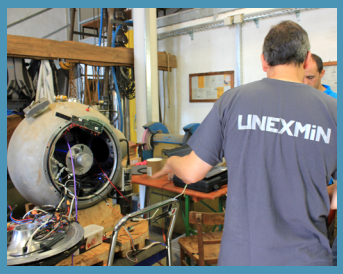
UNEXMIN

UNEXMIN is an EU-funded project that develops a novel robotic system for the autonomous exploration and mapping of Europe's flooded mines. The robotic platform, made by three robots, uses non-contact methods for 3D mine mapping to gather geological, mineralogical and spatial data.

Meet UX-1

UX-1 is the first of its kind: an autonomous robot made with state-of-the-art equipment, capable of collecting data in otherwise inaccessible flooded and confined spaces.



Technical features

- Spherical shape with 0.6m diameter
- Expected weight: 112Kg
- Power consumption: 150-400W
- Thrusters power: 2-5 kgf
- Neutral buoyancy
- Instrumentation: measuring equipment, exploration tools and navigation systems.

Learn more about UNEXMIN!

UX-1 is able to map flooded mines while navigating through confined spaces and obstacles, to create 3D mine models containing also geological data. Water sampling, multispectral imaging and magnetic measurements are some of the tasks the robot can do. It employs state-of-the-art instruments in order to overcome environmental challenges found in flooded underground mines such as navigation, control and autonomy. UX-1 was designed and developed in close collaboration with stakeholders.

The UNEXMIN project aims to demonstrate the operation of the prototype at four pilot sites. The trials at the Kaatiala and Idrija mines are completed and data is being processed and analysed. The next trials are going to be in the Urgeiriça (February 2019) and Ecton mine (May 2019). The final aim is to explore the whole flooded section of Ecton that nobody has seen for the past 160 years!

A research roadmap is being developed to support an open access platform that will be set up to allow technology transfer and further development.

See how the UX-1 works!

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