# Project SeRoNet Launches a Market and Development Platform for Commercial Service Robots

***The research project SeRoNet calls for funded participation with immediate effect. Companies are invited to further develop their software for commercial service robots by means of the SeRoNet technology and to put them on robot.one on the market.***

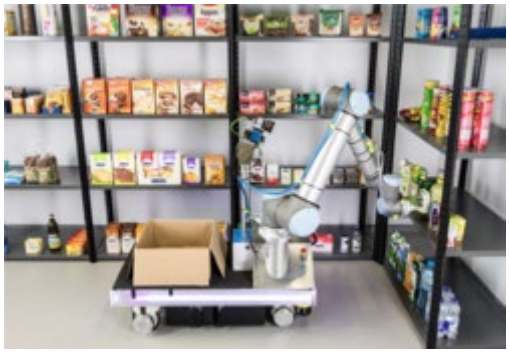

Image source: Fraunhofer IPA/Photo: Rainer Bez

*Karlsruhe, 21.11.2019* – The joint project SeRoNet (Service Robotics Network) starts now its market and development platform "robot.one" for components and solutions in service robotics under the leadership of the Fraunhofer IPA. The FZI Research Center for Information Technology, amongst others, is responsible for the semantic technologies as well as for the realisation of a pilot demonstrator in intralogistics with the developed approaches. The project calls providers of widely applicable software components for service robots and automation solutions to adapt their existing products to the technological framework of SeRoNet or robot.one and to publish it on the platform. Examples for possible components are path and grip planners, navigation solutions or components for environmental perception.

The University of Stuttgart and its Institute for Control Engineering of Machine Tools and Manufacturing Units legally present the project in this appeal. SeRoNet is part of the technology programme "Digitale Technologien für die Wirtschaft (PAiCE)" (digital technologies for the economy), funded by the German Federal Ministry for Economic Affairs and Energy (BMWi).

**Open call for development efforts**

Companies that test new methods for software and system composition and that want to be the first to introduce their components into the market platform, can apply starting from now until April 2020 via the "Vergabeportal" (the German tender portal) in various rounds. The application deadline of the first round is January 8, 2020. Development contracts of up to EUR 50,000 will be put out for tender. The call primarily addresses vendors of software components, but also hardware manufacturers that want to set the drivers for their hardware on the platform.
In the framework of the tendered development efforts, manufacturers shall provide two things:

- A SeRoNet-compatible "cover" around existing software components and proven algorithms, based on the protocol bindings OPC UA
- A corresponding descriptive software model

This model is developed by means of the development tools ("tooling"), provided by SeRoNet for free. While the model will be published on robot.one for free, the actual executable software component remains with the provider, who sells it at standard market conditions.

**SeRoNet development concept**

With this approach, SeRoNet wants to offer a marketplace for multiple compatible and reusable hardware and software components, bundle resources and pave the way for cheaper robot systems. Software engineering and especially the (software-) system integration in service robotics are disproportionately expensive compared to overall costs. Main causes for this are the lacking compatibility of components of various manufacturers and a confusing market. Even components which should be compatible on paper are in practice only combinable with a high integration effort due to incomplete or imprecise specifications. SeRoNet relies on a mode-driven development and the extensive encapsulation of hardware and software components as OPC UA components with a uniform, self-describing communication architecture.
In the Eclipse-based SeRoNet development environment, the above-mentioned tooling, vendors model the external communication specifications for their components and integrate their function logic into an interface framework, which is generated from the model. A wide catalogue of defined communication patterns, interfaces and data types ensures that components that use semantically identical data collaborate without any problems. Complete service robot or automation systems are graphically composed from SeRoNet components in the tooling and can be examined for feasibility based on the model prior to the first execution. The tooling obtains component models as well as interface and data definitions from the platform robot.one and can store them there again. In this regard, the transparent implementation of components of other frameworks like ROS/ROS-2, existing OPC UA systems or SmartSoft components is seamlessly supported.

**About PAiCE**

The German Federal Ministry for Economic Affairs and Energy currently supports 16 funding projects from the economy and industry with around EUR 50 million that test the use of digital technologies in industrial processes and applications, with the technology programme PAiCE (Platforms/Additive Manufacturing/Imaging/Communication/Engineering). The main focus of the programme is on the development of digital industry platforms as well as the collaboration between companies via the platform. Additionally, questions and challenges considering the topics of law, business models and reliable architectures are discussed in accompanying research activities.

Further information can be found at www.paice.de

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## About the FZI Research Center for Information Technology

The FZI Research Center for Information Technology, with its head office in Karlsruhe and a branch office in Berlin, is a non-profit institution for applied research in information technology and technology transfer. Led by professors from different faculties, research teams at the FZI interdisciplinarily develop and prototype concepts, software, hardware and system solutions for their clients. Led by professors from different faculties, research teams at the FZI interdisciplinarily develop and prototype concepts, software, hardware and system solutions for their clients. The FZI House of Living Labs provides a unique research environment for applied research. The FZI is the innovation partner of the Karlsruhe Institute of Technology (KIT).

FZI Press Release

**Further information**

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