

## **T-shirt against back pain: Students from TU Ilmenau win VDE competition COSIMA 2022**

- **Team "T - S.H.I.R.T" from Ilmenau University of Technology wants to fight back pain with the help of a newly developed T-shirt**
- **Four university teams from Ilmenau, Karlsruhe, Munich and Hamburg made it to the finals of the VDE and BMBF competition with their ideas and inventions**
- **Best three teams qualify simultaneously for the international iCAN competition to be held in Kyoto in June 2023**

(Frankfurt am Main, 03.01.2023) With a T-shirt that can measure the movements of the spine, Michael Jung, Emma Stolpe, Mohamed Elsayed and Simon Leinige have won first place in the university competition COSIMA (Competition of Students in Microsystems Applications). At the institute of their supervisor, Prof. Hartmut Witte, the students from Ilmenau University of Technology equipped the garment with inertial measurement units (IMUs). This allows the system to report back to the wearer whether he or she is moving the torso correctly and sufficiently to prevent back pain.

### **Students develop innovative products**

Every year, technology-savvy university teams from all over Germany enter their innovative products in the COSIMA competition, which is organized by the technology organization VDE as a funding project of the German Federal Ministry of Education and Research (BMBF). Four teams from Ilmenau, Karlsruhe, Munich and Hamburg made it to the finals of the competition, which this year was held under the motto "Industry meets Talents." The top three teams simultaneously qualify for the international iCAN competition, which will be held in Kyoto in June 2023.

### **Second place: Cost-effective and rapid diagnosis**

Second place went to Leon Middendorf, Nicklas Rondot, Alina Stein and Johanna Bartl from the Karlsruhe Institute of Technology (KIT). Under the name "Diagnostics for everybody", the four students make it possible to diagnose diseases at an early stage. For this, preventive testing is necessary, which is usually expensive and time-consuming. As Team Orbio, they founded and developed a PCR-based test system at the chair of Prof. Jan Korvink that can be used at low cost wherever the patient is treated - whether in the doctor's office or in the hospital.

### **3rd place: Hazard detection for people with visual impairments**

The V-Feel System team from the Technical University of Munich has been working on small helpers for people with visual impairments. Boning Li, Ge Zhang and Lukas Fechner, supervised by Prof. Ulf Schlichtmann, developed a system for hazard detection and were rewarded with third place. Using a special vibration mechanism, V-Feel warns its users of dangerous situations in modern everyday life, such as passers-by on fast e-scooters or almost inaudible e-cars. V-Feel also assists in locating objects and responds to voice commands.

### **Clean water to go**

The TU Hamburg university team also received a lot of recognition for their idea for guaranteed clean water "to go": Rijuta Bagchi, Suve Nisa Ramakrishan and Varum Gonsalves, together with their supervisor Prof. Hoc-Khiem Trieu, invented a cap for drinking water bottles for clean and safe water outdoors. Their prototype for a portable water filter is a water filter cap that can filter contaminated water instantly. It consists of two parts: A physical activated carbon filter is tasked with removing chemicals such as chlorine, heavy metals and other unwanted suspended particles. A UV filter, which in the prototype uses UV-C light with a wavelength of 275 nm, can destroy the DNA of biological pathogens. The trio also integrated a solar panel into the circuit instead of just using batteries.

### **About COSIMA**

The COSIMA (Competition of Students in Microsystems Applications) student competition was launched in 2009 and is organized by VDE as a project funded by the German Federal Ministry of Education and Research BMBF. To enter the competition, student teams must demonstrate the practical utility of microsystems technology sensors and actuators for everyday applications with a working prototype. The three winners of COSIMA simultaneously qualify for the international iCAN competition. This will be held in Kyoto in June 2023. The iCAN competition is a Chinese initiative that has been hosted for over ten years.

"Every year, the German teams clean up and take the top places, which shows that education in microsystems technology in Germany is among the best in the world," says a pleased Dr. Ronald Schnabel, managing director of VDE/VDI-GMM and organizer of COSIMA. Next year,

there will also be the opportunity to participate in COSIMA and thus qualify for iCAN 2024. More information about the competition is available at [www.cosima-mems.de](http://www.cosima-mems.de)

**About VDE:**

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Our passion is the advancement of technology, the next generation of engineers and technologists, and lifelong learning and career development “on the job”. Within the VDE network more than 2,000 employees at over 60 locations worldwide, more than 100,000 honorary experts, and around 1,500 companies are dedicated to ensuring a future worth living: networked, digital, electrical. Shaping the e-dialistic future.

The VDE (VDE Association for Electrical, Electronic & Information Technologies) is headquartered in Frankfurt am Main. For more information, visit [www.vde.com](http://www.vde.com)

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