EIG CONCERT-Japan: AI-Powered, Energy-Aware Autonomous Navigation for Real-World Robotics

Summary

Profile type
Research & Development Request

Company's country
Spain

POD reference
RDRES20260525002

Profile status
PUBLISHED

Type of partnership
Research and development cooperation agreement

Targeted countries
- **France**
- **Italy**
- **Poland**
- **Japan**
- **Sweden**
- **Germany**
- **United Kingdom**

Contact Person
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Term of validity
25 May 2026
25 May 2027

Last update
25 May 2026

General Information

Short summary

A Spanish University researcher seeks partners for the EIG CONCERT-Japan call. They have a working 1/14 autonomous car prototype. The project will research energy-aware AI (optimizing battery vs AI demands) and robust multi-sensor perception for variable environments. They aim to scale this technology for diverse real-world robotics applications (such as logistics or smart environments). They seek hardware, software, and use-case partners. They offer to coordinate but can also join as partners.

Full description

Autonomous robotic systems face critical challenges in real-world applications: heavy battery consumption due to AI processing and operation under variable lighting. The Spanish researcher (Dept. of Informatics, University of Oviedo) has successfully developed a lab-tested prototype: a 1/14 scale autonomous vehicle driven by Computer Vision. Currently, the car can autonomously navigate closed circuits, successfully handling curves, roundabouts, line-following, and automated parking maneuvers.
This proposed project aims to scale their AI-driven software layer into larger robotic platforms (e.g., AGVs, UGVs, drones) for diverse real-world applications requiring robust, long-range, and efficient autonomous navigation, and disaster response, among others.
The core objectives of the joint project are:
1. Green Computing / Energy-Aware Robotics: The project aims to research and develop algorithms that dynamically adjust AI computing demands based on the robot real-time battery status and speed.
2. Robust Environmental Perception: Instead of relying on a single sensor type, the project will explore adaptable multi-sensor integration to train Machine Learning models capable of robust path detection under highly variable real-world conditions (indoor/outdoor, day/night).
They are proposing this as a Coordinator but are fully open to integrating their software, data science, and IoT expertise into another consortium as a partner.

Advantages and innovations

The primary proposed innovation lies in researching an "Energy-Aware AI" approach. Traditional autonomous systems process data at constant, high rates, draining batteries. The project's goal is to develop a dynamic trade-off system that intelligently scales down AI processing when the environment is safe, preserving battery life for extended missions.
Secondly, their existing lab-tested prototype (1/14 scale car) drastically reduces the project's initial risks, as the baseline autonomous navigation algorithms using Computer Vision are already solved.
Finally, by keeping the sensor suite open and adaptable, the resulting AI models will be highly flexible, ensuring they can be deployed across different robotic hardware platforms and variable real-world conditions.

Technical specification or expertise sought

Expertise in robotic hardware manufacturing/integration (platforms like AGVs/UGVs/Drones), software development (cloud, backend, specific AI integration), or end-users offering real-world testing environments (e.g., smart factories, logistics, emergency services).

Stage of development

Available for demonstration

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 13: Climate Action**
- **Goal 11: Sustainable Cities and Communities**

IPR Status

No IPR applied

IPR Notes

IPR Notes

Partner Sought

Expected role of the partner

- Partner 1 (Japan): Provide robotic hardware platforms, complementary software development, or specific real-world use cases.
- Partner 2 (Europe): Provide testing environments for validation, complementary IoT/Cloud infrastructure, or software development expertise.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **University**

Call Details

Framework program

Access to finance

Call title and identifier

EIG CONCERT-Japan 13th Joint Call: AI-Powered Robotics for Real-World Applications

Submission and evaluation scheme

Single-stage evaluation

Anticipated project budget

450,000 EUR

Coordinator required

No

Deadline for EoI

30 Jun 2026

Deadline of the call

22 Jul 2026

Project duration in weeks

156

Web link to the call

https://concert-japan.eu/open-call/2026/

Project title and acronym

AI-Powered, Energy-Aware Autonomous Navigation for Real-World Robotics (AIE-Drive)

Dissemination

Technology keywords

- **02009012 - Automotive engineering**
- **04001003 - Storage of electricity, batteries**
- **01003003 - Artificial Intelligence (AI)**
- **01003025 - Internet of Things**
- **01003012 - Imaging, Image Processing, Pattern Recognition**

Market keywords

- **08002004 - Robotics**
- **08002005 - Machine vision software and systems**
- **08002001 - Energy management**
- **09001005 - Motor vehicles, transportation equipment and parts**
- **02007016 - Artificial intelligence related software**

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Sector groups involved