

ROBOMINERS



Summary:

ROBOMINERS is a project funded under the European Union's Research and Innovation programme Horizon 2020 (grant agreement n°820971). This Project is developing a bio-inspired, modular and reconfigurable robot-miner for small and difficult to access deposits. The aim is to create a prototype robot that is capable of mining underground which will facilitate EU access to mineral raw materials including those that are considered as strategic or critical for the energy transition.

ROBOMINERS' innovative approach combines the creation of a new mining ecosystem with novel ideas from other sectors, in particular with the inclusion of disruptive concepts from robotics. The use of the robot miner will especially be relevant for mineral deposits that are small or difficult to access. This covers both abandoned, nowadays flooded mines, that are not accessible anymore for conventional mining techniques, or places that have formerly been explored but whose exploitation was considered as uneconomic due to the small size of the deposits or the difficulty to access them.

Duration:

1 June 2019-30 November 2023

Objectives:

- 1.- Constructing a fully functional modular robot miner prototype following a bio-inspired design, capable of operating, navigating and performing selective mining in a flooded underground environment.
- 2.- Designing a mining ecosystem of expected future upstream/downstream raw materials processes via simulations, modelling and virtual prototyping.
- 3.- Validating all key functions of the robot-miner to a Technology Readiness Level (TRL) 4.
- 4.- Using the prototypes to study and advance future research challenges concerning scalability, resilience, re-configurability, self-repair, collective behaviour, operation in harsh environments, selective mining, production methods as well as for the necessary converging technologies on an overall mining ecosystem level.

Budget: € 7 445 900,00

Consortium:

- Universidad Politécnica de Madrid (UPM).
- Tampere University (TAU).
- Montanuniversitaet Leoben (MUL).
- Royal Belgian Institute of Natural Sciences (RBINS).
- Associacao Portuguesa dos Industriais de Marmores e Ramos Afins (ASSIMAGRA)
- La Palma Research Centre (LPRC).

- University of Miskolc (UNIM).
- The European Federation of Geologists (EFG).
- Geoloski Zavod Slovenije (GeoZS).
- Resources Computing International LTD (RCI).
- GEO-MONTAN Geologus, Kornyezetvedomegujulo Energetikai Tolmacsforditokft (GEO MONTAN).
- Tallinna Tehnikaulikool (TalTech).
- K-UTEC AG SALT TECHNOLOGIES (KUTEC).
- Polska Akademia Nauk Instytut Gospodarki Surowcami Mineralnymi I Energia (IGSMIE PAN).

Social media:

- Webpage: <https://robominers.eu/>
- Twitter: @robominers
- Facebook: <https://www.facebook.com/robominers>
- LinkedIn: @ROBOMINERSproject
- Instagram: @robominersproject
- Youtube: @robominersproject7542