



## **Industry Research Project Week 2017: INNOVATIVE SMART MATERIALS – DESIGN MEETS TECHNOLOGY**

*Sascha Mühl, Project Coordinator*

For the very first time, the “Industry Research and Project Week“ (IRPW) as part of the module „Industry or Research Project“ took place from the October 9<sup>th</sup> to 13<sup>th</sup>. The overall aim of this week is to get students of the master studies program “Business Administration & Engineering” in touch with current topics in science and business. Besides the accumulation of specialized knowledge, they should practice and improve their skills in interdisciplinary teamwork. To achieve this aim, students from other departments and/ or universities are invited to the IRPW week. The students will have the opportunity to work actively in real-life scenarios, e.g. science labs, innovation labs, and relevant firms.

In total, 16 students registered for the IRPW 2017. The majority of participants belonged to the master studies program mentioned above. Additionally, four product design students from HTW Dresden and two graduates from the Burg Giebichenstein, University of Art and Design (Halle), participated. According to the motto “Innovative Smart Materials – Design Meets Technology,” three teams were formed to create innovative product concepts by using smart materials. During the week, they were accompanied by Prof. Meinel and Mr. Wilde from Burg Giebichenstein and Prof. Günther from HTW Dresden.

The project was actively supported and sponsored by the Fraunhofer-Institut für Werkzeugmaschinen und Umformtechnik (IWU), Dresden. The IWU runs the innovation network smart<sup>3</sup>, which funds and leads workshops and trainings about smart materials on a regular basis. The focus of these events is to apply and transfer materials like shape memory alloy and piezo ceramic into production equipment and consumer goods. For example, the project “Cumulino” and the start-up “Laviu” are worthy of mention. The first one has been focusing on the development of a moving pillow for babies. The second one has launched a product line of aesthetic love toys. Representatives from both organizations were present and willingly answered the many questions of the interested students.

In the IRPW week 2017 we concentrated on the cleaning branch. The objective was to develop a new smart cleaning product concept. Subsequently, the manager of the Erzgebirgische Bürstenfabrik (EBF), Mr. Jäckel, was invited to share his knowledge of the industry and products, e.g. brooms and brushes. To see how the products are used, the students had the chance to join a half-day excursion to the Stadtreinigung Dresden (SDR). Mr. Siebert, department leader of SDR, outlined the main issues with (machinated) street cleaning, e.g. wear of moving brushes. Further knowledge about smart materials could be accumulated during a visit to Fraunhofer IWU and the active work with the materials in the innovative lab “SLUB Makerspace” at the SLUB Dresden.

In a mix of input and work sessions, the students got a step-by-step introduction to the workshop topic “Smart Cleaning” and the innovative technology “Smart Materials”. “It was very interesting to see how the team was able to create a first product within just one week!”, one student said. An important precondition for achieving this goal was the combination of different disciplines (design, engineering and business). This opened doors to new perspectives and creative thinking. At the end of the week three product designs were presented to the audience:

- Self-airing T-Shirt that reacts when your body temperature rises and can be worn longer
- Pressure-sensitive moving brush that lessens wear and tear of street cleaning machines' parts
- Sustainable steel wool to clean pots, which can be washed-out in the dish washer regularly

According to the evaluation of the project partners (HTW Dresden, Burg Giebichenstein, Fraunhofer IWU) all presented design concepts demonstrate high innovation potential. "What's important is that the concepts are further developed to a functional prototype in the near future!", Prof. Günther said. For this there is the opportunity to apply for a student lab assistant position and to write a Master's thesis at Fraunhofer IWU. Several students have shown interest in continuing with the project. Furthermore, the product design will be showcased at the exhibition of Burg Giebichenstein.



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- smart<sup>3</sup> Innovation Network: [www.smarthoch3.de](http://www.smarthoch3.de)
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