PAL

COLLABORATIVE PROJECTS

Enhancing People's Quality of Life through Service Robotics

BARCELONA | 2025

PAL

Welcome to PAL Robotics, where the future is being reimagined every day.

At the heart of our innovation is a commitment to co-create a better, more efficient, human-centered future.

20 years
FOUNDED IN 2004

+100
TEAMPLAYERS

90%
ENGINEERS & PHD'S

Barcelona

Toulouse

Bari

Who we are

Associations we are part of

Francesco Ferro
Industry Director & Treasurer

Francesco Ferro
Industry Robotics Director

Francesco Ferro
Board Director

Francesco Ferro
Board Director

Francesco Ferro
Chair IFR Service Robot Group

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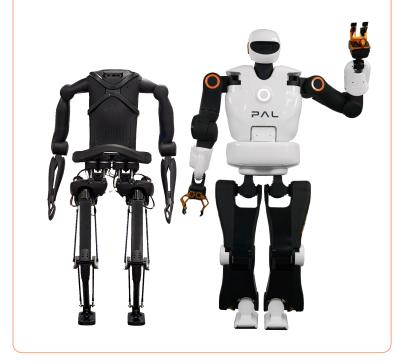# Mobile Interaction

RESEARCH | INDUSTRY | HEALTHCARE

ARI & TIAGo
Products and services
for industry & research.

Legged

RESEARCH | UNIVERSITIES

Humanoid service platforms
for state-of-the-art research.

Intralogistics

INDUSTRY | RETAIL | HEALTHCARE

Platforms for automating
transportation of goods,
inventory robots.

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Our Expertise

Navigation

SLAM
Navigation
Localization

Software

DevOps
Continuous integration
Perception

Embedded

Motor & Sensor
Control boards
Connectivity

HRI

Social AI
Human Perception
Interaction Design

Control

Real Time
Manipulation
Walking

Electronics

Firmware
Sensor boards
Integration

Mechanics

Bio-inspired
and actuation designs
Integration

Ad-Hoc Projects

Flexibility
Adaptation
Customized solutions

Support

Training sessions
Technical assistance
SW Integration

Community

Collaboration
Open Source
Dissemination & Events

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Collaborative Projects

We cooperate with other European partners in order to boost innovation in several fields through more than 25 EU-funded projects.

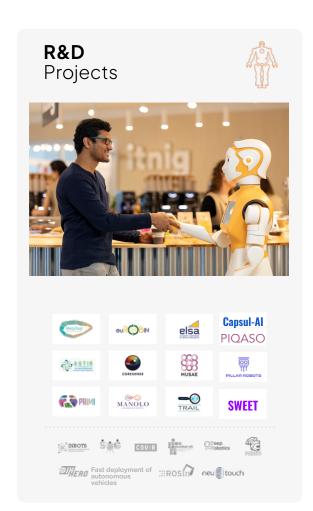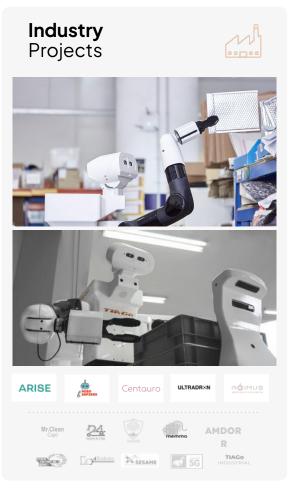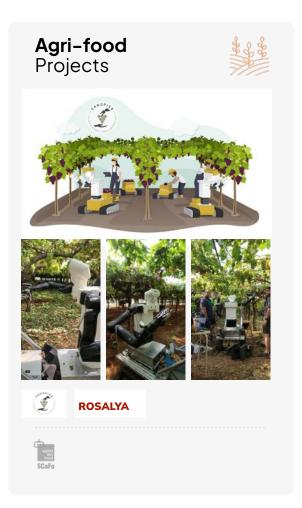**Horizon Europe / Eureka / FSTPs / CDTi / Spanish Ministry**

AGENCIA ESTATAL DE INVESTIGACIÓN | eurostars | MINISTERIO DE INDUSTRIA Y TURISMO | CDTI | HORIZON EUROPE | European Innovation Council

R&D Projects

MetaTool · euROBIN · elsa · Capsul-AI · PIQASO
ARTIR · CORESENSE · MUSAE · PILLAR ROBOTS
PRIMI · MANOLO · TRAIL · SWEET

INBOTS · SPS · COVR · eurobench · Deep Robotics · PERSEO
EUT HERO · Fast deployment of autonomous vehicles · ROSIN · neu touch

Healthcare Projects

NHoA Never Home Alone · IROPER · RAADiCal · Σ eureka eurostars iCaLo

RobMoSys · SOCRATES · SACRo · EUT HERO SANDRO · SHAPES · sale_ly
growmeup · MR.CLEAN · ENRICH me · ALMI · eurostars · SPRING

Industry Projects

ARISE · ROBO SAPIENS · Centauro · ULTRADRxN · AGIMUS

Mr.Clean Cupó · 24 factory 4 a Tap · SAGRO · memmo · AMDOR R
5G · Co4Robots · SESAME · 5G · TIAGo INDUSTRIAL

Agri-food Projects

CANOPIES · ROSALYA

SCaFo

USE CASE EXAMPLES

SUSTAINABLE DEVELOPMENT GOALS

Healthcare & Social Robots

Social Robotic Applications to Support Active and Healthy Ageing

3 GOOD HEALTH AND WELL-BEING

8 DECENT WORK AND ECONOMIC GROWTH

17 PARTNERSHIPS FOR THE GOALS

Routine Care Automation

Medication delivery, vitals monitoring, and room sanitization | Frees human staff for higher-value care

Emotional Support

Robots engage with patients, especially elderly or isolated individuals, to provide companionship

Object Manipulation

Robots help patients or caregivers by retrieving objects, assisting in feeding, or repositioning items

Logistics and Delivery

AMRs transport medical supplies, lab samples, or meals improving efficiency and hygiene

AI Powered Personalized Care

Integrate AI to our social robots to adapt robot interactions to patient history and preferences

Healthcare and Social Robots

HIGHLIGHTED PROJECTS

SAFE–LY Project
Enhancing patient safety in healthcare settings through assistive robotics.

SPRING Project
Adaptation of Socially Assistive Robots, with the ability to distinguish multi-person interactions and have an open and extensive dialogue.

ALMI Project
Domestic support for patients with mild cognitive impairment (MCI) or at early dementia (Alzheimer Disease-AD) stages.

SHAPES Project
Solutions for assistive robots with pilots in care homes for healthy and active ageing.

SANDRo Project
Robotic assistance for delivering goods, as a supplier, for entertainment, tele-assistance and remote client monitoring (sound & video).

Building and integrating trustworthy and human-centric robot assistants that improve people's quality of life

DEMOS

USE CASE EXAMPLES

Robotic Application to Optimize Food Processing and Precision Farming

Agri-Food Robots

SUSTAINABLE DEVELOPMENT GOALS

| 2 ZERO HUNGER | 8 DECENT WORK AND ECONOMIC GROWTH | 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE | 17 PARTNERSHIPS FOR THE GOALS |

Precision Farming

Cameras, sensors, and AI are used for **selective harvesting of crops**. Picking without damaging fruit and working closely with humans

Pruning & Maintenance

Automated pruning of high-value crops, reducing manual labor and improving consistency of cuts

Food Transportation

AMRs move packaged goods and raw materials **between workstations.** Improves hygiene and workflow efficiency

Cold Storage & Distribution

AMRs move goods inside **temperature-controlled warehouses** Reduces exposure and enhances supply chain tracking

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Agriculture and Food Robotics Projects

Improving productivity and working conditions for farmers and workers, while optimizing agri-food processes through service robotics

DEMOS

HIGHLIGHTED PROJECTS

Canopies Project
This project addresses the challenges of Human-Robot interaction and collaboration in permanent crops like vineyards.Creating a mobile robotic platform for a collaborative paradigm in the field of precision agriculture

SCaFo Project
Fleet of AMRs to perform food transportation tasks in the unstructured and dynamic industry of food processing. A project created in the context of the digital transformation of the agri-food sector in Europe

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Mobile Robots to Support the Optimization of Industrial Processes

Industry Robots

SUSTAINABLE DEVELOPMENT GOALS

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

17 PARTNERSHIPS FOR THE GOALS

Human-Robot Collaboration

Robots explore **safe collaboration** with humans in research environments to develop collaborative workflows

Construction & Infrastructure

Robots are used in pilot projects to explore **robotic assistance, on site inspection and task coordination** for industrial facilities

Intralogistics Automation

AMRs transport bins, tools, or goods across factory floors, improving **internal logistics** and reducing manual load

Quality & Safety Research

AMRs are used to monitor environments, assist in data capture, and help in testing **safe integration protocols** for robots working in human-shared spaces

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Mobile Robots to Support the Optimization of Industrial Processes
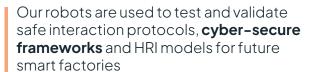
SUSTAINABLE DEVELOPMENT GOALS

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

17 PARTNERSHIPS FOR THE GOALS

Industry Robots

Cybersecurity & HRI Validation

Our robots are used to test and validate safe interaction protocols, **cyber-secure frameworks** and HRI models for future smart factories

AI-Driven Task Exploration

Our Robots serve as platforms for developing and validating **AI algorithms and GEN-AI** for tasks in industrial environments: **object recognition, navigation in dynamic layouts and process monitoring**

Autonomous Inventory Management

StockBot is used in industrial and retail environments to **scan and record shelf inventory** - Navigates ailes, scans barcodes and RFID Tags, and sends reports, improving **accuracy** in your stock

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Industry and Intralogistics Robots

HIGHLIGHTED PROJECTS

ARISE Project
Expanding industrial HRI across Europe by developing Agile HRI, an open-source middleware that enhances efficiency, sustainability, and human-centric collaboration.

AGIMUS Project
Deliver an open-source AI-driven innovation for agile production, enhancing robotics in perception, planning, and control for fast setup, autonomy, and adaptability.

SESAME Project
Developing advanced technologies that will deliver an open, modular, configurable, model-based approach for the systematic engineering of dependable multi-robot systems.

CyberFactory#1 Project
Cybersecurity and learning by demonstration for robots to promote optimisation and resilience of the Factories of the Future (FoF)

COVR Project
Protocols to reduce the complexity in safety certifying cobots in retail. This project aids the progression of robots operating in crowded spaces with lots of people.

Building collaborative mobile robots to work directly alongside humans to improve both productivity and working conditions

DEMOS

PAL

R+D
Robots

USE CASE EXAMPLES

Robotic Platforms to Enhance your Research Projects

SUSTAINABLE DEVELOPMENT GOALS

| 4 QUALITY EDUCATION | 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE | 17 PARTNERSHIPS FOR THE GOALS |

Co-creating the Future of Robotics and Sharing Innovation

Our reliable and **cutting-edge** humanoid and mobile robots help **boosting R&D projects** providing the best robotic companion and the engineering services to have the right tools in your research.
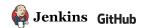
Our Robots work with:

ROS2   ubuntu
GAZEBO   MoveIt   The Orocos Project *Smarter control in robotics & automation!*
Jenkins   GitHub   GitLab   OpenCV   pcl

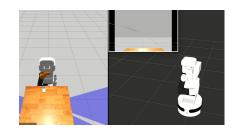## Open Source and Customizable Robots

- Fully ROS-compatible robots where you can install your own packages, drives and controllers.

- Open-source libraries for simulation, control and perception.

- Hardware and software adaptation.

Open Software
Use your own packages, drivers and controllers

Open source simulation for Gazebo:
URDF models **/** Controllers **/** Tutorials

Available on *TIAGo ROS Wiki*

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Research & Development Robots

HIGHLIGHTED PROJECTS

PIQASO Project
Deliver a fully operational and optimized platform-as-a-service solution that implements an ensemble of quantum-safe cryptographic algorithms.

OpenDR Project
Deep learning open source toolkit to provide advanced perception and cognition abilities in robotics.

PRIMI Project
Merges neuroscience, psychology and AI to develop advanced, socially interactive robots to be tested in stroke rehabilitation to enhance precision, speed, safety.

PILLAR Project
Purpose acquisition and learning of skills and models by the robot for purpose-related deliberative and reactive decision processes.

euROBIN Project
European ecosystem of robots that share data and knowledge to jointly learn to perform tasks in human environments.

Creating the best robots, components and tools to boost your research project to the next level

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EU Projects
Committed to the growth of the projects we participate in

THE PROCESS:

01.
Scouting Call

Calls to evaluate the alignment with potential project ideas.

02.
Concept Ideation

Defining the concept for the project that aligns with EU priorities.

03.
Proposal Redaction

Drafting and refining proposals' narratives to align with EU requirements.

04.
Project Implementation

Achieving impact through through efficiency and collaboration.

Requirement definition | Software development | Software integration | Hardware adaptation | Testing, use cases & validation | Dissemination & exploitation.

Working together is key to innovation

Strong partnerships are essential to demonstrate research excellence and tackle societal challenges through robotics.

SMART INDUSTRIES
INTRALOGISTICS AUTOMATION
HUMAN-ROBOT COLLABORATION

COMPETITIONS
RESEARCH AND DEVELOPMENT
HUMANOID ROBOT

SMART AGRICULTURE
FOOD SAFETY PROTOCOLS

ARTIFICIAL INTELLIGENCE
INTERNET OF THINGS

STOREFLOOR AND WAREHOUSE
TASK AUTOMATION
STOCK/INVENTORY CONTROL

SMART HOSPITALS OR CENTERS
ASSISTED LIVING
HEALTHCARE ASSISTANCE

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