

Well informed in school, authorities and companies: Duo from Münster develops helper:Paper for Jugend forscht

- **Ben Mattes Krusekamp (18) and Linda Gemeinhardt (18) from Annette-von-Droste-Hülshoff-Gymnasium Münster receive VDE Special Prize at Jugend forscht 2023**
- **The two young researchers have developed a digital information application for schools that replaces printed notices, substitution plans and the like**
- **The helper:Paper saves resources and can also be used to provide information in public authorities, public institutions or companies**

(Frankfurt a. M./ Bremen, 24.05.2023) A good 4,900 young researchers from all over Germany took part in Jugend forscht 2023, 42.3 percent of them girls and 57.3 percent boys. 173 STEM talents with a total of 108 research projects made it to the finals – including Ben Mattes Krusekamp and Linda Gemeinhardt from the Annette-von-Droste-Hülshoff-Gymnasium in Münster, both 18 years old. This year, the team of two received the VDE special prize of EUR 1,000 for a project in the field of electronics, energy or information technology, which honors technical solutions that are innovative and have a strong practical relevance. The helper:Paper comprises an energy-saving ePaper display that can be hung in place of a door sign, for example, and an app that centrally retrieves and feeds the information to be displayed. So far, so clear, but how did the two actually come up with this?

Saving resources, increasing efficiency with digital solutions

Ben and Linda had taken a project course in computer science and had gathered enough experience from their time at school with inefficient information flow and the confusing presentation of substitution plans, notices and the like. Based on a jointly created project work and the first ideas for the helper:Paper, the plan to further develop the concept and submit it to Jugend forscht finally emerged. Ben had already competed in INVENT a CHIP in 2021 and was among the top ten, so he was able to contribute his competition experience: "It's always important that technology is beneficial for everyday life, otherwise you can save yourself the

trouble. Our app can be connected to the central school-internal app, offers many configuration options and the selected information is played out to the ePaper displays fully automatically." The display is done by means of various widgets, which are available as a modular system.

To show that the investment in their system would pay off quickly, the two conducted a cost-benefit analysis. Linda explains, "The TV monitors used at our school consume 169 watts, while our display including the Raspberry Pi, a mini-computer, consumes only 2.57 watts - in our sample calculation, the investment costs pay for themselves after 2.3 years." In addition, an empirical study with 211 students showed that a digital solution saves time and travel and thus increases the quality of work. This is not only interesting for schools, but also for public authorities or industry, which is why a second study in a company and various further developments are planned.

And after graduating from high school? Between cybersecurity and molecular medicine

After the award ceremony at the finals of Jugend forscht in Bremen, the two young researchers first went to Paris for a week's vacation. But they already have plans for the time after that. Ben took the opportunity to cultivate his network at the JuFo finals. "I'm definitely going in the direction of cybersecurity and was planning to study in Karlsruhe. But now I've gotten tips that Bonn or Saarland, for example, are also cool, and I even got a contact at CERN." Linda had actually decided that she would do a voluntary year of social work in the operating room after graduating from high school. But she enjoyed working for Jugend forscht and participating in the SMIMS-NRW student academy in Münster (focusing on mathematics and computer science) so much that she might now go straight to university: "I want to study molecular and technical medicine, which is an interdisciplinary course that you don't find everywhere. After our trip, I'll definitely have a look at the university I want to go to and then decide."

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