

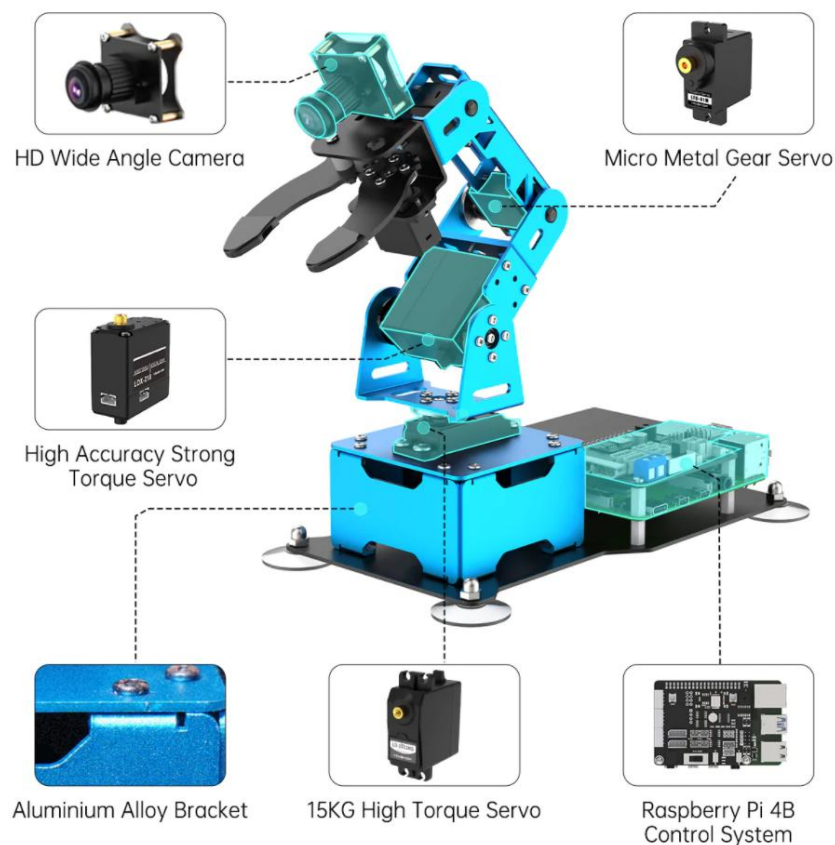
Lesson 1 ArmPi mini Introduction

1. Product Introduction

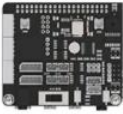
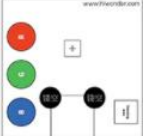
Powered by Raspberry Pi 4B, ArmPi mini is an open source robotic arm for beginner. It takes OpenCV as the image processing library and is loaded with 120°HD camera with the first person view.

With built-in inverse kinematics algorithm, ArmPi mini can use Python to perform different AI vision functions like color recognition, color sorting, target tracking and intelligent stacking.

Not only can it fit the users' needs for learning and testing machine vision, robotic arm motion control and inverse kinematics, but also provide easy-to-learn integration solution for secondary development. Abundance of tutorial material and source code are available for you to start ArmPi mini immediately!



2. Packing List

			
Robotic arm (assembled)	Base bracket set	Raspberry Pi 4B (optional)	16GB SD card (optional)
			
Raspberry Pi expansion board	18650 batteries battery holder box	USB cable battery charger	Card reader
			
Blocks (3 * 3cm)	Paper map	Screw bag	Cable ties

No.	Instruction
1	Assembled robotic arm
2	The base needs be assembled by user (The assembly tutorial refers to “3. Assembly”)
3	Robotic arm control system
4	
5	Used to supply power

6	(Note: The switch on the battery box should be pushed to “ON” when in use.)
7	Used to charge battery. The USB cable can be directly connected to the computer port.
8	The SD card is used to store the system of the Raspberry Pi, here is the robotic arm system.
9	Used with SD card to write system image (Please refer to “2. Get Started/ Lesson 2 Write System Image”)
10	Used as color-related game (The game can be started via APP, please refer to “4. Quick User Experience/ Lesson 6 App Control”)
11	Used as map tool for sorting and stacking scenarios
12	Spare screw bag

3. Tutorial Layout Overview

Step 1: ArmPi mini Robot Arm Introduction

Get a rudimentary knowledge of ArmPi mini In the folder “1. ArmPi mini Unboxing/ Lesson 1 ArmPi mini Introduction”.

Step 2: Raspberry Pi Controller Introduction

Learn about Raspberry Pi controller and how to write system image in folder “2. Get Started”.

Step 3: Assembly Instruction

In folder “3. Assembly”, you can follow the tutorial to assemble ArmPi mini.

Step 4: Debugging and Starting

In folder “4. Quick User Experience”, you can follow the operation steps to proceed ArmPi mini starting and testing, debugging adjustment, position calibration.

After debugging, learn to use APP to firstly experience AI vision games.

Step 5: Basic Motion Lesson

Learn about the working principle of robot arm motion. Through practical operation, you can understand the implementation of robot arm kinematics better, learn functions and formula derivation.

Step 6: AI Vision Learning

In folder “6.AI Vision Learning”, you can learn how to use command line to start each AI vision game so as to have a basic understanding of the realization process and learn how to modify program.

Step 7: ArmPi mini PC Software Learning

In the folder “7. PC Software Learning”, you can learn how to use PC software to call built-in action, edit a simple action and integrate actions.

Step 8: Extended Lesson

This part of content is optional and do not affect the normal use of ArmPi mini.

The extended lessons include:

1. Network Configuration

Learn how operate ArmPi mini under LAN mode and modify WiFi.

2. Raspberry Pi Basic Lesson

Have a basic knowledge of Raspberry Pi, and master the basic operation of it.

3. Raspberry Pi Expansion Board Lesson

This part of content will combine Raspberry Pi and expansion board. Learn hardware operation by controlling digital servo, buzzer, RGB light, etc.

4. Linux Lesson, Python Lesson, OpenCV Basic Lesson

Provide the basic development knowledge.