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1 *At the Fraunhofer IDMT, easily integrable sensor nodes are developed for capturing and processing acoustic data in networks.*

INTELLIGENT ACOUSTIC SENSOR NODES

The Project Group for Hearing, Speech and Audio Technology at the Fraunhofer IDMT develops hardware and software for capturing and processing acoustic data in cable-based or wireless sensor networks. The sensor node is based on a software framework for acoustic event recognition which can be connected to existing technological back-ends via standardised interfaces and communication protocols. The Fraunhofer IDMT offers robust signal processing methods and a wide range of recogniser modules which can be adapted to different application scenarios.

Characteristics

The hardware solutions can be produced inexpensively and easily integrated in existing networks. The hardware core is an embedded system (e.g. ARM A6-A8, DSP, FPGA, ZinQ), which also allows complex signal processing algorithms to be applied to wide-band, high-resolution audio signals. The audio data is processed directly on the sensor node in order to guarantee data security and privacy in corresponding application scenarios. Acoustic sensor networks can be created for complex applications. The forwarded meta-information from individual sensor nodes permits local, time-based and statistical modelling of acoustic events and also merging with other multimodal information on a central server.

Application Areas

- Speech recognition systems and acoustic monitoring, e.g.
  - Smart Home
  - Smart City
  - Security/vandalism prevention
  - Industrial production
- Acoustic measuring technology

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