Hahn Schickard

Smart Connected Sensors

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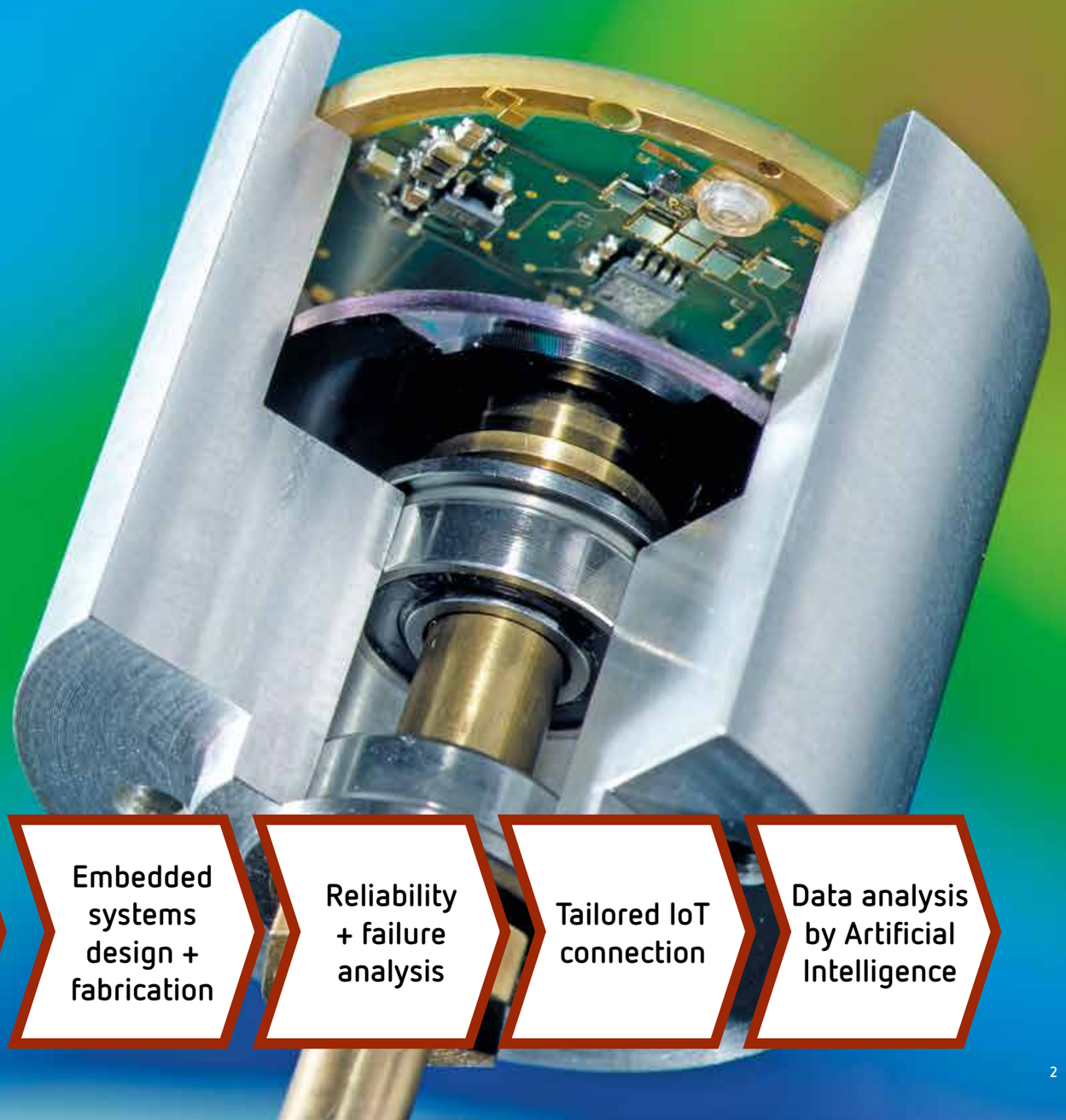
Hahn-Schickard – your preferred R+D partner

Hahn-Schickard is your one-stop-shop, offering the whole R+D workflow for development, test and pilot production for Smart Connected Sensors

- Smart Connected Sensors open the door to new digital business models and they represent an enormous economic potential for your company!
- We offer a unique portfolio of high-performance sensors and fabrication technologies
- We support you to build and deploy industrial Internet-of-Things technologies
- Development and production under DIN ISO EN 9001



Sensor design → **Sensor fabrication** → **Micro-assembly + packaging** → **ASICs + electronic circuits** → **Embedded systems design + fabrication** → **Reliability + failure analysis** → **Tailored IoT connection** → **Data analysis by Artificial Intelligence**

Sensor design

Whatever you have to measure: We develop a sensor for your application

- Acceleration
- Acoustic
- Bio
- Dew point
- Flow
- Force
- Gas
- Gyroscope
- Humidity
- Inclination
- Magnetometer
- Position
- Pressure
- Rotation Angle
- Temperature

Silicon MEMS Fab

We bridge from research to production and close the gap of small quantities

- Complete manufacturing processes for prototypes and volume production
- From development to processes as a services and second sourcing
- 1,300 m² fabrication area with cleanroom ISO 2-6
- Production line for 100/150/200mm wafer size
- Incubation of your technology
- Flexible in material, process, assembly and testing

Electronic Packaging Fab

Production processes for hybrid sensors

- 600 m² fabrication area with 180 m² cleanroom ISO 7
- Printed sensors based on digital technologies (Inkjet, Aerosol Jet) with Ag and Au based inks
- Thick film and thin film technologies allowing design flexibility with direct imaging on rigid and flexible substrates
- PCB-based sensors
- Polymer optical components

Microassembly + packaging

Combining electrical, optical and mechanical micro-components into complete microsystems

- Leading-edge assembly technologies such as 3D-MID technology, system-in-foil and additive manufacturing technologies
- Thermoset-based encapsulation
- Fabrication of fully customized sensor systems
- Process development and process transfer to your own fab
- Flexible 3D placement of complex 3D circuit carriers

ASICs + electronic circuits

Solutions in hardware and software perfectly fitting to your needs

- Analog readout and signal conditioning
- Analog-to-digital converters and digital-to-analog converters
- Capacitance-to-digital converters
- Time-to-digital converters
- Closed-loop low power MEMS interface circuits for high performance systems (sensors and actuators)
- Wireless power and data transfer circuits
- Power management and interface circuits for energy harvesters
- Design experience in 350 nm to 22 nm technology nodes

Embedded systems design + fabrication

We develop ultra-low power embedded sensor and actuator systems

- Hardware and software development based on microcontrollers, FPGAs or single-board computers
- Analog and digital circuit design
- Combination of a multitude of sensors with data storage, signal processing and (wireless) communication
- Low-power management strategies for autonomous operation
- Sensor fusion
- Highly functional integration in existing products
- Prototypes close to batch production
- Support in CE certification

Reliability + failure analysis

Simulation and test procedures ensure a long and reliable product life cycle

- Thermal and thermomechanical lifetime prediction
- Environmental testing according to IEC, JEDEC, IPC, MIL-STD
- Vibration testing
- Non-destructive analysis (X-Ray, SEM, SAM)

Tailored IoT connection

Efficient, reliable, and cost-effective communication is key

- Wireless communication + gateways
- Real-time-capable data communication
- From sensors to the cloud
- Apps for tablets and smartphones
- Mobile Internet of Things
- Data security

Making sense of sensor data by Artificial Intelligence

With Artificial Intelligence, we optimize your production, analyze process data, and develop smart solutions

- Artificial Intelligence on embedded devices (microcontroller, FPGAs)
- Privacy-preserving Artificial Intelligence
- State-of-the-art algorithms (Deep Learning + Machine Learning)
- Sensor characterization and sensor fusion
- Traceability of measures to international units
- Energy-efficient and reliable

Your contact

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