

# OpenR6

## Open-source desktop-level six-axis robotic arm

The robotic arm is completely open to structural design, motor control and kinematic control algorithms, and integrates open-source AI large model technology. At the same time, it provides multiple expanded interfaces to support the access of vision, voice, sensors and other peripheral modules to meet the needs of multi-scene hardware development.



Open source AI large model



Open source control algorithm



Visual perception



Multi-machine collaboration

## Multiple kits, free combination



Wireless remote operation



Depth camera



2D camera



Speech processing kit



Conveyor belt kit



Sliding rail kit



Mobile robot kit



PLC kit



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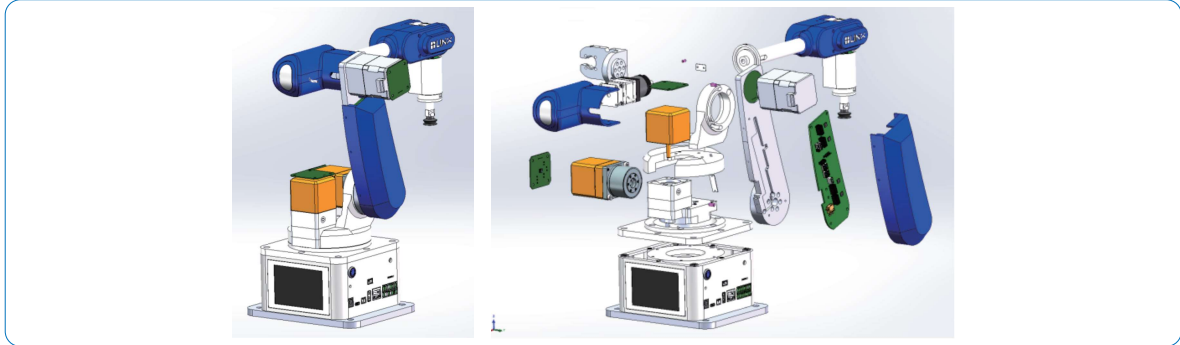


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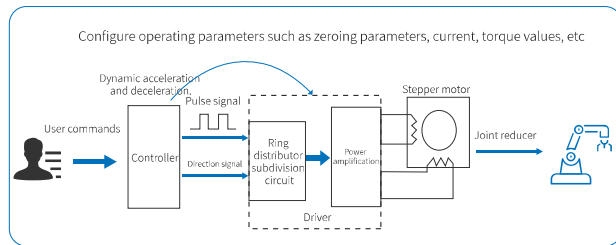
## Product features

### ► Open-source control algorithm

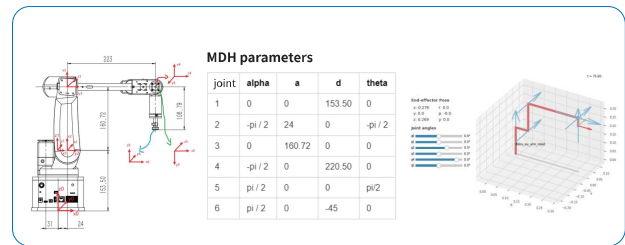
In the structure design, provide 3D model design drawing; in the motor control, the open motor, the controller and the manipulator joint control source; in the kinematic algorithm, develop the source of the underlying kinematic model. Through a full range of open source, users can engage in all kinds of applications and development at the hardware and software level.



3D model of robotic arm



Motor control process of robotic arm



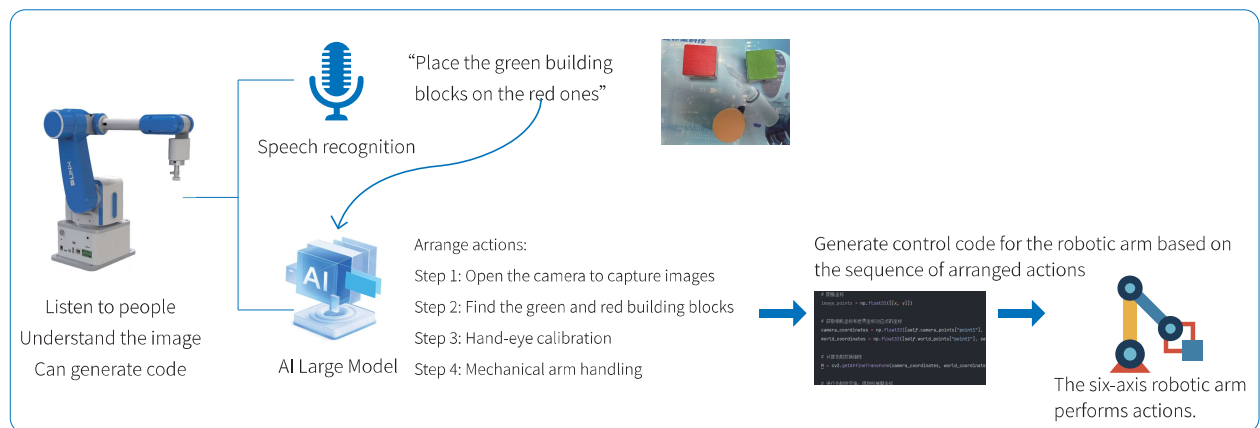
Coordinate System Definition and Teaching Diagram for MDH Modeling of Robotic Arm

### ► Open-source AI large model

The robotic arm is deeply integrated with the open source AI model. The SDK of the robotic arm is trained through the AI model, and the robotic arm can write code and execute actions independently. At the same time, it also provides the whole process technology of AI large model independent training, including the fusion of vision, voice and other sensors, so that users can collect data, model training, verify and deploy the model according to the application scenarios.



Provide AI large model training of the whole process technology, support users to develop independently

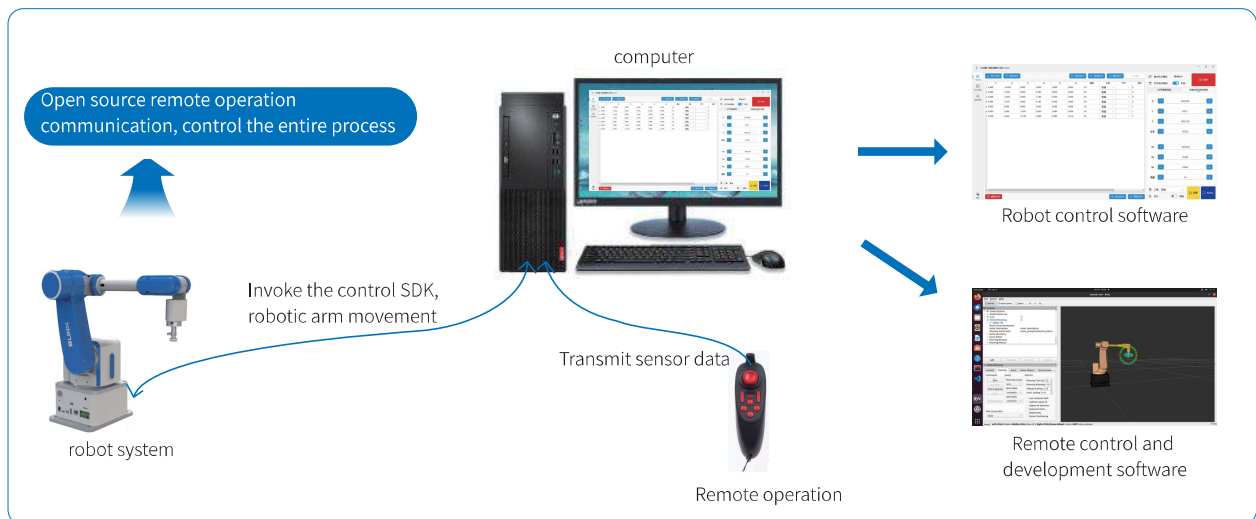


Robot arm+AI large model

## ► Remote operation

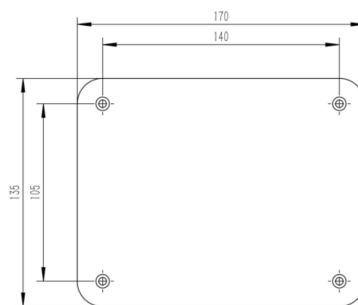
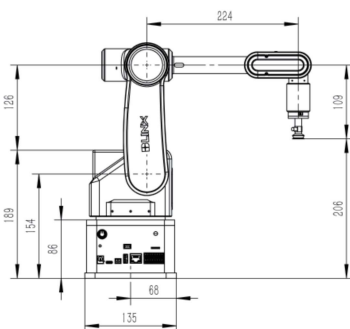
The robotic arm is equipped with an open-source remote operating system. Compared to traditional robot control methods, the remote operating system constructs a realistic and reliable human-machine interaction scenario, with high-precision motion tracking, real-time dynamic force feedback, safety, and ease of operation. It has a wide range of application scenarios in remote medical care, remote services, space exploration, and other fields.

The product can open up core technologies such as sensor data acquisition for remote control controllers, communication with robotic arms, and call for motion control SDKs to meet users' needs for in-depth learning and research..



Composition diagram of robotic arm and teleoperation system

Number of axes	6	Material	Aluminum alloy, high toughness resin	Axis motion parameters (at a load of 500 grams)	J1: $\pm 130^\circ$ , maximum speed: $45^\circ/\text{s}$
Maximum load	1kg	Working environment	$-10^\circ\text{C}\sim 40^\circ\text{C}$		J2: $-80^\circ\sim +90^\circ$ , maximum speed: $45^\circ/\text{s}$
Working radius	410mm	Controller	STM32		J3: $-85^\circ\sim +40^\circ$ , maximum speed: $45^\circ/\text{s}$
Self-weight	4.8kg	Communication method	USB/WiFi/Bluetooth/RJ45		J4: $\pm 160^\circ$ , maximum speed: $45^\circ/\text{s}$
Repeatability	$\pm 0.1\text{mm}$	Control method	PC software, mobile app, voice control		J5: $-179^\circ\sim +15^\circ$ , maximum speed: $27^\circ/\text{s}$
Supply voltage	12V/5A DC	Base size	170mm $\times$ 135mm		J6: $\pm 179^\circ$ , maximum speed: $45^\circ/\text{s}$
Rated power	60W Max				





比邻星科技

20+ years

Industry research

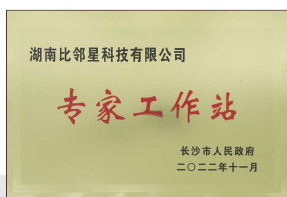
100+ items

Team members apply for and authorize  
intellectual property rights

100+ institutions

School applications

Hunan Bilibili Star Technology Co., Ltd. (referred to as "Bilibili Star Technology") is a national high-tech enterprise jointly initiated by Hunan University, Yuelu Mountain University Science and Technology City, and Ruitu Intelligence. It mainly provides intelligent robot series products and overall solutions for the smart education industry. The company was founded under the guidance of Academician Wang Yaonan, gathered top experts in the industry, and established an industry university research cooperation base of the National Engineering Research Center for Robot Visual Perception and Control Technology, and an expert workstation in Changsha.



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