

Technology for rapid detection of potentially dangerous objects, including unexploded ordnance and mines, using artificial intelligence

Summary

Profile type	Company's country	POD reference
Technology offer	Ukraine	TOUA20230515018
Profile status	Type of partnership	Targeted countries
PUBLISHED	Investment agreement	• World
Contact Person	Term of validity	Last update
Rita Elste - Tomsone	15 May 2023 14 May 2024	15 May 2023

General Information

Short summary

A Ukrainian SME offers technology for detecting potentially dangerous objects, in particular unexploded ammunition and mines, based on pulsating electromagnetic sensing and data processing using artificial intelligence. A quick survey of large areas, high-precision detection of dangerous objects (ammunition, mines), and their marking on maps for further disposal are ensured. The SME is looking for partners and investors for refinement, international certification and use of the technology.

Full description

Today, there are enough territories in the world where, as a result of military conflicts, dangerous zones with possible mines have formed. For example, the estimated size of dangerous areas in Ukraine alone is almost 270,000 km². The Ukrainian SME has developed scanning technology based on pulsating electromagnetic sounding and processing the received data with artificial intelligence (AI) in order to identify all potentially dangerous objects for further demining of the territory.

The prototype of the device that implements the technology has passed the stage of laboratory tests and is now at the stage of field tests.

Experimentally obtained preliminary technical characteristics of the device and technology are:

- The linear speed of moving the prototype is up to 40 km/h when using UAVs at heights of 100-1000 m;
- Detection depth/height: -10 m / +10 m;

- Dimensions of detected objects: from 10 cm and more.

Today, the prototype of the device needs testing in various conditions for self-learning of the neural network. Recording of measurements, calibration, and further certification of the device and technology is required.

Currently, the current cost of demining is approximately 4 USD/m². At a cost of about 1.5 USD/m², the application of the proposed technology and device will allow a quick and cheap survey of large areas (tens of times compared to existing methods), detection with high accuracy in any natural environments with different depths/heights of dangerous objects (ammunition, mines), their designation on maps.

Estimates show a reduction in the time of demining the entire territory of Ukraine, affected by the military aggression of the Russian Federation, from approximately 50 years with the existing methods to several years when using the proposed technology.

The SME is looking for foreign investors and partners to provide rapid calibration testing, international certification of the device and technology, and further sharing.

Advantages and innovations

- Increasing the speed of detection of potentially dangerous objects,
- Reducing the cost of detection,
- High accuracy and reliability: all potentially dangerous objects are detected, of which the AI setting will allow recognizing dangerous objects with a probability of more than 90%;
- Ability to detect potentially dangerous objects in hard-to-reach places - reservoirs, bushes, fields, slopes, hills, forests, etc.

Technical specification or expertise sought

Stage of development

Available for demonstration

IPR Status

IPR granted

Sustainable Development goals

- **Goal 17: Partnerships to achieve the Goal**

Partner Sought

Expected role of the partner

The SME is looking for partners and investors who would be interested in joint work on testing, calibration, and international certification of the device and technology, and further joint commercial use of certified devices for the rapid detection of potentially dangerous objects, in particular unexploded ammunition and mines.

Potential consumers - demining operators; communities and state bodies in Ukraine and abroad, Agro-holdings and farms; manufacturers of agricultural machinery, insurance, and leasing companies.

The preferred form of cooperation is an investment agreement.

Type of partnership

Type and size of the partner

Investment agreement

- SME 50 - 249
- Big company
- SME <=10
- SME 11-49
- University
- R&D Institution

Dissemination

Technology keywords

- 001001006 - High Frequency Technology, Microwaves

Targeted countries

- World

Market keywords

- 03008001 - Military electronics (excluding communications)

Sector groups involved

Media

Images



[The prototype of the device for quick detection of unexploded ordnance and mines.jpg](#)