
ROBOTIS

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Company Introduction

Robot is…ROBOTIS = DYNAMIXEL (Smart Robot Actuator)

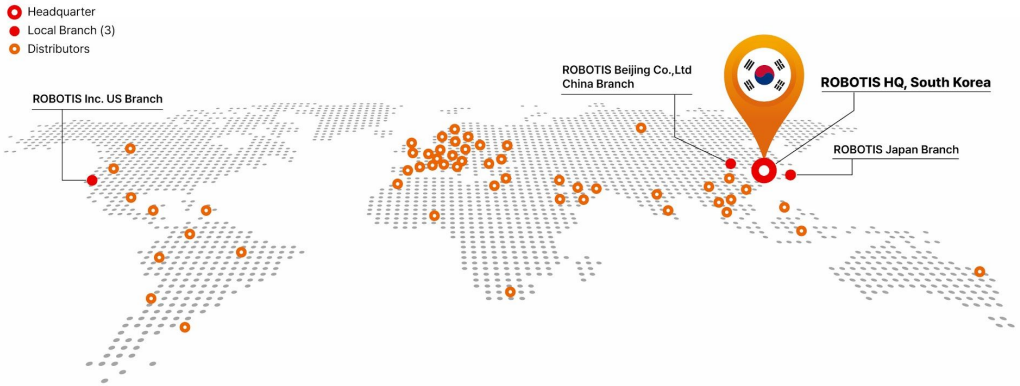
Accelerating Growth in Actuator-Driven Physical AI

https://youtu.be/vozkbhSgcSA

5 Company Overview

2025	07	AI Worker launched
	06	RobotisAI spun off
	05	LG Electronics - Physical AI Humanoid Partnership
	03	Physical AI' AI Manipulator Unveiled
2024	12	Exclusive Supply Deal with Senxeed Robotics (Japan)
	11	Joint 'Physical AI' R&D with MIT
	10	MLIT-LH Housing R&D MOU (robot built-in system)
	06	First Korean Robot to Get Japanese Subsidy
	05	LG Electronics - Outdoor Autonomous Robot Supply
	04	DYNAMIXEL-Y New Lineup Released
	01	First Operational Safety Certification (Intelligent Robot Act)
2023	03	Autonomous Driving Robots Entered US & Japan markets
2022	06	Autonomous Robot Hotel Delivery in Korea
2021	10	UPS US Service Pilot for Autonomous Driving Robots
	01	Outdoor Autonomous Urban Delivery Pilot Started
2020	12	Awarded Minister of SMEs and Startups Award
	6	Selected for MOTIE Robot Tech Project
2019	11	Nominated as 'World-Class Product' - 'DYNAMIXEL'
	07	Delivery Robot Demonstration Project
2018	12	Awarded 'Ten Million Dollar Export Tower'
	08	Public IPO on the KOSDAQ
	01	Strategic Alliance with LG Electronics
2014	12	Named One of NYT's Top 10 Home Robots
2013	03	THORMANG Humanoid Robot Released
2012	10	Presidential Award (MKE Robot Grand Challenge)
2003	10	DYNAMIXEL Launched
1999	03	Robotis Co. Ltd. Established

Global Key Hubs



Subsidiary | RobotisAI

ROBOTIS Regional Offices

USA	4222 Green River Rd., Corona, CA, 92880
China	Room 4031, Zhongren Building, No. 10 Jia, Chaoyangmenwai Street, Chaoyang District, Beijing, China
Japan	Haruka Building 3F, 2-12-14 Kanda Ogawamachi, Chiyoda-ku, Tokyo 101-0052, Japan

Business Sectors

Precision Actuator for Robotic Systems

ROBOTIS

Mobile Delivery Robot

RobotisAI

Strategic Spin-Off (RobotisAI): Capturing Market Opportunities for Enhanced Profitability and Growth

DYNAMIXEL

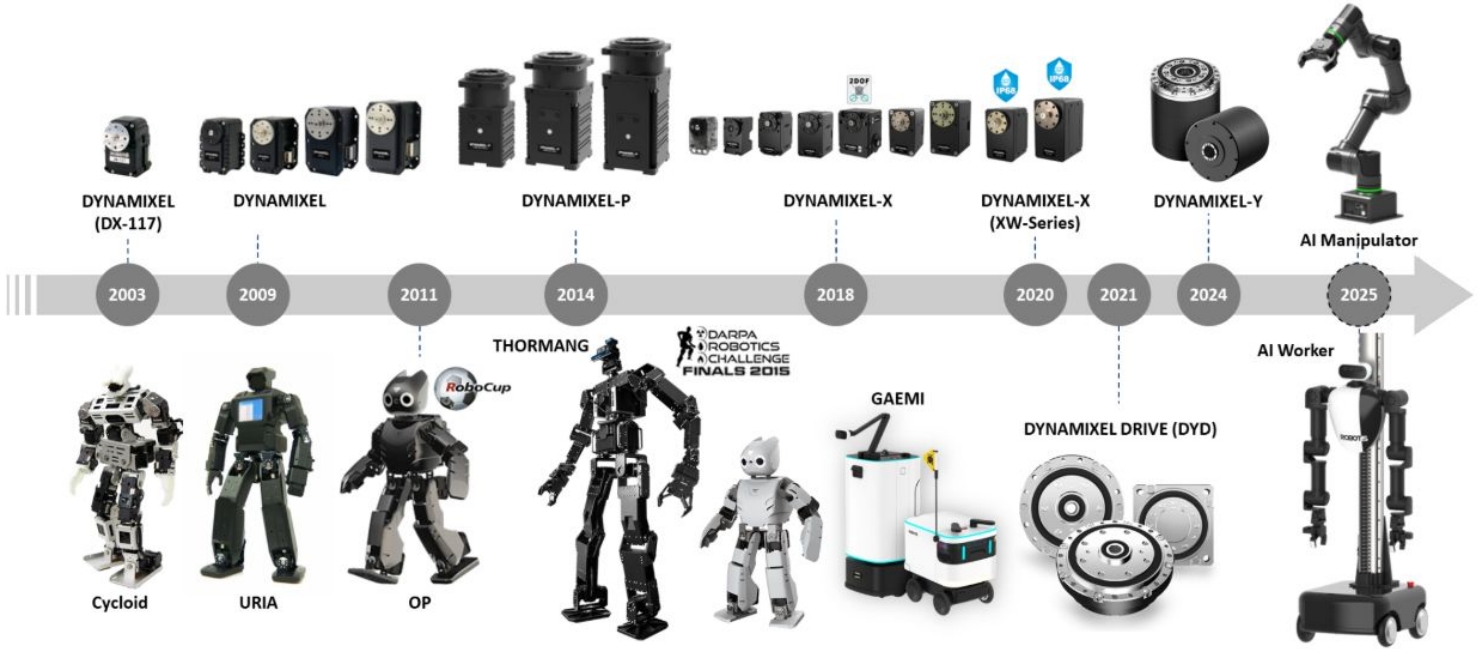
for the Physical AI Era

DYNAMIXEL: ROBOTIS Core Technology

26 Years of Excellence,

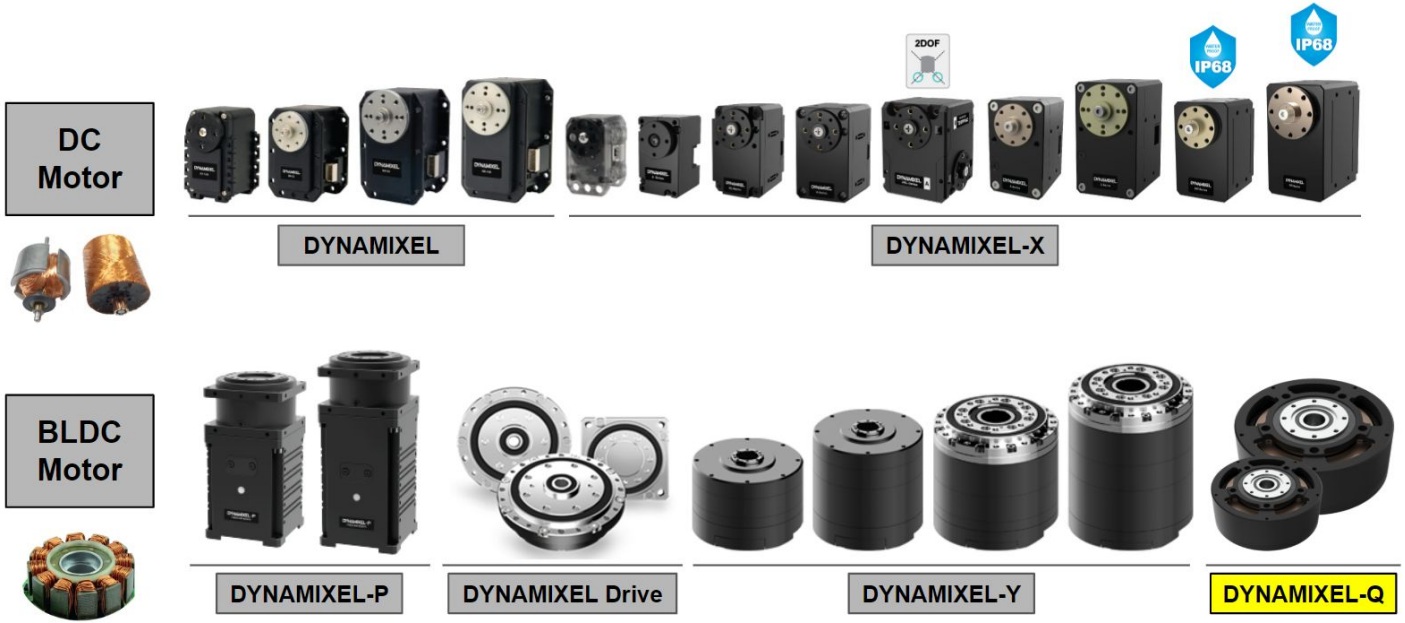
90% in house technology- Actuators and Reducers Across a Diverse Portfolio

DYNAMIXEL, a smart all-in-one robot actuator, integrates a DC motor, controller, driver, sensors, reduction gear, and network communication into a single module. This integration significantly simplifies robot construction and control.



9 DYNAMIXEL Lineup

ROBOTIS Presents Optimized Robotic Actuator Solutions through DYNAMIXEL's Diverse Lineup of Over 100 Models



ISO 9001 CERTIFIED
ISO 14001 CERTIFIED
RoHS COMPLIANT

AI Manipulator

for the Physical AI Era

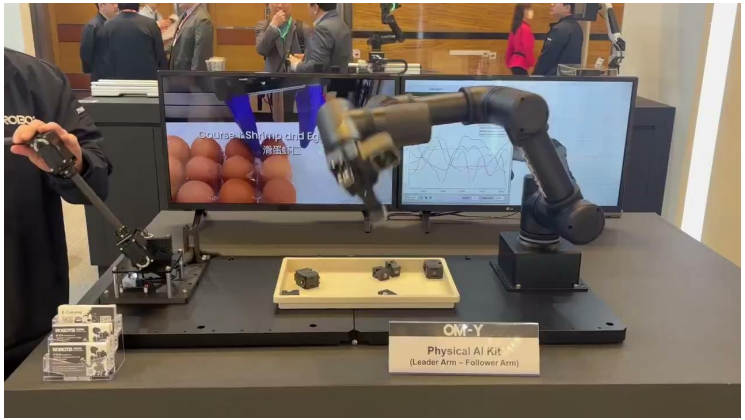
Mobile Aloha Robot by Stanford University (+ Google & Meta) Powered by DYNAMIXEL.

The Emergence of Physical AI

OMY-AI3M ROBOTIS Telepresence Demonstration

https://youtu.be/am_JhD5UkPg

AI Manipulator



- **Gripper Haptic Support:** The gripper provides haptic feedback for a more realistic and intuitive grasping experience.
- **Gripper Trigger Support:** The gripper's trigger can be customized to enable additional functions.
- **Gravity Compensation Support:** The software provides gravity compensation to ensure smooth and stable movements.
- **Friction Compensation Support:** The software compensates for friction to provide smoother movements and reduce operator fatigue.
- **ROS 2 Support:**
  - Individual servo control and monitoring through the SDK.
  - Support for **MoveIt** and **Gazebo** simulation of full systems.
- **C++ and Python Support:** The system supports both **C++** and **Python** programming languages.
- **Hardware and Software Limit Setting:** Hardware and software limits can be configured to ensure safety and prevent errors.
- **Standardized URDF Provided:** A standardized URDF (Unified Robot Description Format) is provided for easy integration with other systems.
- **Easy Customization:** Link lengths, joint types, and placement can be easily customized.
- **Open Source:** The source code is open, allowing for community contributions and modifications.
- **Extensive DXL SDK Support:** The DYNAMIXEL SDK provides support for many major programming languages, and allows seamless integration of all types of DYNAMIXEL actuators.

AI Worker

for the Physical AI Era

AI WORKER

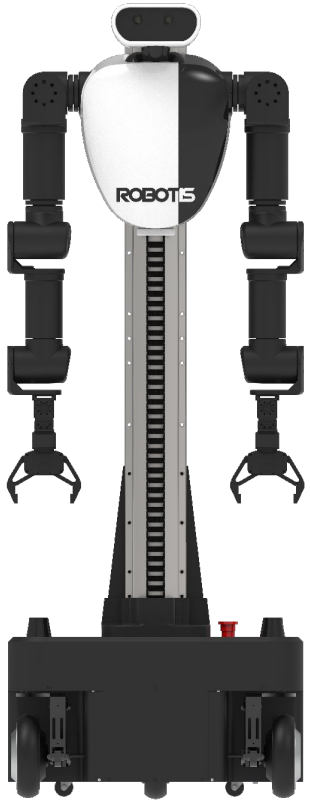
The market for humanoid robots, which replace human labor, is projected to grow to $30 trillion within the next decade.
(Source: Morgan Stanley, "Humanoid 100" report)

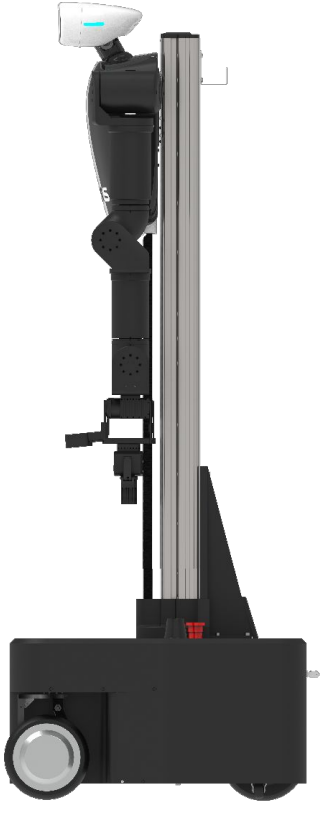
https://youtu.be/DX7DEf9s3Eg

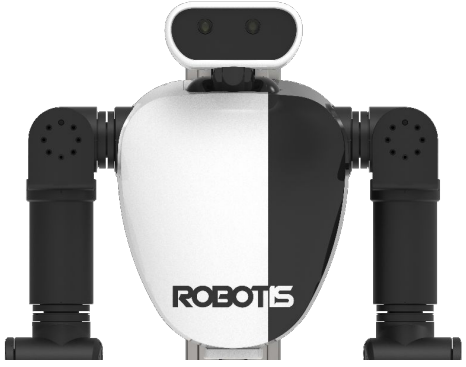
Imitation Learning Demo: From Tele-Operation to Inference

https://youtu.be/lvGGyDlYu1k

AI Worker: FFW (Freedom from Work)

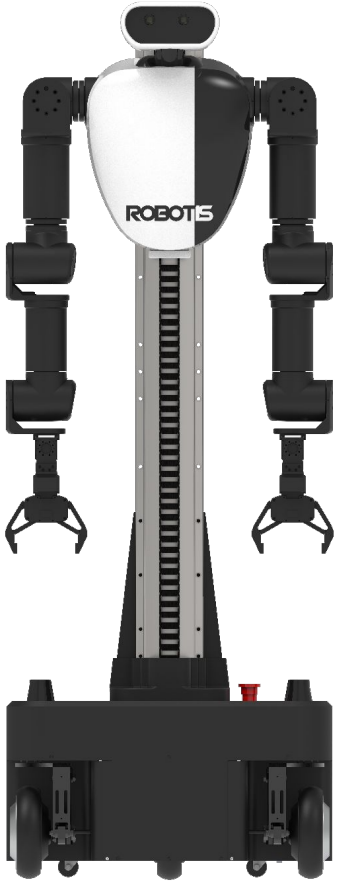


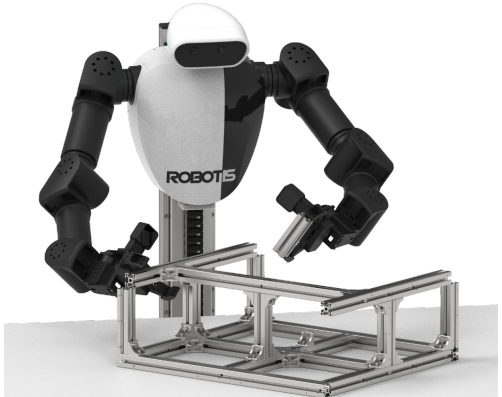




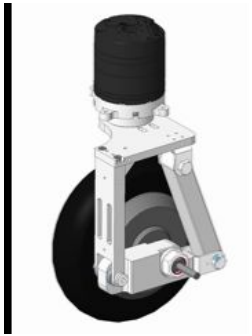
Technical Specifications

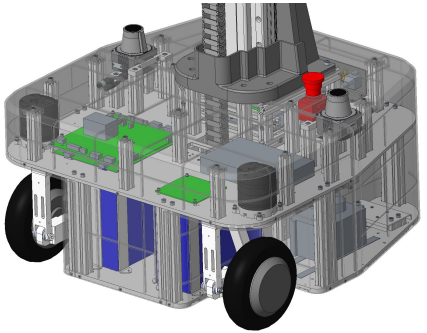
Dimensions	604 x 602 x 1,623 (WxDxH, mm) 23.8 x 23.7 x 63.8 (WxDxH, inches)
Weight	90 kg (198 lb)
Arm Reach	641 mm (to wrist) + hand
Arm Payload	3.0 kg (single arm), 5.0 kg (peak) 6.0 kg (dual arm), 10.0 kg (peak)
Mobile Type	Swerve Drive
Actuator	DYNAMIXEL X, Y, P
Degrees of Freedom	**Total: 25 DOF** **Arm: 7 DOF x 2** **Gripper: 1 DOF x 2** **Head: 2 DOF x 1** **Lift: 1 DOF x 1** **Mobile: 6 DOF**
Mobile Platform Speed (Swerve)	1.5 m/s
Battery	25V, 80Ah (2,040Wh)
Exterior Materials	Aluminium, Plastic
Sensors	RGBD Camera x 3, LiDAR x 2, IMU
Computer	NVIDIA Jetson AGX Orin 32GB
Ambient Operating Temperature	0 ~ 40 ℃





Swerve Drive





	Swerve Drive	Omni Wheel	Mecanum Wheel
Precision of data acquisition	◎	△	○
Diversity of motion execution	◎	○	○
Reliability of ground truth	◎	△	△
Efficiency of model training	◎	△	○
Consistency in long-term data collection	◎	△	○

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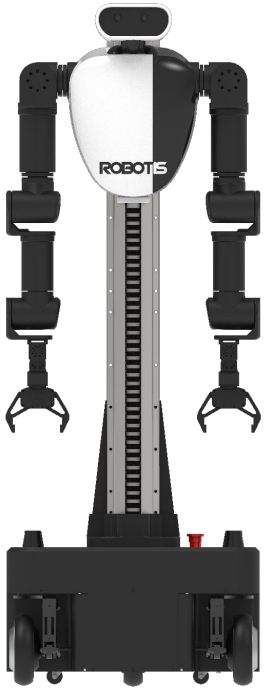
Milestone

Flagship Products

GAEMI

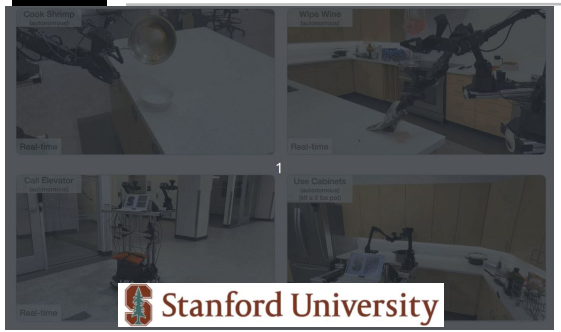
AI Worker

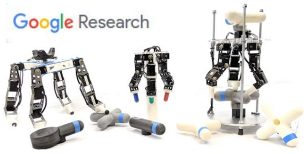


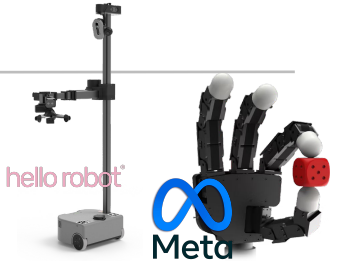
GAEMI

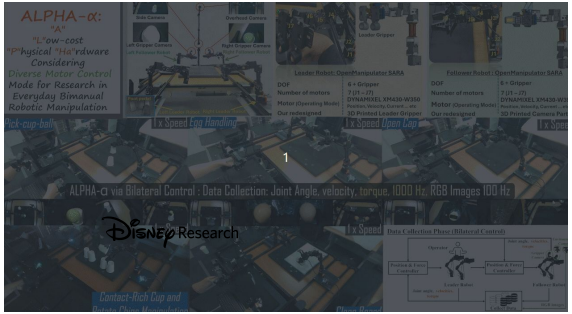
Physical AI: A New Trend Urging Action

ROBOTIS

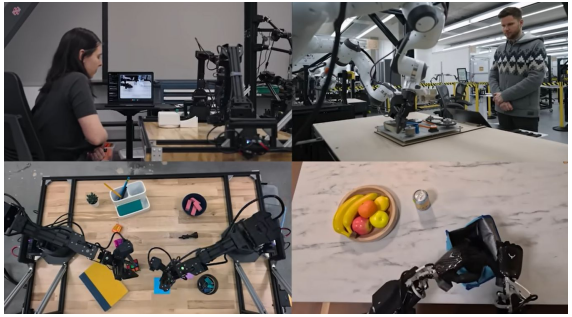






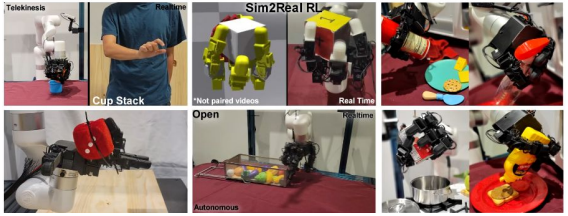


TEXAS
The University of Texas at Austin

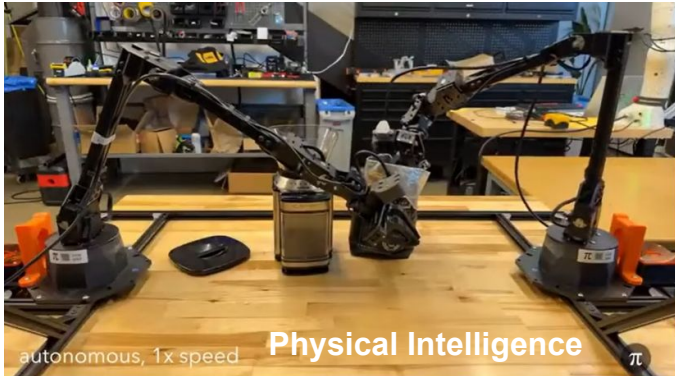


Google DeepMind

大阪大学
OSAKA UNIVERSITY



Carnegie Mellon University



23 Grippers and Hands (ROBOTIS Partners)

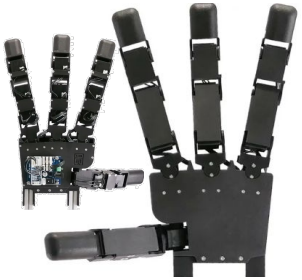
ROBOTIS
RH-P12-RN

TESOLLO
DG-5F

TESOLLO
DG-4F

TESOLLO
DG-3F

WONIK ROBOTICS
Allegro Hand



TILBURG ROBOTICS
Tilburg Hand

Tatum Robotics
Tatum T1

seed robotics
RH8D, RH6D

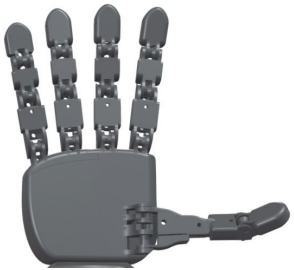
SCRAMP ROBOTICS

SAKE Robotics

TEXAS
The University of Texas at Austin
LEGATO

Carnegie Mellon University
LEAP Hand

EPFL
ORCA Hand



NYU
RUKA Hand

QDD Actuators

Core Technology

Backed by 26 years of actuator innovation (DYNAMIXEL), ROBOTIS is now positioned to deliver market-ready hollow-shaft QDD technology.

Unique Know-How

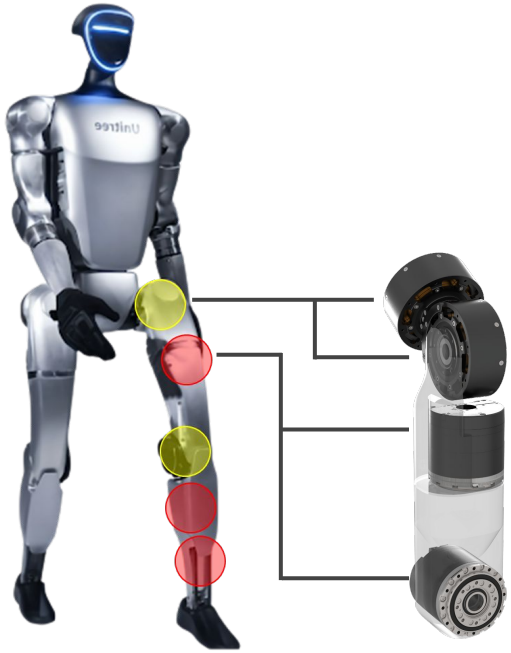
ROBOTIS brings deep humanoid actuator insight from years of R&D and industry collaboration

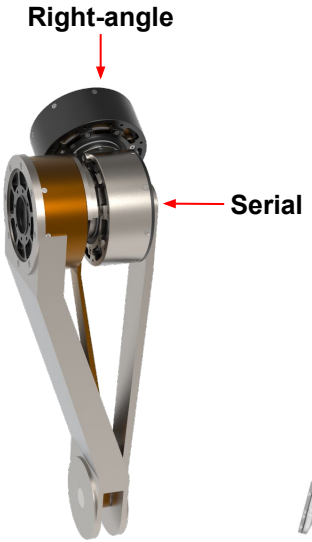
Strong Competitiveness

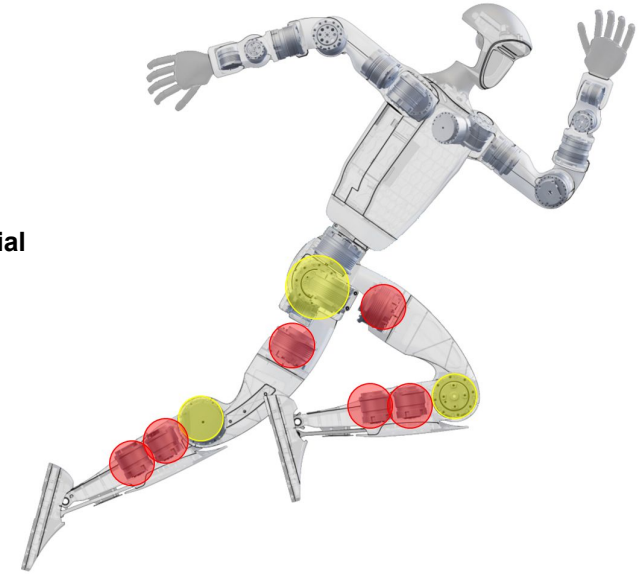
ROBOTIS drives product optimization and cost savings through in-house production capabilities

Performance-Driven Solutions

Tailored solutions for optimal performance, reliability, and seamless integration for any application.



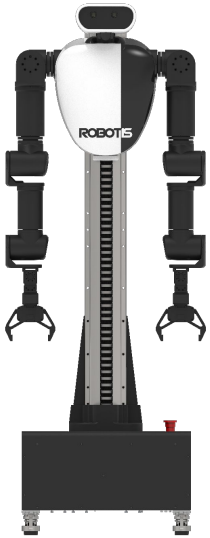




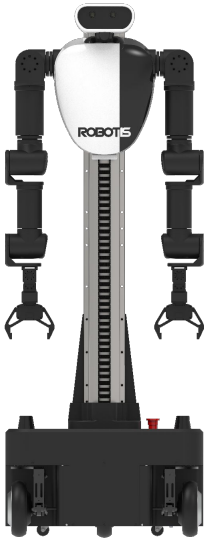
AI Worker: FFW Series

Models:

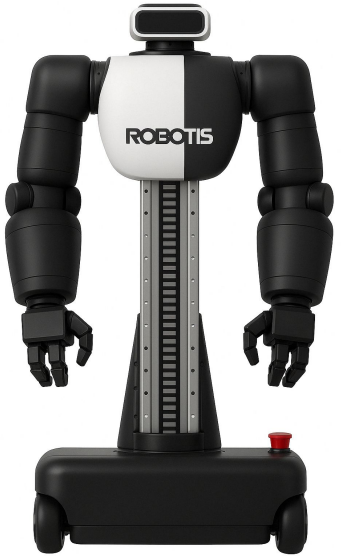
FFW-BG2: Basic



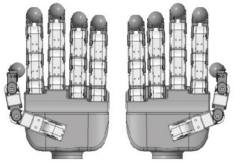
FFW-SG2: Mobility



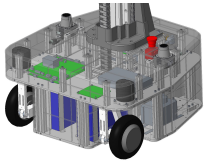
FFW-SH3P: Power (TBD)



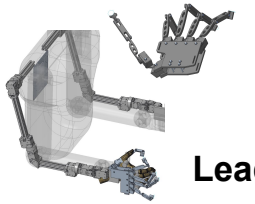
Options:



Dexterous Hands



Swerve Drive



Leader

VR Devices

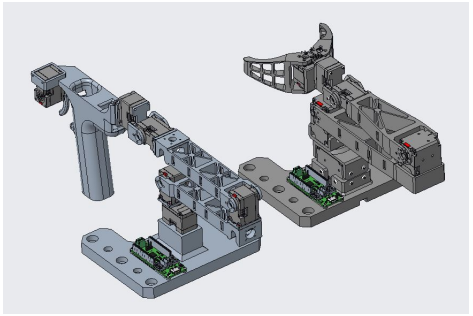
Physical AI Pipeline

Entry Level
(Affordable AI Manipulator)

Middle Level
(AI Manipulator / Cobot)

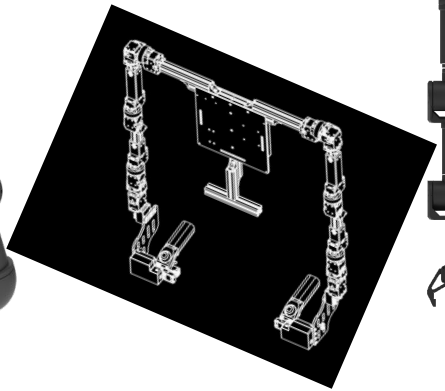
Enterprise Level
(Humanoid robot)

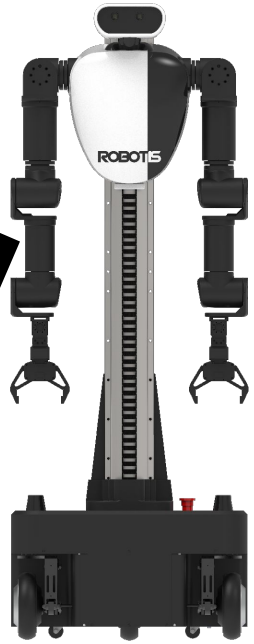
Progressing Towards Advanced Physical AI



OMX-L OMX

OMY-L100 OMY-F3M





FFW-LG2 FFW-BG2/SG2

OMX **OMY** **AI Worker**

Open-source Projects

ROS 2 packages for operating the AI Worker (including Leader & Follower Teleoperation)

https://github.com/ROBOTIS-GIT/ai_worker

ROS 2 package for generating datasets in the LeRobotDataset format

https://github.com/ROBOTIS-GIT/physical_ai_tools

URDF and MuJoCo model files for simulation purposes

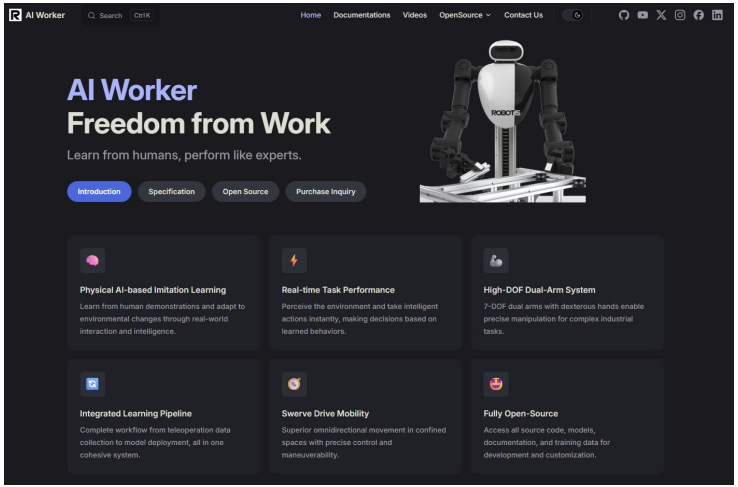
https://github.com/ROBOTIS-GIT/robotis_mujoco_menagerie

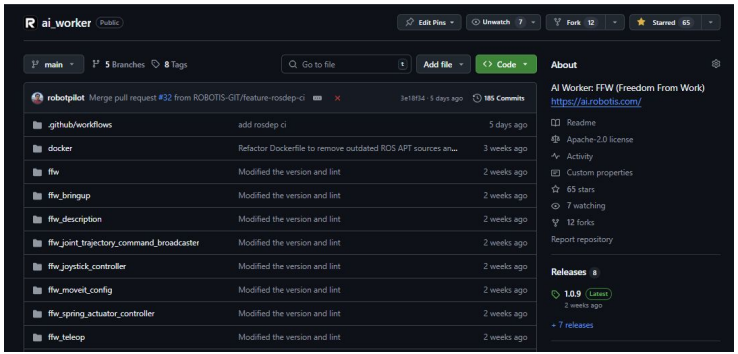
Community & Discussion

https://forum.robotis.com/

Documentation

https://ai.robotis.com





Robotics Coalitions and K-Humanoid Alliance

「K-휴머노이드 연합」 협력체계 및 미션

Real-World Data for Physical AI: High Impact, High Complexity

Real-World Data Collection: Not Just Beneficial — It's Essential !

Pros

- Real World Data Collection
- High Quality Control
- Specific Task Optimization

Cons

- Slow and Costly
- Not Scalable
- Human Bias

Synthetic Data for Physical AI: A Persistent Challenge

**While synthetic data collection offers significant advantages,
it falls short in capturing the full complexity of real-world environments.**

Pros

- Fast and Affordable
- Safe and Diverse Trials
- Controlled Data Collection

Cons

- Simulation-to-Reality Gap
- Lack of Realism
- Risk of Misguided Learning

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