



ROBOMINERS DELIVERABLE D10.7

PRESS RELEASES AND MEDIA KITS

Update 2 – M36

Summary:





This document describes the actions taken to communicate information about ROBOMINERS to the media. It provides an update of the deliverables submitted in November 2019 and May 2020 (M12).

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1 EXECUTIVE SUMMARY

Since the beginning of the project, different actions have been undertaken to communicate information about the ROBOMINERS project to the media and the general public. In the lapsed 36 months period, three press releases and a media kit have been developed as primary tools to support these activities.

The media kit has been updated alongside the publication of the press releases and broadly disseminated through different channels.

2 PRESS RELEASES

The project consortium has produced three press releases since the project start:

- Press release I – [“EU-funded ROBOMINERS project will improve access to European raw materials by developing a bio-inspired, modular and reconfigurable robot-miner for small and difficult to access mineral deposits”](#) – July 2019 (in English and Spanish; Annex 1);
- Press release II – [“ROBOMINERS defines next steps for the development of its bio-inspired robot-miner”](#) – January 2020 (Annex 2).
- Press release III - [ROBOMINERS researchers test robotic prototype for mineral extraction from deposits that are small or difficult to access](#) – May 2022 (Annex 3).

All press releases can be found and downloaded at <https://robominers.eu/media-corner/>.

The press releases have been disseminated actively by all project partners. A complete record of the dissemination activities is kept and regularly updated regularly. This dissemination data will be presented as part of deliverable *10.8 Report on the public outreach actions* (M54).

According to *D10.2 – Dissemination, communication and social media plan*, press releases are due to be issued approximately every six months. However, the project’s technical work packages were affected by the global COVID-19 pandemic and related restrictions and, therefore, additional releases have been postponed. To overcome this shortcoming, several short social media campaigns have been implemented, displaying the progress of work in the different work packages. It is expected that the foreseen schedule of two press releases per year can from now on be kept until the end of the project.

3 MEDIA KITS

Media kits consist of a pre-packaged set of promotional materials developed and distributed through various media channels for publicity use.

In November 2019, a [media kit](#) for journalists has been designed, which provides media contacts with key information about the project in a single document:

- Press release I;
- ROBOMINERS key facts;
- ROBOMINERS concept image;
- Links for further information;
- Contact persons.

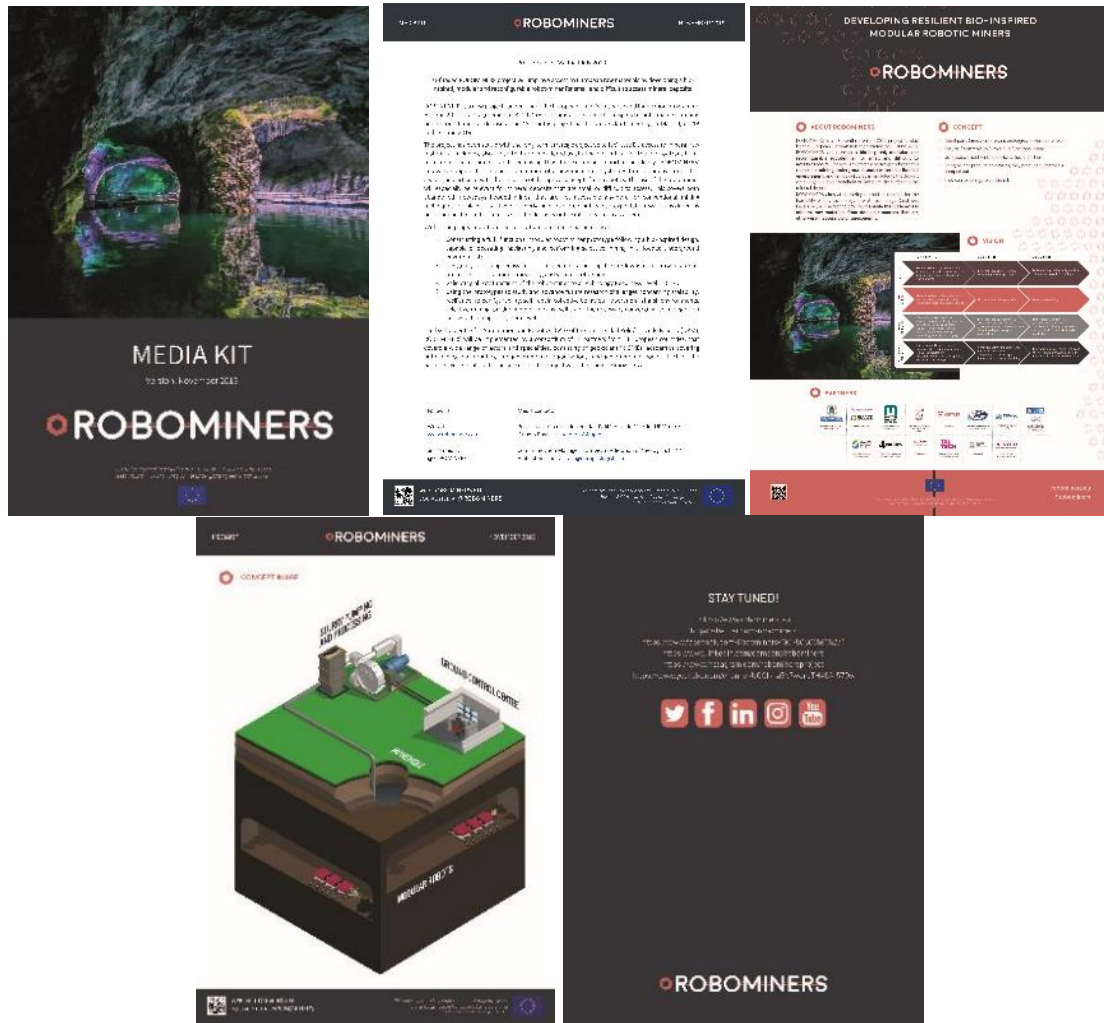


Figure 1: ROBOMINERS media kit – Version I – November 2019.

In March 2020, an animation [video](#) presenting the project concept has been released. The media kit was updated accordingly.



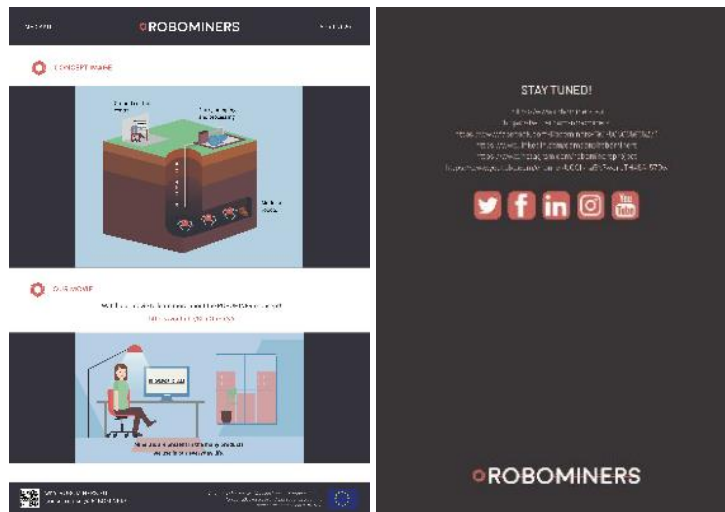


Figure 2: ROBOMINERS media kit – Version II – April 2020.

A [third update](#) of the media kit was prepared in May 2022 and this latest version is currently available on the project website in the section ‘Press corner’, which can be accessed at the following link: <https://robominers.eu/media-corner/>.

Complementary with the media kit, a [brochure](#) and a [poster](#) are also available for download via the website’s ‘Press corner’. These will be further documented in deliverable *10.8 Report on the public outreach actions* (M48).

In May 2022, the media kit was distributed actively to EFG’s list of more than 100 media contacts covering news on mining and robotics.

4 CONCLUSION

Press releases and media kits are considered as a key tool to reach out to the media, the general public and other stakeholders interested in the progress of the ROBOMINERS project. They are essential to extend the project's dissemination efforts. As public outreach is a continuous activity within ROBOMINERS, the elements presented within this deliverable are evolving with time and although no further deliverable update is foreseen until the end of the project, at least 3 more press releases are planned to be issued until month 54.

5 ANNEX 1: PRESS RELEASES

First press release, issued in July 2019, “EU-funded ROBOMINERS project will improve access to European raw materials by developing a bio-inspired, modular and reconfigurable robot-miner for small and difficult to access mineral deposits”:



Press release | Madrid | July 2019

EU-funded ROBOMINERS project will improve access to European raw materials by developing a bio-inspired, modular and reconfigurable robot-miner for small and difficult to access mineral deposits

ROBOMINERS is a new project funded under the European Union’s Research and Innovation programme Horizon 2020 (grant agreement n°820971) which aims at creating a bio-inspired robot capable of mining underground mineral deposits. The 48 months project has held its kick off meeting in Madrid, on 13 and 14 June 2019.

The project has been set up with the long-term strategic objective to facilitate EU access to mineral raw materials - including also those that are considered as strategic or critical for the energy transition - from domestic resources, and decreasing thus the European import dependency. 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.

Within the project duration, the consortium aims more particularly at:

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.

Led by the Centre for Automation and Robotics (CAR) of the Universidad Politécnica de Madrid (UPM), ROBOMINERS will be implemented by a consortium of 14 partners from 11 European countries, that covers a wide range of actors and specialities, consisting of geo-scientific SMEs, academics covering both mining and robotics, non-governmental organisations, and governmental bodies. Each of the partners will contribute to the success of the project with their unique know-how.

<p>Follow us:</p> <p>Website: www.robominers.eu</p> <p>Social media: @ROBOMINERS</p>	<p>Media contact:</p> <p>Project coordinator, Universidad Politécnica de Madrid (UPM-Car): Claudio Rossi - claudio.rossi@upm.es</p> <p>Communication Manager, European Federation of Geologists (EFG): Arita Stein - arita.stein@europegeologists.eu</p>
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This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 820971.



Second press release, issued in January 2020, “ROBOMINERS defines next steps for the development of its bio-inspired robot miner”:



Press release | Tallinn | January 2020

ROBOMINERS defines next steps for the development of its bio-inspired robot miner

On 14 and 15 January 2020, the partners of the EU-funded ROBOMINERS project gathered in Tallinn, Estonia, to discuss the current state of work and define potential scenarios for the robot miner design and application, taking into consideration both economic and political factors such as the need for certain commodities or their criticality in the EU. By developing a bio-inspired robot for mining deposits that are small or difficult to access, ROBOMINERS aims at **facilitating EU access to mineral raw materials** - including those that are considered as strategic or critical for the energy transition - from domestic resources, and thus decreasing the European import dependency.

The first day, the partners updated each other about the progress of their investigations with a focus on the locomotion of the bio-inspired robot, the future miner's design and the robot platform's software. Some of the key aspects involved the robot's water hydraulics, artificial muscles, pressure compensation, the cutter head system and the power system. Towards the end of the project, ROBOMINERS aims indeed at presenting a full-scale prototype which will demonstrate the mining process.

The experts from the robotics community also presented their draft **concept for the robot**, whereas the geology and mining experts came up with a preliminary **selection of mineral deposit types and scenarios** appropriate for the ROBOMINERS technology. Based on a genetic classification of ore types, participants ranked deposits according to the most relevant aspects such as geometry, rock mechanics, stability, extractability and economics. The partners listed different scenarios as well as potential test sites. These scenarios involve ultra-deep deposits; small, non-economic deposits with a minimum surface footprint; hazardous or not accessible environments; and abandoned mines or non-economic parts of operating mines. The final classification of the scenarios and deposit types is expected to be available in spring 2020.

On 15 January, the consortium meeting continued with a **workshop on bio-inspired legged locomotion** where robotic experts from TalTech University and the Universidad Politécnica de Madrid (UPM) shared highlights of their current research considered as relevant for the development of the robot miner. This included the presentation of different bio-inspired robotic concepts and various legged robots and their technical complexity by the TalTech team. Specialists from UPM presented a modular climber robot planned to be used for infrastructure inspections which has a variable number of legs and can reassemble its modules autonomously. The workshop concluded with a presentation by ROBOMINERS coordinator Claudio Rossi on energy efficient legged locomotion.

This highly technical session was followed by an Advisory Board meeting involving external experts from the mining industry, and an interactive roadmapping workshop led by La Palma Research Centre for Future Studies (LPRC). The participants discussed the **2030 and 2050 horizon for ROBOMINERS** in close alignment with the EU policy vision. The input received will be used for further foresight exercises. The meeting concluded with a guided visit at the Centre for Biorobotics of TalTech University.

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 820971*.



Third press release, issued in January 2022, “ROBOMINERS researchers test robotic prototype for mineral extraction from deposits that are small or difficult to access”:



Press release | Brussels | May 2022

ROBOMINERS researchers test robotic prototype for mineral extraction from deposits that are small or difficult to access

During the last week of April, researchers from the Tallinn University of Technology (TalTech, Estonia) and the Royal Belgian Institute of Natural Sciences (RBINS, Belgium) gathered in Han-Sur-Lesse and Ave-Et Auffe (Belgium) for a series of trials with the ROBOMINERS ‘RM3’ prototype. Alongside the RM3 trials which were conducted in an ancient mine gallery, the scientific teams also tested new types of underground 3D geophysical sensors.



The ROBOMINERS RM3 prototype.

The EU-funded [ROBOMINERS project](#) aims at facilitating EU access to mineral raw materials - including those that are considered as strategic or critical for the energy transition - from domestic resources, and thus decreasing the European import dependency. To do so, ROBOMINERS is developing a bio-inspired robot for mining deposits that are small or difficult to access.

The Belgian test site is an [18th-century former baryte and lead mine gallery](#). The exploitation follows a vein-type mineralisation (Mississippi Valley Type deposit) hosted in Mid-Devonian limestones. This type of deposit with a highly concentrated, small-scale vein-type orebody is particularly relevant for ROBOMINERS’ small mining footprint and selective mining abilities.

The ROBOMINERS RM3 prototype is a lightweight (50 kg) locomotion/sensor testing platform built by the TalTech Centre for Biorobotics. Its purpose is the development and testing of ROBOMINERS’ subsystems, including propulsion, localisation, and environmental sensing, in field conditions corresponding to Technology Readiness Level (TRL) 5. In the meantime, a drilling tool which will be mounted on the RM1 prototype is being tested in the lab facilities of the Montanuniversität of Leoben (Austria). The first components of the RM1 robot are being manufactured and tested at Tampere University (TAU, Finland) and robot on-board intelligence is being developed at the Centre for Automation and Robotics (CAR) of the Universidad Politécnica de Madrid (UPM).

The prototype deployed in Belgium was equipped with a four-motor screw locomotion and an innovative “blind” localisation and sensing system: 48 tactile “whiskers” coupled with onboard inertial measurements units. Two miniature reflectance/fluorescence spectrometers completed the setup. A set of depth-cameras (one on the robot and one for robot tracking) were also used for visual localisation and mapping ground-truthing. The prototype and all its sensors are operated under a Robotic Operating System (ROS2) using three onboard computers and two microcontrollers.

In addition to the RM3 tests, underground geophysical measurements methods were also deployed in the mine. The teams used a 3D electrode mesh mounted on an aluminium frame scaled to fit the mine

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Underground geophysical measurements.

gallery and conduct electric resistance (ER) and induced polarisation (IP) tomography measurements. Two electrode designs were tested for bare stone/mud conductivity efficiency.

The trials were a great success, with more than 110 GB of sensor data collected during the campaign on several trial runs outside and inside the mine gallery. The ROBOMINERS teams currently review this data carefully. It will be invaluable to advance robotic designs for extreme mining environments.

To share more information on its research, the ROBOMINERS project is also organising a seminar on [“Innovation in Selective Mining: new trends and technological advances to reduce the environmental footprint of mineral extraction”](#) which will take place on **8 June 2022** in Brussels.

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