



PROFILE

Our mission: Empowering our partners for the digital age!
Fraunhofer IOSB-INA is a leading research institute in the field of industrial automation, providing support on digital transformation to suppliers, mechanical and plant engineers as well as operators of automated technical systems. As a leading research institute in the field of industrial automation we support suppliers, mechanical and plant engineers, as well as operators of automated technical systems in digital transformation.

Our expertise lies in the application knowledge of industrial automation, including networking, analysis, monitoring and user-friendly design of technical systems. Application knowledge of industrial automation – the networking, analysis and monitoring as well as the user-friendly design of technical systems - are our core competencies.

Our business areas:

- Industrial Internet (IIoT)
- Intelligent automation
- Assistance systems
- Cyber security in production

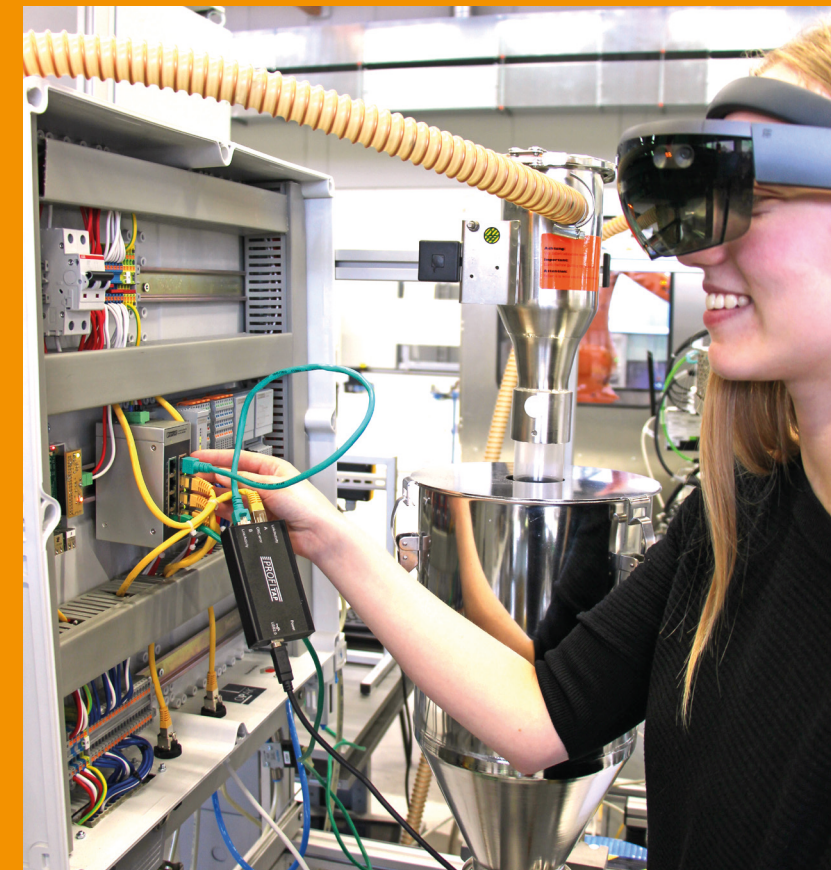
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PROVIDING INTELLIGENT SUPPORT

HUMAN-CENTERED ASSISTANCE SYSTEMS
FOR ASSEMBLY AND QUALITY ASSURANCE





BOOSTING EFFICIENCY

Increasingly complex manufacturing processes, shorter product life cycles and the ongoing consequences of demographic change present both companies and employees with challenges. Intelligent assistance systems can help to reduce the perceived complexity of systems and processes by providing context-relevant information depending on the current task and individual level of knowledge. This individual support of employees can expand areas of responsibility, make processes more efficient and reduce error rates.

At Fraunhofer in Lemgo we develop user-specific assistance systems which, thanks to their modular setup, can be used flexibly in production operations. The scenarios of application range from the training of unqualified personnel, the support of workers in complex assembly processes to the assistance of people with mental and physical disabilities to enable new perspectives in the inclusive labor market.

Continuous development of existing components allows us to provide our clients with practical solutions that can be flexibly combined to form application-specific assistance systems with little effort and at low implementation costs.

OUR RANGE OF SERVICES

(1) Development and evaluation of Assistance Systems

- Design and development of user-centered assistance systems in participatory design processes
- Support in hard- and software development through qualitative and quantitative evaluation to enhance process efficiency and usability
- Individual customization of the systems according to user groups, operational processes and specific work situations

(2) Usability Engineering & User Experience Design

- Continuous evaluation of the systems throughout the process to determine optimization potentials and enhance the efficiency of product development processes
- Ensuring platform- and vendor-independence by using standardized hard- and software interfaces as well as established core-technologies

(3) Process development and support

- Identification of optimization potentials through systematic stocktaking and process analysis
- Development and support in the implementation and introduction of digital business models

KNOW-HOW AND RESOURCES

- Interdisciplinary know-how in automation technology information technology, hardware and software development:
 - Virtual and Augmented Reality (VR/AR)
 - Tracking technologies (e.g. optical/imaging, RFID, iBeacon)
 - Gesture recognition and application (device- / camera-based)
- Development of tailored assistance systems and UI-prototypes
- Development of concepts and technologies of interaction for future industrial systems
- Planning and execution of Usability Tests, User-Experience-studies and empirical research
- SmartFactoryOWL, a cutting-edge environment for ICT-based automation technologies, with an integrated usability lab: the most important research topics for digitization at the shop floor level.

PROJECT REFERENCES

- Development of a marketable assistance system for the support of manual assembly processes (Bosch Rexroth-AG)
- Development of an interconnected, intelligent assembly line for the interaction of workers with disabilities in industrial production (INTEG GmbH)
- Development of the „SmartAssembly Trainer“ for on-the-job qualification and training of workers in production (Miele & Cie. KG).