Thessaloniki, 03/03/2017

BADGER: Robot for Autonomous Underground Trenchless Operations, Mapping and Navigation

BADGER (RoBot for Autonomous UnDerGround Trenchless OpERations, Mapping and Navigation) is a three-year research project funded with 3.7M€ by the European Commission under the HORIZON2020 programme, which starts in January 2017. This is one of the eight selected projects, among 114 proposals (7% success rate), of the LEIT ICT-25-2016 Call. Seven partners, including two universities, R&D centres, robotic and IT companies and end-user companies, form the consortium, while among them, is the Information Technologies Institute of the Centre for Research and Technology Hellas.

The aim of BADGER is to design and develop an integrated underground robotic system for autonomous construction of subterranean small-diameter and highly curved tunnel networks in urban environments. For that, advanced robotics control techniques will be used such as localization, mapping and autonomous navigation; sensor fusion including underground odometry and georad; adaptation behaviours for different soils; machine learning; etc.

The robotic system will enable the execution of tasks in different application domains of high societal and economic impact including trenchless constructions (cabling and piping) installations, search and rescue operations, remote science and exploration applications, among others.

Carlos Balaguer, the Coordinator of the BADGER project, Professor of the RoboticsLab at the University Carlos III of Madrid, said: “We will go a step further from existing trenchless excavation and environment mapping technology by introducing technical approaches and last innovations inspired by the most advanced robotic technology, including space one. We envision an underground robotic system that autonomously navigates in the subsurface by pulverizing, removing and pushing through the subsurface soil, while at the same time the system uses advanced sensing modalities, perception techniques and cognition to localise itself, map and understand the working environment and make decisions on how to better pursue its goals.”

The expected strategic impact of the BADGER project focuses on:

- Introducing advanced robotic technologies, including intelligent control and cognition capabilities, to significantly increase European competitiveness.
- Drastically reducing the traffic congestion and pollution in the European urban environments increasing, in this way, the quality of life of citizens.
- Enabling technologies for new potential applications such as search and rescue, mining and quarrying, civil applications, mapping, etc.

Note: The BADGER project is coordinated by the University Carlos III of Madrid, RoboticsLab (Spain), while its consortium brings together researchers from the University of Glasgow, School of Engineering (Scotland, UK), the Centre for Research and Technology Hellas, Information Technologies Institute of the Centre for Research and Technology Hellas (Greece), IDS Georadar Srl (Italy), SingularLogic S.A. (Greece), Tracto-Technik GmbH&CO.KG (Germany), and Robotnik Automation SLL (Spain).

Contact information: info@badger-robotics.eu
- Dr. Dimitrios Tzovaras – BADGER scientific responsible for the Information Technologies Institute of CERTH, Director of the Information Technologies Institute / Tel.: 2310 257777 / E-mail: dimitrios.tzovaras@iti.gr
- Amalia Drosou – Science Communication - CERTH / Tel.: 2310 498214 / E-mail: amelidr@certh.gr

BADGER website: www.badger-robotics.eu
Twitter: @BADGER_project
LinkedIn: BADGER project