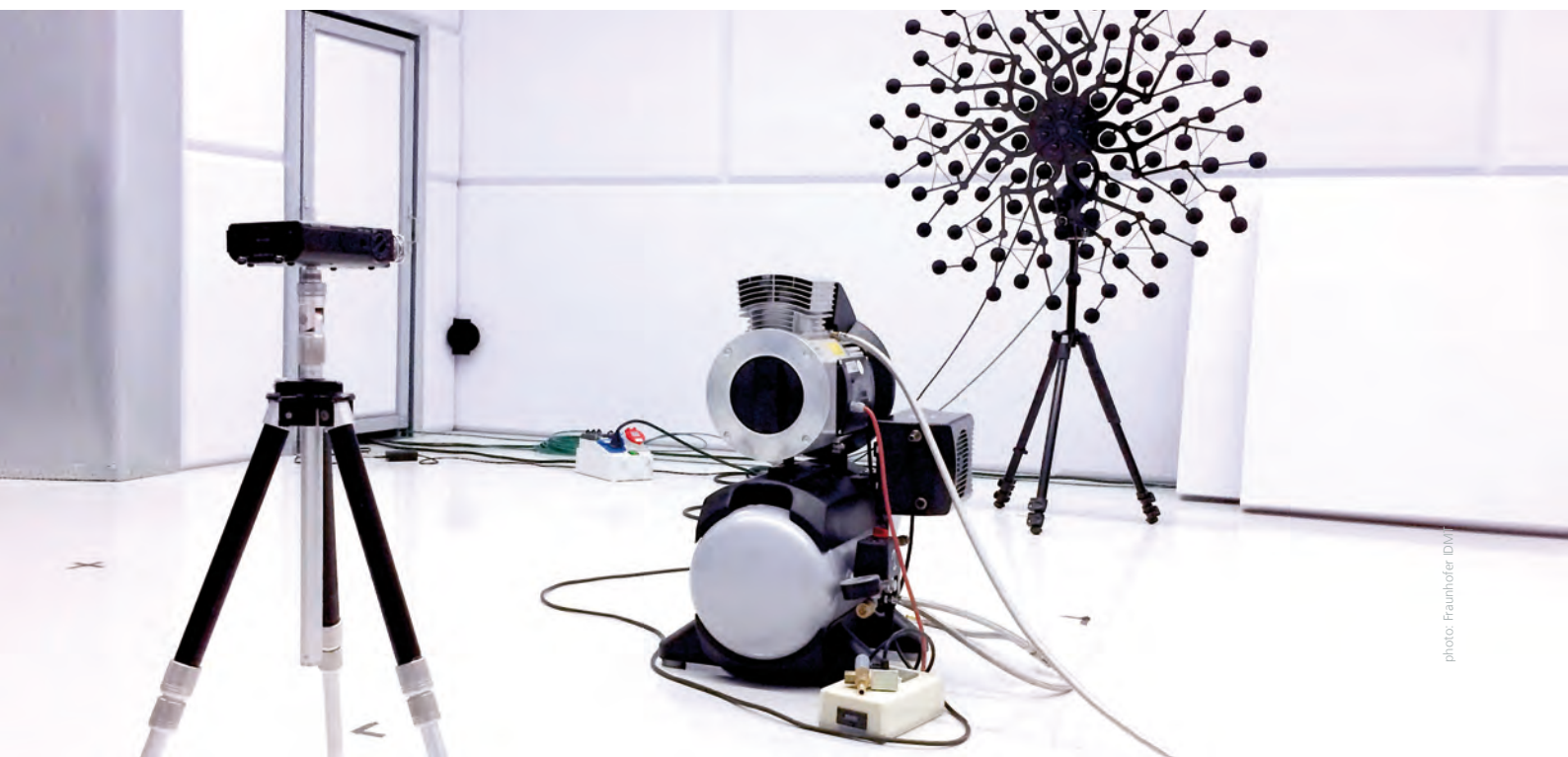


## Acoustic Event Detection and Condition Monitoring

Smart sensors for your service models

*We teach your machines to hear!*

- **Acoustic detection and monitoring of events** even in loud environments
- **Particularly robust detector systems** - reliable under challenging acoustic conditions too
- **"i4.0" sensor technology**, for easy retrofit or direct integration in your new products
- **Scalable systems** – from detection of isolated events to analysis of entire scenarios
- **Secure data processing** mostly in the sensor module, optionally without internet connection
- **Door opener for new service models**, e.g. "machine reliability as a service"



Fraunhofer IDMT detector systems function under challenging acoustic conditions, without an internet connection and at a long distance from the microphone. As a result, they are particularly robust, safe and reliable. This is owed not least to their modelling on signal processing in the human auditory system.

Experienced maintenance technicians are able to spot whether a machine is running smoothly or not from the slightest changes in operating noise: A remarkable ability that the Fraunhofer IDMT in Oldenburg integrates in its technological developments.

Acoustic event detection recognizes machine damage in **industrial or plant engineering applications** before it happens, thus **avoiding downtime**. In addition, noises occurring in many other areas can also be traced to specific events. In **quality control**, audible damage, for example the tiniest material fractures in computer chip production, is detected. Detectors are also useful in **building security and smart city scenarios** for reporting the use of spray cans, cries for help, when glass is broken or other alarm signals. There are also many areas of application in **medicine and the care sector** including, for example, the classification of different types of cough or recognizing emergencies with care patients (coughing, a fall, etc.). In the **automotive sector**, acoustic event detection provides for innovative functions, such as detecting the siren of approaching emergency vehicles.

## Cooperation with the IDMT in Oldenburg

- Development of application-specific detector technologies, including licensing
- Microphoning and signal preprocessing
- Embedding of signal processing in existing infrastructures
- Training and customization
- Integration of signal processing in mobile applications and new service models



photo: Fraunhofer IDMT

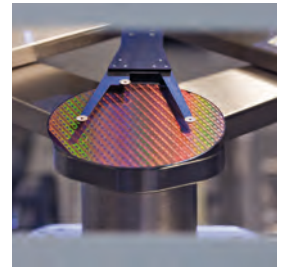


photo: Infineon Technologies AG



photo: gubayr.com/family



photo: Johannes Unfallhilfe

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The goal of the Division Hearing, Speech and Audio Technology of the Fraunhofer Institute for Digital Media Technology IDMT is to implement scientific findings on auditory perception of normal and impaired hearing in technological applications. Main research is improving speech intelligibility, personalized audio reproduction in as well as computer-based recognition of speech and acoustic events. Our fields of application include Consumer Electronics, Transportation, Automotive, Manufacturing, Security, Telecommunications and Health.



photo: Fraunhofer IDMT



photo: Horfisch GmbH