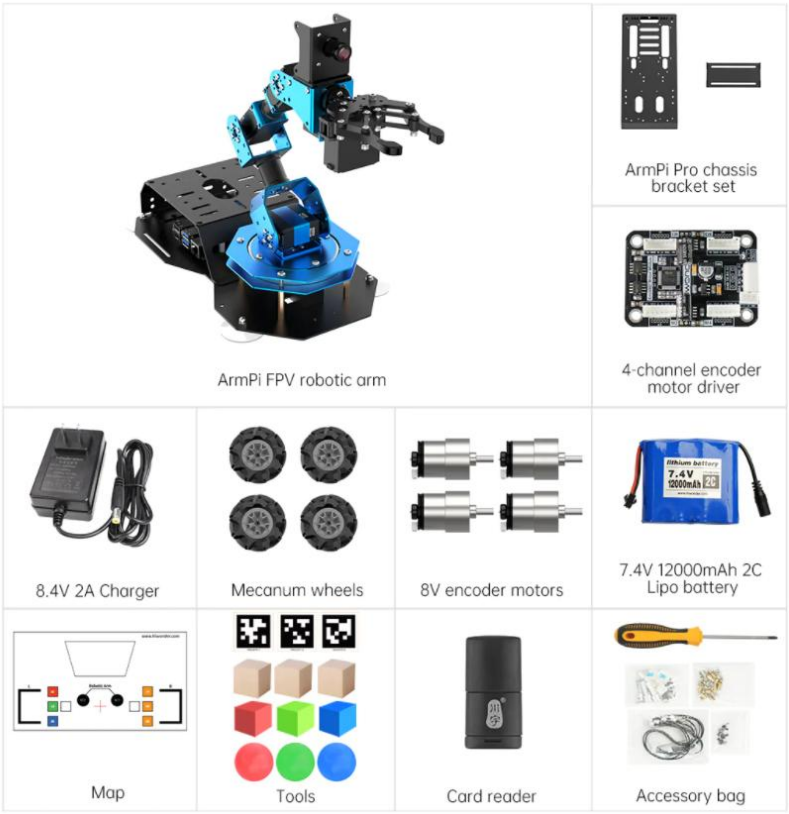
Lesson 1 ArmPi Pro Introduction

1. Product Introduction

Powered by Raspberry Pi and based on ROS, ArmPi Pro is intelligent vision transporting robot and programmed in Python. On the basis of ArmPi FPV robotic arm, it is added a onmi-directional mecanum wheel chassis, which robot can carry out mobile gripping, target tracking, intelligent transport and more functions.

ArmPi Pro chassis can be removed at ease so that it can be a desktop or mobile vision robotic arm. Therefore, it is a high-performance and two in one educational robot.

2. Packing List



3. Tutorial Guideline

Step 1: Learn about ArmPi Pro

In folder “Getting Ready”, firstly have a preliminary understanding of ArmPi Pro. Learn how to assemble and turn on robot.

Step 2: Quick User Experience

Please go to folder “1. Getting Ready/ 2.Quick User Experience” to learn APP control and master how to adjust the color threshold via app under different environment.

Step 3: Development Basic Knowledge Learning

Please go to folder “3.Linux Basic Lesson”, “Python Lesson” “OpenCV computer Vision Lesson” and “ROS Basic Lesson” to learn development basic knowledge.

Step4: Robot Main Controller Learning

Please go to folder “Raspberry Pi Expansion Board Lesson” to learn about the hardward structure of Raspberry Pi board and expansion board and learn how to drive motot and buzzer through some simple routines.

Step 5: Mecanum Wheel Basic Lesson

Please go to folder “7.Basic Lesson/1.Mecanum Wheel Chassis Basic” to learn basic structure, physical characteristics and motion mode of mecanum wheel.

Step 6: Action Programming Learning

Please go to folder “7.Basic Lesson/ 2. ArmPi Pro PC Software” to learn how to use PC software, call built-in action, program a simple action and integrate actions.

Step 7: AI Vision Games -- Standard Lesson

In “8. Standard Lesson”, learn the working principle of AI vision game and how to modify program.

Under this folder, there is a monocular camera basic lesson in appendix and it is only for your reference. The section can help you know the hardware configuration of monocular camera and how to calibrate it.

Step 8: AI Vision Games -- Creative Lesson

In this section, you can master and apply image processing knowledge.

Step 9: Network Configuration Learning

Please go to folder “10. Advanced Lesson/Network Configuration Lesson to learn LAN mode ad Wi-Fi Modification for secondary development.

Step 10: Forward and Inverse Kinematics Lesson

Please go to folder “10. Advanced Lesson/Forward and Inverse Kinematics Lesson” to learn the motion system of robotic arm.

Step 11: ArmPi FPV Standard Lesson Learning

Please go to folder “10. Advanced Lesson/ ArmPi FPV Standard Lesson” to learn about ArmPi FPV robotic arm.