

ROBOMINERS: Mining Robot Successfully Tested in Estonia

In a ground-breaking development, a state-of-the-art mining robot, developed as part of a European Union-funded project, has achieved remarkable success during testing in Estonia this summer. The ROBOMINERS project, initiated in June 2019, aims to revolutionise the extraction of raw materials, including strategically vital metals essential for the ongoing energy transition, from domestic sources within the European Union.

The ROBOMINERS consortium, comprising 14 partners from eleven European countries, has harnessed cutting-edge technology to create a bio-inspired robot tailored for challenging or relatively small deposits. Given the numerous risks associated with underground mining, the automation of this field is of paramount importance.



RM1 drilling at the test site in Kunda. Credit: J. Aaltonen

The ROBOMINERS prototype boasts a wide array of functions, including navigation, perception, excavation, material transport, and in-line material analysis. Rigorous experiments have yielded detailed insights into the technology's suitability for varying rock conditions, resulting in significant enhancements in its excavation performance.

A demonstration of the full-scale prototype (RM1) took place during the summer of 2023 in an Estonian open-pit mine. This marked a significant milestone in ROBOMINERS' mission to enhance Europe's access to vital mineral resources while reducing dependence on raw material imports.

According to Project coordinator Claudio Rossi, from the Universidad Politécnica de Madrid, *"The trials have been very successful. The fully functional prototype could be tested in a real environment, showcasing its capabilities to a group of invited experts and the press. While not everything worked flawlessly, field testing is essentially about learning and improving. We have gained valuable insights, and further tests will complete the field-testing campaign."*



ROBOMINERS testing and operator.
Credit: A. Ristolainen

The next tests are accordingly scheduled to take place in an underground mine in Slovenia in October. These endeavours will allow to further improve the core functionalities of the mining robot. To continue the success story and enhance the capabilities and core functions of the mining robot, a follow-up project is already in the planning stages.

Further audio-visual coverage of the field trials:

<https://robominers.eu/2023/09/11/robominers-field-trials-in-estonia-audio-visual-coverage/>

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