

Eurostars-3 call 12 partner sought for high-voltage pulse electronics development in autonomous herbicide-free weed control robot

Summary

Profile type

Research & Development Request Denmark

Company's country

POD reference

RDRDK20261001025

Profile status

PUBLISHED

Type of partnership

**Research and development
cooperation agreement**

Targeted countries

• All countries

Contact Person

[**Enrico FRANZIN**](#)

Term of validity

1 Oct 2026**1 Oct 2027**

Last update

1 Oct 2026

General Information

Short summary

A Danish SME developing autonomous robotic solutions for weed management prepares a Eurostars proposal. Aiming to develop and validate an autonomous robot capable of identifying and treating individual perennial weeds through targeted low-energy electrical treatment at root level. The consortium seeks an SME with expertise in battery-powered high-voltage or pulse electronics to lead development of the electrical treatment module and contribute to project implementation and commercialisation.

Full description

The proposed project, THOR, addresses a growing need for sustainable weed control solutions in private gardens and public green spaces where the use of herbicides is increasingly restricted. Perennial weeds such as dandelion, dock, ground elder and creeping thistle frequently regrow from their root systems after mowing or manual removal, creating significant maintenance challenges.

The project will develop an autonomous robotic platform capable of locating individual weed plants and delivering targeted electrical treatment directly to the root zone. The system combines computer vision, artificial intelligence and precision mechatronics. A camera-based detection system identifies the weed and estimates the root location. A thin electrode is then inserted into the soil, where a controlled low-energy electrical treatment is applied. Voltage, current and delivered energy are measured and logged to enable optimisation of treatment parameters. Plants that survive treatment can subsequently be identified and retreated.

Previous research has demonstrated the potential of low-energy electrical treatment for controlling certain weed species, particularly during early growth stages. The THOR project will investigate whether root-targeted electrical treatment can provide lasting control of perennial species and whether the technology can be implemented safely and economically within a compact battery-powered robotic system.

The project aims to advance the technology from approximately TRL 3-4 to TRL 7 over a 30-month period through laboratory development, biological validation, field testing, alpha and beta prototype development, and demonstration activities. The primary target market is private garden owners. Secondary markets include municipalities, landscaping companies and operators of public green areas.

The consortium currently consists of:

- A Danish SME responsible for robotic platform development, navigation, electrode mechanics, system integration, safety architecture and commercialisation.
- A Danish research and innovation organisation responsible for artificial intelligence, weed identification and treatment-point localisation.
- A Swedish research organisation with extensive experience in electrical weed control, responsible for biological validation and field trials.

The consortium is seeking an additional SME partner from an eligible Eurostars country other than Denmark. The partner will lead the development of the electrical treatment module and play a central role in the project. The work includes development of a battery-powered high-voltage pulse generation system, electrode subsystem, electrical interface, voltage and current measurement systems, delivered-energy monitoring, dosage control and electrical safety functions. The partner will also participate in early experimental activities together with the Swedish research organisation to determine optimal electrode positioning, insertion depth and treatment dosage.

The project will be submitted to Eurostars-3 Call 12 with a call deadline of 4 March 2027. The consortium aims to identify a suitable partner by December 2026 in order to finalise budgets, work packages and consortium arrangements before proposal submission.

Advantages and innovations

Technical specification or expertise sought

Stage of development

Under development

Sustainable Development goals

- **Goal 15: Life on Land**
- **Goal 12: Responsible Consumption and Production**
- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 2: Zero Hunger**

IPR Status

IPR Notes

Partner Sought

Expected role of the partner

The consortium seeks an SME established in a Eurostars-eligible country other than Denmark. The partner should possess documented expertise in battery-powered high-voltage systems and/or pulse electronics. Relevant experience may include electrical weed control equipment, pulsed electric field technologies for food or biotechnology applications, electroporation systems, pulse power systems or related high-voltage devices.

The selected partner is expected to:

- Lead the development of the electrical treatment module.
- Design and validate pulse generation electronics, measurement systems and safety architecture.
- Contribute significantly to project implementation and budget allocation.
- Participate in experimental optimisation activities together with biological validation partners.
- Co-develop the treatment tool with the existing consortium.
- Support future commercial exploitation of the technology through module supply, licensing arrangements or related business models

Experience in electrical weed control, agricultural technology, CE compliance, electrical safety, intellectual property development and previous Eurostars or EU-funded projects would be considered advantageous.

The consortium offers the partner a concrete autonomous robotics application for its technology, access to advanced AI-based weed detection capabilities, independent biological validation, and the opportunity to establish a supplier or licensing position in a future commercial product platform. Existing intellectual property owned by the partner will remain the partner's property.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **SME <=10**
- **SME 11-49**
- **SME 50 - 249**

Call Details

Framework program

Eureka

Call title and identifier

Eurostars-3 call 12

Submission and evaluation scheme

Anticipated project budget

Coordinator required

No

Deadline for EoI

15 Dec 2026

Deadline of the call

4 Mar 2027

Project duration in weeks

Web link to the call

Project title and acronym

THOR

Dissemination

Technology keywords

- **01001001 - Automation, Robotics Control Systems**
- **07001001 - Agriculture Machinery / Technology**
- **07001007 - Precision agriculture**

Targeted countries

- **All countries**

Market keywords

- **09005 - Agriculture, Forestry, Fishing, Animal Husbandry & Related Products**
- **08002004 - Robotics**

Sector groups involved

- **Agri-Food**