Fraunhofer
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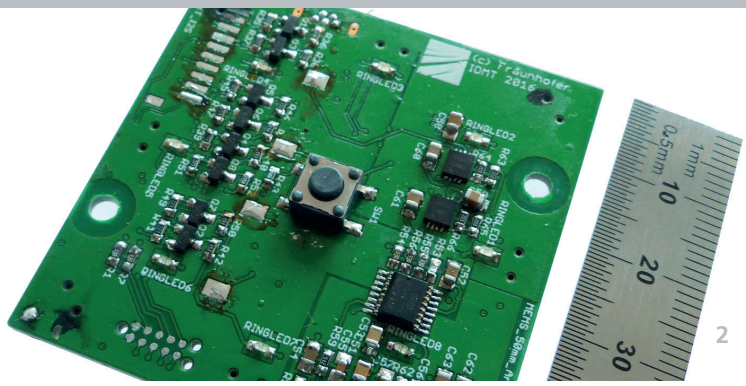
FRAUNHOFER-INSTITUT FÜR DIGITALE MEDIENTECHNOLOGIE IDMT



1, 2 *At the Fraunhofer IDMT, arrays are developed with any number of microphones for a wide range of different applications. Fotos Fraunhofer IDMT*

MICROPHONE ARRAYS

Microphone arrays are used to spatially localise acoustic events and optimise signal capture in one direction in a targeted way, e.g. towards a speaker. Two- or three-dimensional configurations are possible with arrays ranging from two to an arbitrary number of microphones. Arrays for a wide range of applications and designs are developed at the Fraunhofer IDMT – e.g. for ambient voice control systems, acoustic monitoring applications or signal capture in hands-free systems.

Characteristics

By using several microphones, it is possible to suppress sources of interference more effectively for signal capture. The functional capability of a multi-channel noise reduction process depends crucially on the microphones used. In contrast to electret capsules, modern capacitive MEMS microphones offer significantly reduced production-related scatter in the transmission behaviour – with a self-noise rating in the same order of magnitude or below. Algorithms for automatic localisation, adaptive direction filtering (beamforming) and interference noise reduction can be integrated directly into the signal processing unit. The components can be connected to existing technological back-ends via stan-dardised interfaces and communication protocols.

Application Areas

- Conference systems
- Automotive/communication systems
- Speaker and noise localization
- Speech recognition systems and acoustic monitoring, e.g.
  - Smart Home/Smart City
  - Industrial production
  - Civil security, e.g. drone detection
- Acoustic measuring technology

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