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1 *Support for corrective action during plant operation.*
2 *Assistance system for the commissioning of custom machines.*

MOBILE ASSISTANCE SYSTEMS SUPPORT PLANT OPERATION

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Manufacturing plants and operations are growing more and complex and diversified. Despite the rising level of automation, humans continue to play a key role in this environment as actors and decision makers. Assistance technologies that help users do their jobs are increasingly needed to meet the high demands. Digital assistance systems provide on site universal access to plant-specific information through mobile devices (smart phones, tablets and data goggles).

The provision of information for situations and users expedites supported operations, e.g. plant operation, corrective action, are significantly and improves their quality.

Typical domains of use are
– plant operation,
– maintenance,
– servicing and service,
– documentation, and
– inspection.

Customized Assistance

The Fraunhofer IFF has developed a system that generates customized assistance information and delivers it to different mobile devices as it is needed.
The system employs cross-domain data from a plant's engineering (PLM, MCAD, ECAD, functional models, documentation) and real-time data from a plant's control system.
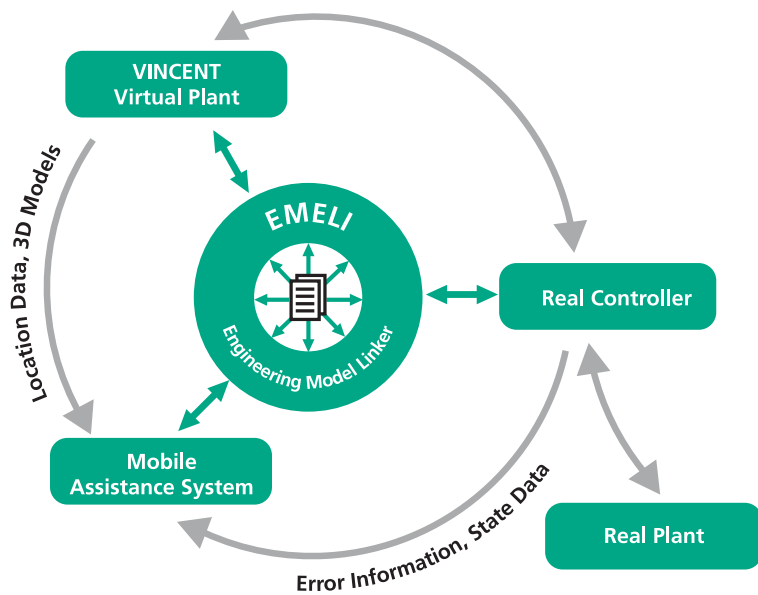
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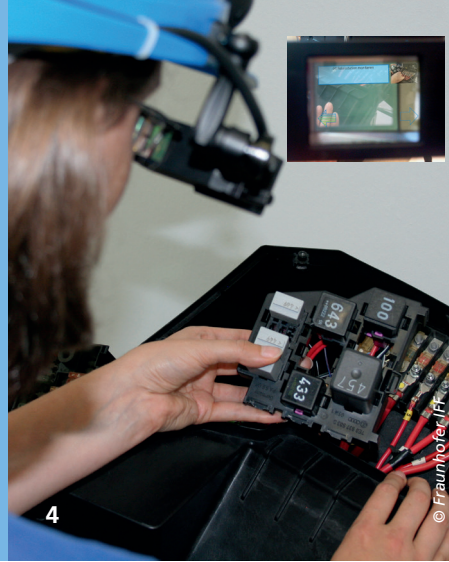
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Assistance for Plant Operation

The assistance system provides support when errors and malfunctions in a plant are being rectified. The system is linked with the central EMELI (Engineering Model Linker) database, which contains all documents and information on a plant. These include cross-domain and functional relationships and dependencies among a plant's components. Error information and state data are recorded through the interface to the plant control system and displayed on site. Not only identifying but also localizing faults rapidly and precisely is vital to a complex plant. Location data and 3D model data of the identified source of an error are ascertained from the functional plant model (VINCENT, virtual plant) and transmitted to the mobile terminal. Once an error has been localized, specific instructions to correct it are displayed by the terminal. Optionally, assistance information referencing locations in the plant is superimposed. The user directly uses the mobile device to document completed maintenance operations.

Your Benefits

– On site access of online information on a plant
– Support identifying, localizing and rectifying errors and malfunctions
– Maintenance, servicing and service instructions
– Supported terminals: Laptops, tablets, smart phones and data goggles
– Custom interaction methods
– Documentation and standardization of internal company know-how
– Efficient plant operation

VINCENT Virtual Plant

EMELI
Engineering Model Linker

Location Data, 3D Models

Real Controller

Mobile Assistance System

Real Plant

Error Information, State Data

Assistance for Maintenance, Servicing and Service

The system delivers situational assistance information on maintenance, servicing and service to users on site. Information is presented in descriptive texts, images, videos and 3D animations. The requisite base of data is compiled by an authoring tool on the basis of custom data, including CAD data, servicing information, photos, videos and inspection records. Assistance information is grouped in work packages and assigned to individual jobs. Dependencies between jobs and alternative sequences can be defined. The device is additionally used to document the progress of work as well as to capture and validate plant-specific data, e.g. measured values.

Technology Partner to SMEs

Take advantage of our experience. Allow us to advise you and show you how our mobile assistance solutions can help your company.

3 *Using interactive 3D models for maintenance training.*
4, 5 *Head mounted displays for on-site assistance.*
Images: 1 Daniela Martin; 2, 4 Simon Adler; 3, 5 Dirk Mahler