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Radai's pioneering research on non-invasive mineral exploration technologies on the European Commission's Innovation Radar!

Independent experts of the European Commission's **Innovation Radar** have ranked the "**Novel electromagnetic (EM) survey system on UAV for mineral exploration**", as a top innovation product with high market potential in the near future.

The Finnish companies Radai together with Loop and Line and the Geological Survey of Finland (GTK) are behind the product's development. Radai is the main developer, GTK has been an active supporter and facilitator in the development.

Recycling of metals and earth minerals in Finland

Finland is considered as one of the world's pacesetters in the domains of nature conservation as well as recycling. In fact, the country boasts one of the world's most efficient recycling methodologies. However, it is also a reality that only a small percentage of the metals and earth minerals that are needed to produce today's advanced communication tools, such as mobile phones, can be covered by recycled materials.

A global leader in the sustainable utilisation of mineral resources

The Finnish government duly recognizes the challenges posed by the growing demand in mineral resources and aims to develop its mining sector by encouraging the use of sustainable solutions. To this effect, the government actively supports the development and use of non-invasive, eco-friendly solutions for mineral resource exploration and exploitation. The Geological Survey of Finland (GTK) considers Finland as "*...a global leader in the sustainable utilisation of mineral resources and the minerals sector is one of the key foundations of the Finnish national economy.*"

Radai's pioneering research

Among the pioneers in the development of eco-friendly, non-invasive geophysical surveys is the Finnish Radai Oy. The company offers precise, high quality geo-mapping surveys through the use of its UAV based geophysical survey technology. Through this in-house developed Unmanned Aerial Vehicle, Radai is in a position to conduct surveys that have a lower carbon footprint compared with any other existing mineral exploration technologies.

Developed in the EU funded Horizon 2020 research project entitled New Exploration Technologies (NEXT), Radai's solution makes it possible to carry out different types of measurements during one single flight.

Radai's UAV carries in-house developed sensors to measure ground surface, soil and bedrock structures. This brings a comprehensive image of the surveyed area, and allows geophysical experts to then determine the most promising areas for mineral exploration. Effectively,

Radai's solution eliminates the need for extensive, long-term and invasive exploration over large areas.



Radai's team prepares for launch of its pioneering drone

Additional applications of Radai's solution

Although developed in the context of bringing to market novel mineral exploration technologies, Radai's technology has already proven to be highly versatile. In fact, a very broad spectrum of environmental monitoring applications such as carbon emissions can be monitored in a very efficient manner. Other applications include the detection of water leaks in dams, or the monitoring of chemically polluted areas, which clearly play a vital role in protecting communities that live nearby. As water has the potential to become a scarce resource even in traditionally water-rich countries, Radai's solution can be used in locating additional water sources.

By using lightweight UAVs, driven by electric motors and, during summer months by solar energy, Radai's technology is not invasive (its small electric motor can be barely heard), has a low carbon footprint and also offers a much reduced cost compared with conventional exploration technologies in the mining sector.

More about NEXT: www.new-exploration.tech

