what kind of scope workers will have in their jobs and how the example of warehousing might indicate ways of enhancing industrial jobs.

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Digital assistants help workers to stack pallets. © Fraunhofer IML | Picture in color and printing quality: www.fraunhofer.de/en/press

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