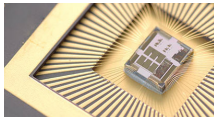
Hahn-Schickard

Intelligent solutions with microsystems engineering

Sensors and actuators

> Custom-tailored sensor and system solutions for various parameters
> Pumps and dosing systems



Integrated microsystems

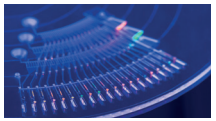
> Sensor fusion
> Energy autonomous systems

Cyper-physical systems

> Smart factories
> Industry 4.0

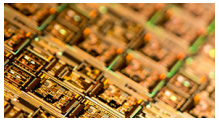
Lab-on-a-Chip + analytics

> Integration, parallelization, and automation of biochemical analyses



Microelectronics

> Evaluation circuits for your sensors with ultra-low energy consumption

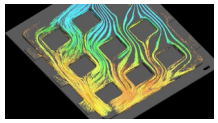


Micro assembly + packaging

> Mechatronic assemblies
> Functional microstructures via modern digital printing techniques

Modeling + reliability

> Numerical simulation and optimization of your products



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Software Solutions

Development of smart cyber-physical systems from the sensor to the cloud

Visions to Products

Software Solutions

Communication technology
> Various protocol standards for wireless and wired communication
> Optimized implementations, e.g. energy efficiency

Interoperability / networking
> Data models, middleware
> Network management

Software engineering
> Architectures and services
> Model-driven development
> Human machine interfaces

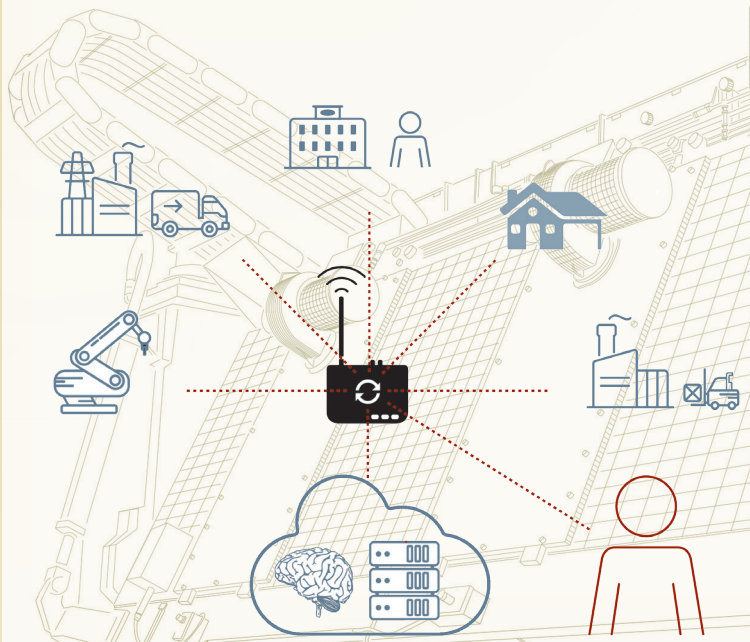
Communication gateway
> Internet and security technologies

Mobile platforms
> Smart apps
> Augmented reality
> Protocol and technology adapters

Artificial intelligence
> Machine learning / deep learning
> Process optimization with evolutionary computation
> Intelligent closed-loop control with reinforcement learning

Cyber-physical systems (CPS) and smart systems

Cyber-physical systems (CPS) as the basis for smart systems
> Conception, implementation and verification of continuous CPS
> Modular development kit



Industry 4.0
> Reliable and secure radio protocols
> Security protocols and architectures
> Industrial protocols (e.g. fieldbuses, Industrial ethernet, OPC UA)
> Network monitoring and management
> Integration of production and IT
> Predictive maintenance
> Soft sensors / virtual sensors

Smart city
> Sensor connection for distributed CPS
> Communication integration
> Application programming

Smart health
> Therapy support (gamification)
> Software as part of medical devices
> Sensor communication (body-area-network, Apps as user interface)

Smart home & living
> System and platform concepts
> Integration solutions
> Control middleware

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Smart Home & Living Baden-Württemberg e.V.