

# Transcription system for operational communication is to be used for maritime search and retrieval.

**Support rescue operations** Rescuers present research projects in cooperation with Fraunhofer-Gesellschaft and RHOTETA

**Improved communication during search and rescue operations is the aim of a research project, which is implemented by the German Shipwreck Rescue Association (DGzRS) in cooperation with other partners.**

**The core of the project is the development of an automatic transcription system for VHF radio communications at simultaneous sender localization and identification.**

The system will automatically transcribe voice messages distributed via VHF radio and will allow emergency responders to search and rescue operations. Show rescue operations on on-board equipment. In contrast to already existing systems, the requirement works independently of language and speaker. Radio direction finder technology and AIS data evaluation are used for localisation and Identification of radio transmitters used. In the development phase, the sea rescue rescuers are working with the Fraunhofer Institute for Intelligent Analysis and Information Systems (IAIS). The partners are the Fraunhofer Center for Maritime Logistics and services CML and the company RHOTHETA Elektronik GmbH. The kick-off event for the project took place on Tuesday, 16.April 2019, at the headquarters of Seenotretter in Bremen.

A challenge of the project lies in the strongly varying speech and signal quality of the messages to be written. In addition, the system is to function locally and without an Internet connection in order to be used on board search and rescue vehicles. A further challenge is the development of a reliable assignment of senders, if several ships are on a bearing beam and thus all can be considered as senders.

Up to now, rescue operations under difficult conditions such as rough seas, darkness and considerable background noise have been subject to a precise documentation of the discussions is not possible. Since communication is crucial, especially in complex situations may be the success or failure of a rescue operation, the system should make the work considerably easier for the emergency services of maritime authorities and organizations with security responsibilities. It would also be possible to use them later in the area of traffic control and to integrate individual functions into staff and Control center software systems. The project is funded in the course of the announcement "Anwender-Innovativ: Forschung für die zivile Sicherheit" of the German Federal Ministry for Education and Research (BMBF) funded under the Federal Government's "Research for Civil Security" programme.

([www.sifo.de](http://www.sifo.de)).

Picture caption:

Improved communication during search and rescue operations is the goal of a research project carried out by the German company „ zur Rettung Schiffbrüchiger“ (DGzRS) with further alliance partners. The partners met now for the Kick-off event at the headquarters of the sea rescue service in Bremen.

Gerd Hoschek, Thomas Kaup (both DLRG), Tina Stefanova (VDI Technology Centre), Ivan Zverev (RHOTHETA), Ingrid Fröhlingdorf (VDI Technology Center), Klaus Schnell (Federal Police), Michaela Selzer (Bavarian Red Cross), Thomas Lübcke, Aylin Gözalan, Udo Helge Fox (all DGzRS), Sven Brodowski (BRK Wasserwacht), Dirk Stommel (DGzRS), Hans-Karl von Arnim (BSH), Hagen Jaeger, Christoph A. Schmidt (both Fraunhofer IAIS), Ole John, Maximilian Reimann (both Fraunhofer CML)



ARTUS is a member of the ARTUS network:

Deutsche Gesellschaft zur Rettung Schiffbrüchiger - DGzRS

(German Shipwreck Rescue Association) in cooperation with the Fraunhofer Institute

For Intelligent Analysis and Information Systems (IAIS)

Fraunhofer Center for Maritime Logistics (CML)

Rhotheta Electronics GmbH

Associated partners:

Bavarian Red Cross – Waterguard

Federal Maritime and Hydrographic Agency

Federal Lake Police

German Life-Saving Society e. V. – DLRG

Presentation of the partners:

About the sea rescuers the DGzRS is responsible for the maritime search and rescue service in the German areas of the North Sea and Baltic Sea. To fulfill of her duties she holds about 60 rescue cruisers and boats at 55 stations between Borkum in the west and Usedom in the east. East ready for action - around the clock, in any weather. Year after year, the sea rescue rescuers are deployed more than 2,000 times a year, coordinated by the SEENOTLE LINE BREMEN of the DGzRS (MRCC = Maritime Rescue Co-ordination Centre). The entire independent and the independent work of the sea rescuers is financed exclusively by voluntary contributions, without taxpayers' money. Since founded in 1865, the DGzRS 1865 has rescued around 85,000 people from distress at sea or freed them from impending dangers. The patron of the rescue teams is the Federal President.

Die Seenotretter

Deutsche Gesellschaft zur Rettung Schiffbrüchiger (DGzRS)

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Fraunhofer Institute for Intelligent Analysis and Information Systems (IAIS) The Fraunhofer Institute for Intelligent Analysis and Information Systems (IAIS) is one of the leading institutions for applied research in the field of intelligent data analysis and knowledge development. Artificial Intelligence Techniques and machine learning create new possibilities for knowledge development and the development of new data-driven Business models. With its staff, the IAIS bundles the competences of all engineering scientists and engineers disciplines, in particular computer science as well as mathematics, natural sciences, business administration, geosciences and social sciences with a focus on profound industry knowledge. The main research areas are in the fields of data science, artificial intelligence, machine Learning/Deep Learning, Linked Data, Multimedia Pattern Recognition, Dialogue Systems/Question Answering as well as System modelling and analysis.

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Fraunhofer Center for Maritime Logistics and Services CML. The Fraunhofer CML develops and optimizes processes and systems along the maritime supply chain. In practice-oriented the CML supports private and public clients in the fields of port operations, logistics services and the supply of and shipping in the initiation and implementation of innovations.

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## **RHOTHETA Electronics GmbH**

Since its foundation RHOTHETA Elektronik GmbH has been engaged almost exclusively in the development and production of bearing systems according to the Doppler principle. Target groups for their products are primarily professional users. Developed and has been manufacturing direction finders for air traffic control, maritime road safety and search and rescue (SAR) applications for 30 years. Especially for professional sea rescue and rescue from the air.

In the 1990's RHOTHETA developed the MOB (Man Over Board) direction finder RT-200 CrewFinder and created a fully automatic direction finder for use under the harshest conditions at sea. In the following years, RHOTHETA developed a improved broadband SAR system RT-500-M with which the DGzRS fleet was equipped.

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