

Species protection for balconies: winning team from Ulm University beats ten competitors at COSIMA 2024

- **High response to COSIMA 2024 student competition: with eleven teams, the number of applications has almost doubled compared to the previous year**
- **Winning team from Ulm University receives EUR 1,500 at electronica in Munich for solution on species protection in everyday life**
- **2nd and 3rd place impress with smart shopping cart for the visually impaired and sensor technology for easier care of people in need of care**

(Frankfurt a. M., 18.11.2024) In contrast to other student competitions, COSIMA, organized by the VDE as a project funded by the Federal Ministry of Education and Research (BMBF), does not set any thematic requirements. This makes the combination of technology and practicality all the more important, as the prototype developed must work and make microsystems technology usable in everyday life. It is also the students' task to develop a marketing concept and find sponsors to finance the project. Ronald Schnabel, Managing Director of VDE VDI GMM and organizer of COSIMA, states: "This year we had eleven teams at the start, nine of which presented their projects at the final at electronica in Munich. That's a huge turnout for COSIMA, and what's more, the students showed particularly sophisticated solutions this year, especially with regard to financing and marketing."

1st place: Protecting species in everyday life with a humidity sensor and app

With myzelion, the team at the University of Ulm has developed an idea to enable species conservation in everyday life. "There is a study that shows that a balcony planted in a site-specific way makes the same contribution to the ecosystem as a meadow," explains spokeswoman Annika Köhler. "With myzelion, we want to make it easier for people to beautify their balcony or garden and contribute to environmental protection at the same time." Part of the project is a new type of moisture sensor that requires very little power and enables precise measurements of the soil's moisture content every 10 seconds, as well as an app that displays

the results and includes a plant guide. Köhler states: "We will definitely continue to pursue the topic until it is ready for the market; the patent search was positive for us."

2nd place: Smart shopping cart for people with visual impairments

Unrestricted participation in everyday life and a pleasant shopping experience for people with visual impairments - these were the goals of the team from Baden-Württemberg Cooperative State University. Smart Cart was awarded 2nd place and EUR 1,000 in prize money for the project at COSIMA 2024. Spokesperson Milan Ferus-Comelo explains: "The shopping cart is equipped with two LiDAR sensors for obstacle detection. We also worked with a neural network for speech recognition to enable communication with the user via an app." The team already collaborated with a leading shopping cart manufacturer as well as associations and supermarket chains during the project phase. After COSIMA, a pilot phase and participation in various start-up competitions are planned in preparation for a market launch.

3rd place: Monitoring the fill level of liquid bags in the care sector using an app

Through her work as a research assistant, Elisabeth Höbel came up with the idea of developing a solution for simple fill level monitoring of liquid bags in the care sector. The spokesperson for the SmartBagEco team at Kaiserslautern University of Applied Sciences explains: "Whether for private use, outpatient care or a hospital ward - always knowing when an infusion or catheter bag needs to be changed, for example, makes work easier and makes it more pleasant for patients." SmartBagEco came third at COSIMA 24 and received prize money of EUR 500. The system consists of a self-developed sensor that can be attached to the fluid bag and clip-on electronics that the team built and produced using 3D printing. The sensor's measurement results are sent to a self-coded app, which sends a notification when a certain fill level is reached. "The response to our project has been great, and we've also been approached here at the trade fair. Let's see what happens next," says Höbel happily.

Special prize at COSIMA for the first time: multifunctional glasses for the hearing impaired

Due to the high quality of the projects, the 2024 jury decided to award a special prize for SonoVision, a pair of glasses for the hearing impaired, in addition to the three other prizes. It uses two LEDs to provide visual warnings of dangers that can be heard and transcribes conversations via an app, which are then displayed as text in real time in the glasses. There is no financial prize for this innovation, but the project team from the Technical University of Munich has been invited to the international iCAN competition in Switzerland together with the other prizewinners.

Information on all teams is available at: <https://www.cosima-mems.de/de/teams-2024>.

About the VDE/VDI Society Microelectronics, Microsystems and Precision Engineering (VDE VDI GMM)

The VDE/VDI Society Microelectronics, Microsystems and Precision Engineering (VDE VDI GMM) is the comprehensive platform in microelectronic application areas. It is jointly supported by the VDE and VDI, and promotes the valuable transfer of interdisciplinary knowledge. Its spectrum ranges from basic technologies in the production of microelectronics and microsystem technology right through to mechatronics and fields of electromagnetic compatibility. The GMM stands for cooperation and international networking to foster innovation. It works with interdisciplinary research institutes, companies and universities at every stage, from basic research to applications, and offers its members all the advantages of being part of a progressive expert community. Thanks to its expertise, the GMM has an influence on technical standards and is involved in national and European research programs. Other important goals for the GMM include promoting young scientists as well as training and further education. The COSIMA competition (Competition of Students in Microsystems Applications), which is funded by the Federal Ministry of Education and Research, is essential in achieving this.

More information at www.vde.com/gmm

About the VDE

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We are committed to promoting research and young talent and to lifelong learning with on-the-job training opportunities. In the VDE network, more than 2,000 employees at over 60 locations worldwide, more than 100,000 volunteer experts and around 1,500 companies are shaping a future worth living in the VDE network: connected, digital, electric. We are shaping the e-digital future.

The VDE (VDE Association for Electrical, Electronic & Information Technologies) is based in Frankfurt am Main. More information at www.vde.com

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