
HUMANOID ROBOTICS / EDUCATION & DEVELOPMENT

Build. Program. Understand.

AGIBOT X2 EDU

A hands-on humanoid platform for assembly, motion control and software development.

29

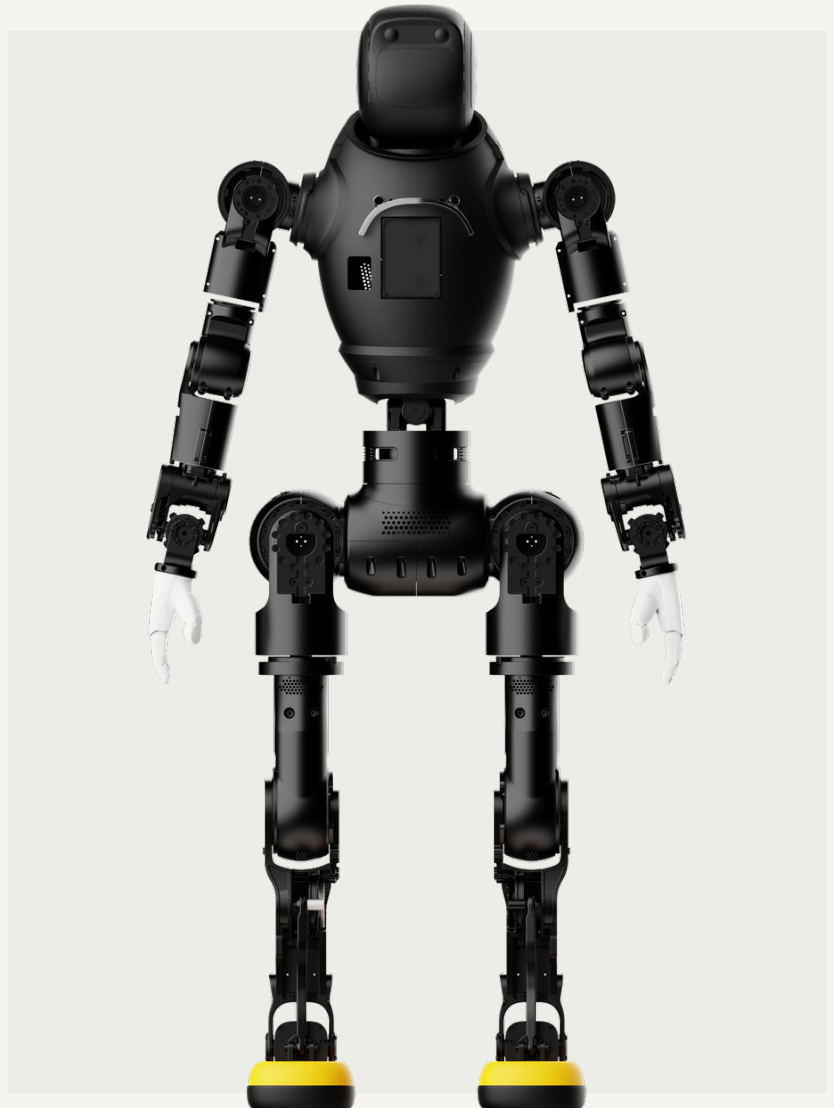
Active degrees of freedom

ROS 2

SDK + DDS communication

MuJoCo

Simulation environment



FROM COMPONENTS TO CONTROL

01 / ENGINEERING PRACTICE

Understand the robot by building it.

An integrated platform for mechanical assembly, electrical integration, calibration and motion validation.



A practical starting point

The source offering covers robot components, assembly tools, accessory materials, a component-level BOM, assembly guides and instructional videos.

Confirm the exact kit and teaching resources for your order.

01

Assemble

Identify modules and build the mechanical structure.

02

Connect

Work with power, communication and cable routing.

03

Calibrate

Practice joint zeroing and commissioning.

04

Validate

Check motion and progress into software development.

Learn across mechanical, electrical and control systems.

Designed for repeated disassembly and hands-on engineering practice.

02 / SOFTWARE & CONTROL

From motion skills to joint-level control.

Use open development interfaces to move from operating the robot to understanding and extending its behavior.

01

Develop with ROS 2

ROS 2 SDK and DDS messaging support project integration and application development.

02

Call motion services

High-level interfaces expose the robot's motion skills and operating modes.

03

Work at the joint level

Access position, torque and velocity interfaces, with IMU state feedback.

04

Read robot health

System faults, behavior faults and warning reports support diagnosis and debugging.

Explore in simulation

A basic MuJoCo environment supports simulation exercises and development practice.

Start with familiar controls

Wireless controller and Agibot Go app support help students get started on the hardware.

03 / APPLICATIONS

One platform. Four ways to build.



Assembly & maintenance

Vocational programs can teach assembly, commissioning, fault diagnosis and motion verification.



Interdisciplinary teaching

Connect mechanics, electronics, controls and AI through real robot projects.



Competitions & projects

Build challenges around motion programming, custom shells, peripherals and team engineering.



Developer & startup kits

Use mature robot components and open interfaces to accelerate assembly and prototype validation.

Application illustrations reproduced from the source presentation.

04 / TECHNICAL SPECIFICATIONS

Engineering, in detail.

Manufacturer-stated specifications for X2 EDU / Renrenzao.

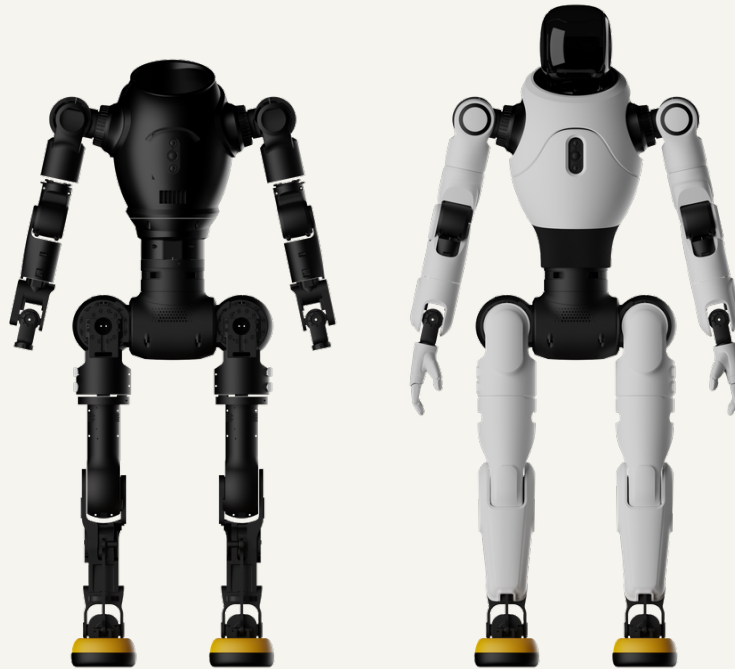
Active degrees of freedom	29: arms 7 × 2, waist 3, legs 6 × 2
Height / width / depth	Approx. 1,300 × 460 × 210 mm, incl. dummy head
Robot weight	Approx. 35 kg
Single-arm reach	578 mm, excluding gripper
Maximum walking speed	1.8 m/s
Average walking speed	0.8–1.0 m/s
Controller	RK3588
Sensor	IMU
Battery	48 V / 10 Ah lithium-ion; listed as 500 Wh
Charging time	≤ 1.5 hours, 10–100%
Charger	54.6 V / 10 A; maximum 546 W
Standard end effectors	Passive hands; optional OmniPicker grippers
Expansion connections	USB, Ethernet and power
Development / messaging	ROS 2 SDK / DDS
Simulation	Basic MuJoCo environment
Operation	Wireless controller / Agibot Go app

Reading the source

Height follows the 130 cm specification graphic. Walking speed follows the detailed tables (1.8 m/s). Battery voltage, capacity and energy are reproduced as listed. Performance depends on conditions and configuration.

05 / EXPANSION & PROJECT PLANNING

Make the platform your own.



Source render shows body and exterior configurations; confirm available options.

Adapt the hardware

Use USB, Ethernet and power connections to add sensors or your own development computer.

Choose the end effector

Passive hands are standard. OmniPicker grippers are optional for grasping projects.

Design the exterior

Customize covers and structural components for teaching, competitions or demonstrations.

Plan the configuration and support scope

The source deck excludes warranty after software/hardware customization or add-ons, and defines acceptance as successful assembly and walking. Confirm the applicable order terms before modifying the robot.

Explore X2 EDU with Eren Chen

erenchen.com/shop/agibot-x2-edu