Offers and services

We specialize in an all-round approach to the digitalisation of your production:

// Workshops and consulting on Industrial Internet

// Training courses on latest Internet of Things (IoT) and Industrial Internet standards and programming models

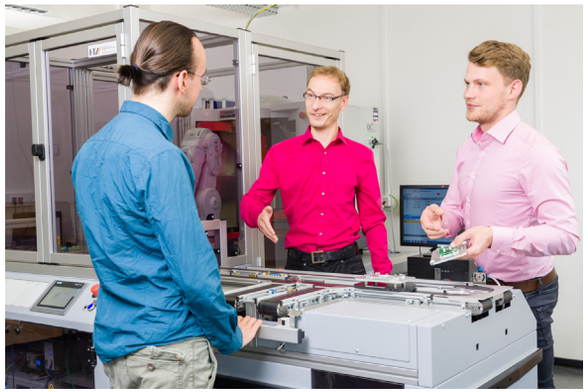
// Training courses for production employees in the area of IoT solutions and the usage of cyber-physical systems (CPS)

// Evaluation of digitalisation level of the production and tailor-made adjustment for enhanced innovation

// Joint development and demonstration of Industrial Internet prototypes

// Qualification of Industrial Internet hard- and software components under production-related conditions

// R&D services for innovative approaches of next generation manufacturing



Interdisciplinary project team

The “IIoT Test Bed” is designed and operated by a university-wide team consisting of the Faculty of Informatics/Mathematics, Electrical Engineering, Mechanical Engineering and Business Administration.

// Prof. Dr. Ingo Gestring
Business Administration/Materials Management and Production Logistics

// Prof. Dr. Marco Hamann
Mathematics/Geometry

// Prof. Dr. Thomas Himmer
Manufacturing Systems/Primary Shaping

// Prof. Dr. Gunther Naumann
Measurement Technology/Machinery Laboratory

// Prof. Dr. Sven Zeisberg
Telecommunication Technology

Project management and contact

Prof. Dr. Dirk Reichelt
Information Management
dirk.reichelt@htw-dresden.de
+49 (0)351 462-2614

University of Applied Sciences (HTW) Dresden
Friedrich-List-Platz 1
01069 Dresden

www.htw-dresden.de/industrialinternet

HOCHSCHULE FÜR TECHNIK UND WIRTSCHAFT DRESDEN
UNIVERSITY OF APPLIED SCIENCES

IIoT TEST BED

Industrial Internet of Things Test Bed

Smart Factory

at HTW Dresden

Objectives of the Smart Factory

The Smart Factory is designed as an interdisciplinary research environment. In this environment the HTW's research is linked to the digitalisation of the production.

The "IIoT Test Bed" simulates discrete manufacturing processes. These processes reflect manufacturer's operation conditions as detailed as possible.

For this purpose, six production and five logistic modules, as well as several robotic stations with VR workstations are installed.

The entire manufacturing system has comprehensive sensor technology to track material movements, record process data, measure environmental parameters and energy consumption.

The installation of the Smart Factory is designed as a heterogeneous manufacturing infrastructure to illustrate a wide range of industrial communication interfaces and scenarios.

The Smart Factory has a modern Manufacturing Execution System connected to an ERP system.
In addition, a big data cluster is utilized to save and manage sensor data.

Internet of Things in the production

The perfect interaction between intelligent hard- and software and the manufacturing system is the key to the success of process innovation. Moreover, this perfect interaction leads to a higher efficiency in the company's value-adding processes. For the development and testing of new manufacturing concepts, the following components are available:

// Maintenance-free RFID sensor transponders to record environmental data and system status

// Adaptive light control by use of Human Centric Lighting

// Systematic collection of process data, energy consumption values and environmental parameters in the manufacturing modules

// Local workstation to control a temperature sensitive process

// Integrated visual inspection of components and assemblies

// Flexible use of IoT sensor platform for recording air pressure, temperature, noise, etc.

The „IIoT Test Bed" provides an open interface to the sensor data to develop new analysis and control concepts.

GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

FORSCHUNG AN FACHHOCHSCHULEN

Applications

Robot technology

// Three robot modules integrated in the production line and several robot stations with VR workstations
// Cooperative manufacturing scenarios
// Assignments in the area of quality management
// Flexible use to support the logistics processes

Production logistics

// Based on the use of double rail belt on process modules and autonomous transport vehicles
// Several material buffers as well as shelf warehouse
// Modelling of logistics strategies for materials and tools

Production control

// Test new and modern control concepts in various production systems
// Open concept for the presentation of different manufacturing characteristics (scenarios of flow production, - mass production, - shop floor production with small batch sizes and tight delivery targets)

Sensors technology

// Installation of modern technologies to localise: work pieces, instruments, employees
// Evaluation and test of sensor technology in production-related environment
// Provision of process data, energy consumption and process-related quality information
// Utilization of automated information analysis for production control