

Ulm, 08.11.2022

## **Ulm Center for Research and Evaluation of Human-Robot Interaction in Public Spaces (ZEN-MRI) begins work**

Federal Ministry of Education and Research provides funding of €3.6 million

In the coming years, service robots/assistant robots will increasingly be able to take over tasks such as cleaning and transport in public spaces, e.g. in pedestrian zones, public squares, train stations and parking garages. As a result, they will not only become part of the urban landscape, but workflows will change. The encounters of uninvolved persons with these robots will thus increase in everyday life. Therefore, in order to perform their task efficiently and safely, the robots must interact not only with their human team partners, but also with these uninvolved passers-by. This includes, for example, communicating their task and coordinating path planning. The Ulm Center for Research and Evaluation of Human-Robot Interaction in Public Spaces (ZEN-MRI) will intensively deal with these and other questions in the coming years. To this end, the University of Ulm, Stuttgart Media University, the Fraunhofer Institute for Industrial Engineering IAO, Adlatus Robotics GmbH and the city of Ulm have joined forces in a cooperative project.

Over the next three years, the partners will develop the necessary requirements for robot behavior and interaction strategies (MRI) for the public Ram. The research will focus on interactions with passers-by to optimize robot behavior, but also on embedding the robots in public space. To this end, test areas will be set up in public spaces in downtown Ulm. Among other things, areas are planned in the pedestrian zone and in the Railway station, where encounters will then be possible in people's everyday lives. Legal and ethical issues will thus become just as important an element of the investigations as design, safety requirements and questions of urban planning specifications.

The project is funded for the period 01.09.2022 - 31.08.2025 by the Federal Ministry of Education and Research with a total of € 3.6 million. The project work was officially launched with the kick-off event held on Thursday, 03.11.2022 at the M25 information center in downtown Ulm.

### **Dr. Johannes Kraus University of Ulm, Department of Human Factors, Topic Leader Human-Robot Interaction):**

"When designing robots that move in public spaces, it is crucial that the people around you understand what the robots do and when, and ultimately feel comfortable with them. With this in mind, one of the areas we are researching at the ZEN-MRI Center of Excellence is the psychology of interaction between humans and robots. The goal here is to contribute to designing the appearance and behavior of robots in a way that reduces irrational fears and creates an appropriate level of trust. Such human-centered design of robots maximizes the chance of safe, efficient, and positive integration of robots in public spaces for humans and society."

### **Dr. Siegfried Hochdorfer (ADLATUS Robotics GmbH, CTO):**

"ADLATUS Robotics develops, produces and distributes autonomous cleaning robots for the B2B market since 2017. The first generation of robots was mainly developed for use in industrial and commercial environments. The latest generation of robots is designed in such a way that it can also be used in public spaces. For the acceptance of autonomous cleaning robots like ADLATUS Robotics, the interaction with humans is of central importance. That's why ADLATUS Robotics has been involved in research on human-robot interaction for several years."

**Kathrin Pollmann (Fraunhofer-Institut für Arbeitswirtschaft und Organisation IAO, Team User Experience):**

"The success of a service robot is ultimately determined not by its technical equipment, but by its people. For the robots to be accepted and used with pleasure in the long term, their use must be designed to be pleasant and profitable - in short, positive - for everyone involved."

**Prof. Dr. Petra Grimm, Prof. Dr. Tobias Keber (Hochschule der Medien Stuttgart, Institut für Digitale Ethik):**

"The use of robotics in social environments, which are not yet optimized for robotic use, is always associated with ethical and legal questions. For example, how can it be possible for robots to "learn" ethical principles of action? With our Ethics-by-Design approach, we at the Institute for Digital Ethics (IDE) therefore accompany development and design processes of autonomous systems in a cooperative way: Digital ethics and law should not prevent innovative technology design. Rather, their opportunities should be uncovered by considering risks and potential conflicts from the very beginning."

**Oberbürgermeister Gunter Czisch (Stadt Ulm):**

"Ulm is a city of innovation and on its way to becoming a smart city. Robotics is a focal point in the scientific and economic landscape of our region. This technology must become "tangible" for people. We promote real contact with new technologies that have become indispensable in our everyday lives. Thank you to the funding agencies that make such a hands-on encounter and exposure of the citizenry to this forward-thinking technology possible in our downtown."



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