
FRAUNHOFER INSTITUTE FOR MICROELECTRONIC CIRCUITS AND SYSTEMS IMS

Director: Prof. Dr. rer. nat. Anton Grabmaier



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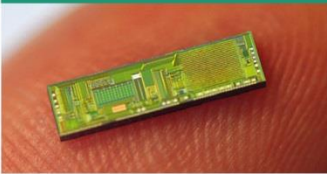
IMS



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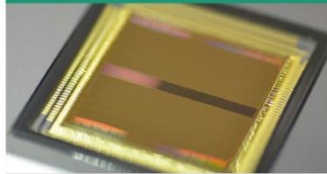
Business Fields

Pressure Sensor Systems



Medical Implants
Industrial Sensors

CMOS Image Sensors



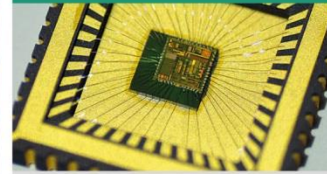
LiDAR Technology
SPAD Based Sensors

Wireless and Transponder Systems



Sensor Transponders
Wireless Energy Transfer

ASICs



Mixed Signal
Sensor Readout

High Temperature Electronics



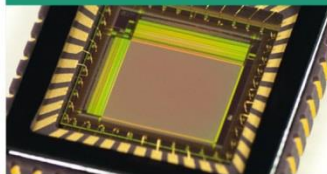
Mixed Signal ASICs
for 300 °C

Electronic Assistance Systems



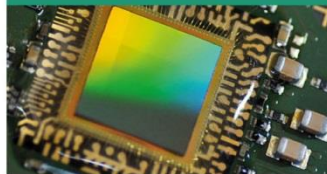
Embedded Systems
Internet of Things

Devices and Technologies



CMOS Processes
Smart Sensors

IR Imagers



Bolometer based Sensors
IR Applications

Biohybrid Systems



Bioreactor Monitoring
Bio Sensors

inHaus-Center



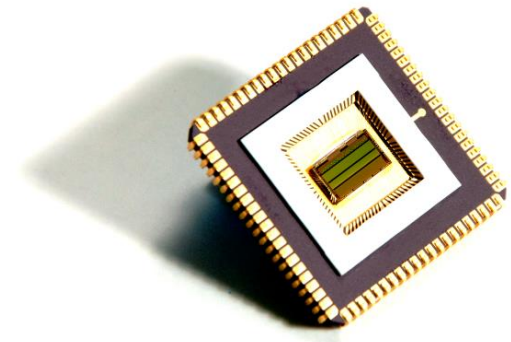
Innovation Incubator
Health and Care

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CMOS Image Sensors

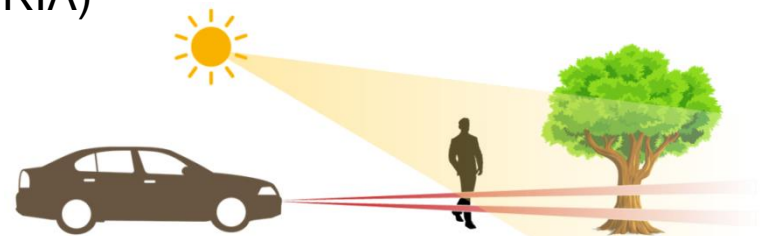
Reference Project: SPADeye2 for LiDAR

- **Key Specifications**
 - SPAD multi linear sensors
- **Unique Selling Points**
 - Digital photoreceiver with highest sensitivity
 - Solid state device with no scanning mirrors
 - Low-cost CMOS solution



H2020 project ideas and proposals

- LiDAR technology platform (ECSEL-2019-2-RIA)
- Safe human-robot interaction (ICT-10-2019-2020)



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Biohybrid Systems

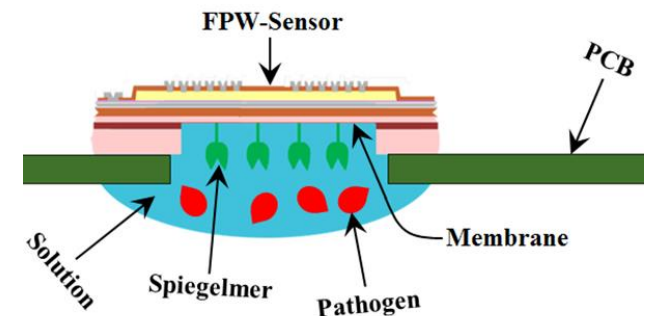
Reference Project: Platform for ultra-sensitive Point-of-Care diagnostics for Infectious Diseases

■ Key Specifications

- Bio-MEMS sensing
- Flexural plate wave sensor principle using very thin micromembranes
- Microfluidics

■ Unique Selling Points

- Rapid and sensitive point-of-care diagnostics
- Cost effective technology



PoC-ID is a Research and Innovation Project funded by the European Union within the Horizon 2020 Programme, Grant no. 634415.

H2020 project ideas and proposals

- Innovative medical devices (SC1-DTH-02-2020)

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High Temperature Electronics

Reference Project: Sensor systems for extreme harsh environment

■ Key Specifications

- HT MEMS sensors and electronics for operating temperature up to 300 °C
- 16-bit HT microcontroller with on chip HD-EEPROM

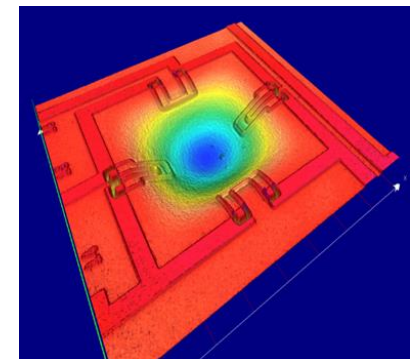
■ Unique Selling Points

- Leading edge HT 0.35 μm SOI CMOS technology
- Advance chip set for HT smart sensors



H2020 project ideas and proposals

- Sensors for high-temperature process monitoring (CE-SPIRE-08-2020) or propulsion / aerospace systems (LC-MG-1-7-2019)



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Wireless and Transponder Systems

Reference Project: Overhead Line Sensor System

■ Key Specifications

- Multi-sensor based monitoring of line parameters
- Wireless data transmission to cloud application
- Control unit for fault localization and prediction

■ Unique Selling Points

- Power supply by energy harvesting
- Ultra-low power design of the sensor electronics
- Robust & fault tolerant transmission protocol



H2020 project ideas and proposals

- Infrastructure monitoring (SU-INFRA01-2018-2019-2020)
- Cyber-physical and embedded systems (DT-ICT-01-2019)

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Intelligent Room and Building Systems

- **Unique Living Lab facilities for**
 - Smart Home, Active Healthy Living
 - Hospital
- **Competence center for**
 - Connected healthcare (care, dementia, stress, incontinence)
 - Smart Home and Smart City
 - Innovation Workshop, CoCreation, Conferences

H2020 project ideas and proposals

- Living lab / demo site for health care and elder care (DT-ICT-12-2020)
- Digital health and care services (SC1-DTH-10-2019-2020)



Fraunhofer IMS & inHaus-Center

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Contact



Julia Hauser

Specialist in EU funded projects

phone +49 203 3783-189

email julia.hauser@ims.fraunhofer.de