

A Croatian Agri-tech SME is seeking R&D partners to collaboratively develop and validate a modular, autonomous electric field robot designed for sustainable and precision agriculture

Summary

Profile type

Research & Development Request Croatia

Company's country

POD reference

RDRHR20260922007

Profile status

PUBLISHED

Type of partnership

**Research and development
cooperation agreement**

Targeted countries

• All countries

Contact Person

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Term of validity

1 Oct 2026**1 Oct 2027**

Last update

1 Oct 2026

General Information

Short summary

A Croatian Agri-tech SME is preparing an R&D project focused on the further development and validation of a modular, autonomous electric field robot for mechanical weed control, field data collection, and precision agriculture. The company is seeking collaboration with technology firms, universities, and research institutions that possess expertise in agricultural robotics, autonomous navigation, sensing, AI, machine vision, and field validation.

Full description

A Croatian Agri-tech SME is developing a modular autonomous electric field robot platform intended for small and medium-sized agricultural operations, with an initial focus on vegetable production and orchards.

The existing platform is based on a lightweight unmanned ground vehicle with electric propulsion, autonomous navigation and modular interfaces for different agricultural functions. Its primary application is mechanical weed and grass control without herbicides. Prototype vehicles have already been developed and tested in field conditions, while the technology remains under further development.

The proposed R&D project would focus on increasing the technological maturity and functionality of the platform through further research, development, integration and field validation.

Planned R&D areas may include:

- improved autonomous navigation, localisation and obstacle detection in agricultural environments;
- computer vision and AI-supported crop and weed recognition;
- integration of soil, crop and environmental sensors;
- real-time collection, processing and interpretation of agricultural field data;
- development of modular robotic tools and agricultural implements;
- optimisation of electric propulsion, battery management and energy efficiency;
- development and validation of precision agriculture applications;
- testing of the platform under different crops, terrain conditions and agricultural environments.

The project would build on the existing autonomous vehicle platform rather than starting from a conceptual stage.

The objective is to integrate complementary technologies, validate new functionalities under real operating conditions and prepare the platform for higher technological readiness and future commercial deployment.

The Croatian SME would contribute the existing robotic platform, autonomous vehicle development experience, mechanical and electrical engineering capabilities, embedded systems, software development and practical agricultural know-how.

The company is seeking international partners able to contribute complementary R&D capabilities. Potential partners may include technology companies, universities, research institutions and agricultural organisations active in agricultural robotics, autonomous systems, machine vision, artificial intelligence, sensing technologies, precision agriculture, electric mobility or experimental field validation.

The cooperation is envisaged under a research and development cooperation agreement. Partners would jointly define project tasks, contribute their specific technologies and expertise, participate in prototype development and integration, perform testing and validation activities and contribute to the preparation and implementation of the selected European R&D project.

The final funding programme, call conditions, consortium structure, project duration and deadlines will be defined according to the selected European research and innovation funding opportunity.

Advantages and innovations

The proposed R&D project builds on an existing field-tested autonomous electric agricultural platform rather than a purely conceptual technology.

The main innovative elements include:

- lightweight autonomous electric vehicle architecture designed specifically for small and medium-sized farms;
- mechanical weed control without herbicides;
- modular platform allowing integration of different agricultural tools, sensors and digital technologies;
- combination of autonomous field operations and continuous agricultural data collection;
- potential integration of machine vision and AI for crop, weed and environmental analysis;
- integration of field sensors for soil, crop and environmental monitoring;
- capability to serve as a mobile platform for multiple precision agriculture applications;
- reduced dependence on large tractors and labour-intensive field operations;
- potential reduction of soil compaction due to lightweight vehicle architecture.

The R&D approach aims to transform the existing robotic platform into a broader autonomous precision agriculture system capable of performing physical field operations while simultaneously collecting and processing agricultural data.

Technical specification or expertise sought

The potential partner should contribute one or more of the following capabilities:

- autonomous navigation, localisation, path planning and obstacle detection;
- agricultural robotics and autonomous field vehicles;
- computer vision and crop/weed recognition;
- artificial intelligence and machine learning for agricultural applications;
- soil, crop and environmental sensing technologies;
- embedded systems and robotic control;
- electric propulsion, battery management and energy optimisation;
- development of modular agricultural implements;
- precision agriculture and decision-support technologies;
- field testing and validation under different crops and agricultural environments.

Partners may contribute hardware, sensors, software, algorithms, research methodologies, experimental infrastructure or agricultural expertise.

The partner should be willing to participate actively in the preparation of the selected European R&D proposal, define its project tasks and budget, and contribute to joint development and validation activities.

Stage of development

Under development

Sustainable Development goals

- **Goal 12: Responsible Consumption and Production**
- **Goal 2: Zero Hunger**
- **Goal 13: Climate Action**

IPR Status

Secret know-how

IPR Notes

IPR Notes

Partner Sought

Expected role of the partner

The partner is expected to join a research and development cooperation agreement for a European collaborative R&D project. A technology company may contribute autonomous navigation systems, sensors, computer vision, AI algorithms, embedded electronics, electric mobility components, or specialized agricultural technologies suitable for integration into the robotic platform. A university or research institution can provide research expertise, develop algorithms and methodologies, conduct laboratory or field validation, design experiments, evaluate performance, and support scientific dissemination.

An agricultural research or pilot partner may offer experimental fields, crop-specific expertise, access to farmers, and practical validation of the solution under real-world agricultural conditions. An Agri-tech partner might contribute specialized agricultural modules, precision agriculture technologies, sensor systems, or complementary digital solutions.

Partners are expected to collaboratively define technical requirements, participate in system integration and prototype development, conduct testing and validation activities, and assist in preparing and implementing the project proposal.

The overall goal of this cooperation is to enhance the technological maturity of the autonomous agricultural platform, validate additional functionalities across diverse agricultural environments, and prepare the technology for future commercial deployment.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

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

Call Details

Framework program

Horizon Europe

Call title and identifier

Call 03 - single stage (2027) (HORIZON-CL6-2027-03) - Strengthening the resilience of European farmers through improved capacity in coping with risks and crises

Submission and evaluation scheme

Anticipated project budget

Coordinator required

No

Deadline for EoI

12 Mar 2027

Deadline of the call

11 May 2027

Project duration in weeks

Web link to the call

Project title and acronym

Dissemination

Technology keywords

- **02009002 - Hybrid and Electric Vehicles**
- **01001001 - Automation, Robotics Control Systems**
- **07001007 - Precision agriculture**
- **02009008 - Navigation and embedded systems**
- **07001001 - Agriculture Machinery / Technology**

Targeted countries

- **All countries**

Market keywords

- **09005 - Agriculture, Forestry, Fishing, Animal Husbandry & Related Products**
- **02006004 - Data processing, analysis and input services**
- **08002002 - Industrial measurement and sensing equipment**
- **08002005 - Machine vision software and systems**
- **08002004 - Robotics**

Sector groups involved

- **Aerospace and Defence**
- **Digital**