

# Turkish company developing technology-oriented indoor vertical farming system components seeks R&D and commercial cooperation partners

## Summary

Profile type

**Research & Development Request**

Company's country

**Türkiye**

POD reference

**RDRTR20251021008**

Profile status

**PUBLISHED**

Type of partnership

**Research and development  
cooperation agreement**

Targeted countries

- **Netherlands**
- **Italy**
- **Finland**
- **Spain**
- **Sweden**
- **France**
- **Norway**
- **Switzerland**
- **Romania**
- **Bulgaria**
- **Greece**
- **Ukraine**
- **Hungary**
- **United Kingdom**

Contact Person

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Term of validity

**21 Oct 2025****21 Oct 2026**

Last update

**21 Oct 2025**

## General Information

Short summary

A Turkish engineering company has developed advanced indoor vertical farming system components integrating IoT, AI and automation technologies. The system enables efficient, sustainable, and scalable crop production in closed environments. The company seeks R&D and commercial cooperation for further development and international deployment.

#### Full description

A Turkish engineering and R&D company specialized in smart agriculture, automation, and sustainable technologies has developed a new generation indoor vertical farming system designed for high-efficiency, data-driven crop production in controlled environments.

The system integrates IoT-based sensors, AI-driven control algorithms, and automated irrigation and lighting modules to optimize resource use and plant growth cycles. It supports multiple cultivation methods — including hydroponic, aeroponic, and NFT (Nutrient Film Technique) systems — and can be configured for various plant species such as lettuce, basil, saffron, microgreens, and fodder crops.

The technology consists of both hardware and software components developed in-house:

- Multi-layer cultivation racks with integrated irrigation and LED lighting
- Smart environmental control units (temperature, humidity, CO<sub>2</sub>, and nutrient balance)
- Cloud-based monitoring and automation software with AI-supported decision modules
- Data analytics dashboard for yield optimization and predictive maintenance
- Modular, scalable architecture suitable for both urban and industrial applications
- The system provides measurable benefits compared to traditional farming:
  - Up to 90% water savings and zero soil dependency
  - Continuous year-round production independent of climate conditions
  - Reduced carbon footprint through renewable energy integration
  - Enhanced crop quality and consistency through precise environmental control
  - Scalable installation models, from small R&D labs to industrial-scale facilities

The company has successfully implemented pilot applications in restaurant supply chains and research institutions, and is currently expanding towards commercial production facilities. The firm holds full intellectual property rights of the developed system and is open to co-development, adaptation, and commercialization agreements.

The company is seeking R&D cooperation partners (universities, research centers, or agri-tech firms) for further development of automation, AI-based growth modeling, and energy optimization modules, as well as commercial partners or distributors interested in integrating or marketing the technology in Europe and other regions.

Potential cooperation types include:

- Research cooperation agreement for joint R&D or Horizon Europe projects
- Commercial agreement with technical assistance for system adaptation or localization
- Technical cooperation for integration with smart city, agri-tech, or climate innovation projects

With a strong engineering background and proven experience in national and international R&D programs, the company aims to expand its sustainable indoor agriculture ecosystem globally through strategic partnerships and technology transfer opportunities.

#### Advantages and innovations

The developed indoor vertical farming system offers a unique combination of robotic automation, AI-based control, and modular engineering that distinguishes it from conventional greenhouse or hydroponic solutions. Its core innovation lies in the integration of smart technologies into a closed-loop, data-driven agricultural ecosystem adaptable to various scales and climates.

Key advantages include:

**Precision control and optimization:** Real-time AI algorithms continuously adjust irrigation, lighting, and climate parameters based on sensor data to maximize yield and reduce resource waste.

**Energy and water efficiency:** The system achieves up to 90% water savings through recirculating hydroponic and aeroponic irrigation, and integrates renewable energy systems such as solar panels for sustainable operation.

**Multi-crop flexibility:** The modular design supports the cultivation of leafy greens, herbs, saffron, mushrooms, and microgreens, allowing producers to diversify crops according to market demand.

**Scalable architecture:** From compact 20 m<sup>2</sup> modular units to industrial facilities of 1,000 m<sup>2</sup> or more, the same technology stack can be deployed flexibly depending on available space and investment level.

**Advanced automation and remote management:** All subsystems (irrigation, lighting, air circulation, nutrient dosing, data logging) are centralized in a single AI-supported software platform accessible via web and mobile interfaces.

**High productivity and year-round operation:** The system ensures consistent production cycles independent of weather conditions, delivering stable supply for restaurants, research institutions, and food industries.

**Environmental sustainability:** Zero soil usage, reduced CO<sub>2</sub> emissions, and controlled nutrient cycles contribute to urban sustainability and food security.

This technology not only improves agricultural productivity but also represents a new model for climate-resilient urban food production, combining engineering precision, environment

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#### Technical specification or expertise sought

The company is seeking partners with technical expertise in agricultural automation, artificial intelligence, environmental monitoring, and energy-efficient system design to further enhance and scale its indoor vertical farming technology.

Specific areas of interest include:

**AI and Machine Learning:** Development of predictive growth algorithms, anomaly detection systems, and adaptive control models for optimizing plant growth conditions.

**Sensor Integration and IoT:** Collaboration for next-generation environmental and nutrient sensors and wireless data transmission modules compatible with industrial standards

**Renewable Energy and Power Management:** Expertise in integrating solar or hybrid energy systems, battery management, and low-power automation circuits for off-grid or semi-autonomous operation.

**Material and Structural Engineering:** Support in improving mechanical design, corrosion-resistant materials, and cost-efficient modular structures suitable for urban and rural deployments.

**Software and Cloud Infrastructure:** Cooperation for enhancing the existing cloud-based monitoring platform, including dashboard analytics, user interfaces, and data visualization for remote farm management.

**Automation and Robotics:** Co-development of robotic planting, harvesting, and maintenance modules to increase labor efficiency and production accuracy.

Sustainability and Certification Expertise: Collaboration on sustainability assessment, lifecycle analysis and alignment with EU Green Deal and SDG-related certification frameworks.

The company welcomes cooperation with universities, R&D centers, and technology-oriented SMEs interested in co-developing or integrating complementary innovations. Partners with experience in EU-funded projects (such as Horizon Europe, Eurostars, or EUREKA) may participate in joint research activities, pilot validations, or market expansion initiatives.

#### Stage of development

**Lab tested**

IPR Status

**Secret know-how**

IPR Notes

#### Sustainable Development goals

• **Goal 2: Zero Hunger**

## Partner Sought

#### Expected role of the partner

**Expected Role of the Partner** The company is seeking small and medium-sized enterprises (SMEs) with technical expertise, production capability, or market access to collaborate on the further development, validation, and commercialization of its indoor vertical farming technologies. Expected roles of SME partners include: Technical collaboration: Contributing to the improvement of automation, IoT, and AI-based control modules, as well as adapting system components for different crops or production scales. Prototype validation: Hosting pilot installations, testing system performance under local environmental and operational conditions, and providing feedback for optimization. Production and supply cooperation: Manufacturing or assembling mechanical, electronic, or software components of the system according to agreed technical specifications. Commercial cooperation: Acting as local distributors, integrators, or service providers for installation, maintenance, and user training in domestic or international markets. Joint R&D participation: Partnering in funded innovation projects (e.g. Horizon Europe, Eurostars, EUREKA) focusing on smart agriculture, sustainability, or food technology. SME partners are expected to have experience in agricultural technologies, automation, electronics, or renewable energy systems, and an interest in expanding into the sustainable indoor farming sector. The cooperation will be based on mutual benefit, with clear roles defined for technical development, production partnership, and market expansion, depending on each SME's expertise and regional presence.

#### Type of partnership

#### Type and size of the partner

**Research and development cooperation agreement**

- SME  $\leq 10$
- SME 11-49
- University
- SME 50 - 249

## Call Details

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Framework program

**Eureka**

Call title and identifier

**Eurostars 2026 March call**

Submission and evaluation scheme

Anticipated project budget

Coordinator required

**No**

Deadline for EoI

**9 Mar 2026**

Deadline of the call

**9 Mar 2026**

Project duration in weeks

Web link to the call

Project title and acronym

## Dissemination

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Technology keywords

- **01003025 - Internet of Things**

Market keywords

- **03008004 - Other electronics related (including alarm systems)**

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Sector groups involved