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.
BADGER meets in Madrid
A BADGER meeting was held at the premises of UC3M, in Leganes, during the first week of July 2018, along with the mid-term project review. A series of live demonstrations of preliminary N/M and S/W components of the overall BADGER system were performed by the BADGER partners.

BADGER at the Global Robot Expo
This year’s Global Robot Expo was held in Madrid, on 18-20 April 2018. This has become a fully professional event for all the innovators who want to generate business in robotics. GR EX is also the place for knowledge-sharing with speakers from all over the world taking the stage to discuss the trending matters in the industry. Robotnik had a booth at the Expo to show its technologies and talks and leaflets of BADGER were given to attendees.

BADGER at the National Robotic Days
Robotnik participated at The 2018 National Robotics Conference, which has been organized by the Spanish Automation Committee (CEA), took place in Valladolid in 14-15 June 2018. CEA, through its Robotic Thematic Group (GTROB), promoted these conferences to give visibility and show the activity that takes place in robotics (research, technological transfer, etc). The sessions were open to the participation of the entire scientific community of associations, of consortia, of companies, and of research groups interested in robotics. In this event the last results of national and international projects were presented. Robotnik was showing some robots at the event and BADGER leaflets were given to the attendees.

This issue’s highlight
BADGER WORKSHOP at the ERF 2018
BADGER organized a workshop in the European Robotics Forum 2018 (ERF2018), which was held in Tampere, Finland on 13-15 March 2018, entitled “Intelligent trenchless underground robotic systems”. The aim of the workshop was to present a new robotic domain such as intelligent underground robotics.

The workshop consisted of several slots that presented, on one side, the end-users needs and requirements and advanced industrial technologies in the field, and, on the other side, the new research approaches in autonomous undergoing drilling, inspection and navigation. The presentations were structured in 50-50% industry-academia format and included results and case-studies of different projects, including some undergoing EU ones. In this scope, the project included among others presentations of the H2020, EU-funded projects VAMOS, Hephaestus and Unexim.

BADGER School Talk
The BADGER project and its novel approach towards underground trenchless operations, was introduced to 10-12 year old students, at a school talk that took place on 02/02/2018, in Glasgow, Scotland.

BADGER exhibition at IROS 2018
The BADGER consortium will participate at the exhibition of IROS 2018 with a stand, aiming to exhibit the basic technological advances achieved during the project’s lifespan. Videos, live demos and hardware components from the novel boring underground robot are planned.

BADGER paper at IROS 2018
A paper submitted by CERTH, entitled as: “3D Underground Mapping with A Mobile Robot and a GPR Antenna” has been accepted for oral presentation at IROS 2018, to be held at Madrid, on 1-5 Oct.

BADGER paper at ICCAI 2018

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BADGER at the IEEE SIMPAR 2018 conference

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