

"Hands free ... so that people can take care of their major business"

Hannover Messe 2019: Fraunhofer IDMT from Oldenburg leverages automatic speech recognition for hands-free process documentation

From April 1st to 5th, the Oldenburg based branch of Fraunhofer IDMT will be attending Hannover Messe to present a speech-to-text process documentation system to be used in industrial settings (Hall 2, Booth C22). The system allows users to efficiently capture various kinds of information with the help of automatic speech recognition, leading to significant time and cost savings. It uses intelligent speech-to-text technology to provide a convenient, hands-free user interface, which works reliably also in noisy and rough environments, and which does not have to have access to a server or the Internet.

Oldenburg/Hannover, March 20th, 2019. Process documentation is an unpopular yet mandatory task in every enterprise. Filling out forms or entry masks often is a tedious and time-consuming activity. Against this background, Fraunhofer IDMT'S speech recognition solutions can generate substantial benefit, and even unique selling propositions, for industrial enterprises. Especially in noisy or sterile environments, Fraunhofer's solutions allow meeting enhanced process documentation requirements conveniently with the help of a hands-free system.

Speech recognition saves time and cost

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„Using speech recognition technology, people can focus on their actual work and keep the time required for process documentation at a minimum“, says Dr.-Ing. Stefan Goetze, Head of the Automatic Speech Recognition group at the Hearing, Speech and Audio Technology (HSA) division, the Oldenburg based branch of Fraunhofer IDMT. „To us it is particularly important that people perceive the solutions we develop as something that makes their work easier. We achieve this by providing systems of great usability, which we tailor to the specific needs of the user, and by providing systems that work reliably also in noisy environments or when the user is a distance away from the microphone.“

A robust system for challenging environments

To be able to filter out ambient noise and other negative environmental effects, the Fraunhofer experts took into account the basics of signal processing known from the auditory system of the human being. The speech recognition systems of Fraunhofer IDMT rely on the latest scientific findings from basic research in psychoacoustics and psychophysics, allowing the researchers to develop algorithms that deliver a minimum false recognition rate. To achieve highest possible flexibility with regard to using the system for a maximum number of different applications, the Fraunhofer experts developed various methods for signal recording and signal improvement, which are available as modules to be used in connection with dedicated hardware and software components. So, for example, optimal recognition performance can be achieved in challenging industrial settings (i.e. that are characterized by a high level of ambient noise or reverberation) by intelligently placing microphones across the place.

Customized programming for integration with existing infrastructures

Just as the technical setup of the system and its integration with existing infrastructures can be tailored to specific requirements, the vocabulary to be used by

the system can be defined as required by the given application. Whether the vocabulary consists only of a few commands to control a simple application, or whether it comprises a large number of terms and dialog items (as is the case with an intelligent, dialog oriented robot, for example) – Fraunhofer IDMT's speech recognition system can be implemented for a wide range of industrial applications. An important advantage of the system lies in the fact that data is predominantly processed on the sensor itself. This means that the system can be used locally and without requiring access to a server or the Internet. The system thereby meets highest security standards also when used in remote geographical regions or when integrated with distant facilities and infrastructures.

In cases in which people usually need to stop their actual working process temporarily in order to meet process documentation duties, hands-free speech recognition systems offer a substantial, cost-relevant benefit to enterprises. Fraunhofer IDMT has developed an affordable solution to implement such systems quickly and with little effort.

Feel free to visit us at Hannover Messe 2019 (Hall 2, Booth C22), and get to know the latest developments by the Hearing, Speech and Audio Technology (HSA) division of Fraunhofer IDMT in the field of speech recognition technology. Visitors will have the opportunity to test a speech-to-text demonstrator installed at the booth. In addition, a demonstrator showcasing acoustic condition monitoring in industrial facilities will be presented.

Hearing, speech and audio technology at the Fraunhofer Institute for Digital Media Technology IDMT in Oldenburg

The objective of the Hearing, Speech and Audio Technology Division (HSA) at Fraunhofer IDMT in Oldenburg is to transpose scientific findings in the field of hearing perception into technological applications. Its applied research priorities are the improvement of sound and speech intelligibility, personalized audio reproduction and acoustic speech and event detection. Application fields include consumer electronics, transport, the automotive sector, industrial

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production, safety, telecommunications and healthcare. Through scientific partnerships, Fraunhofer IDMT-HSA has close links with Carl von Ossietzky University, Jade University and other institutions engaged in hearing research in Oldenburg. Fraunhofer IDMT-HSA is a partner in the »Hearing4all« Cluster of Excellence.

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Further information: www.idmt.fraunhofer.de/hsa

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Captures:

Picture 1: Hannover Messe 2019: Fraunhofer IDMT from Oldenburg leverages automatic speech recognition for hands-free process documentation. Using speech recognition technology, people can focus on their actual work and keep the time required for process documentation at a minimum.

Picture © iStock-Wavebreakmedia.

Picture 2: "Speech recognition saves time and cost." Your expert on site: Dr.-Ing. Stefan Goetze, Head of Automatic Speech Recognition.

Picture: © Fraunhofer IDMT.
