CrowPi 3

— AI Learning and Development Station



User Manual

*Pictures are for display only

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Product info

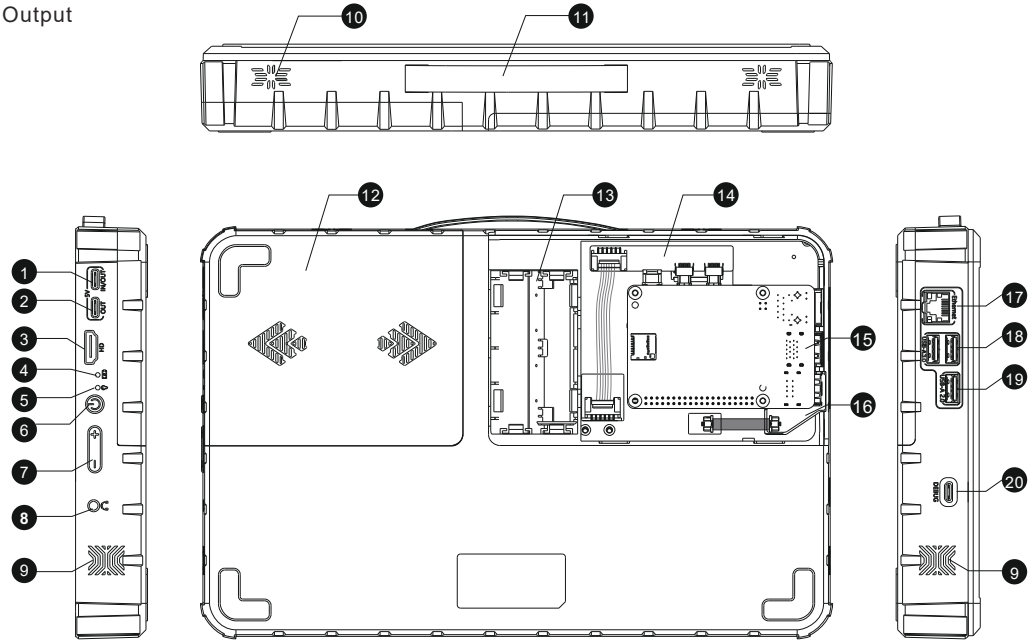
CrowPi 3 is constructed around the newly released Raspberry Pi 5 development board by the Raspberry Pi Foundation. It serves as a powerful tool that integrates learning, design, and programming, offering a new learning platform for coding enthusiasts and developers. CrowPi 3 is compatible with various development boards including Pi 5, Arduino Nano, micro:bit, and Pico series. It integrates a variety of sensors and is equipped with a display, camera, and microphone, facilitating the construction of an AI smart hardware platform. Additionally, it offers abundant course resources, making CrowPi 3 an ideal choice for learning programming.

Main features

- Multi-platform compatibility
- Integration of AI technology
- Rich learning resources
- Portable design solutions
- Dynamic Programmable Ambient Lighting

Structure

1.Type-C port: PD5V/5A Input / 5V/2A Output
2.Type-C port: 5V/2A Output
3.HDMI port
4.Battery Status LED
5.Power-On Status LED
6.Power Button
7.Volume and brightness +/-
8.3.5mm headphone jack
9.Speakers
10.Cooling hole
11.Handle
12.Storage groove
13.18650 battery holder
14.Function adapter board
15.Raspberry Pi fixed position
16.Camera signal adapter board
17.Raspberry Pi network port
18.Raspberry Pi USB3.0 port
19.Raspberry Pi USB2.0 port
20.Debug port



Battery Status LED: Red flashing at low voltage, solid red while charging, solid green after fully charged.

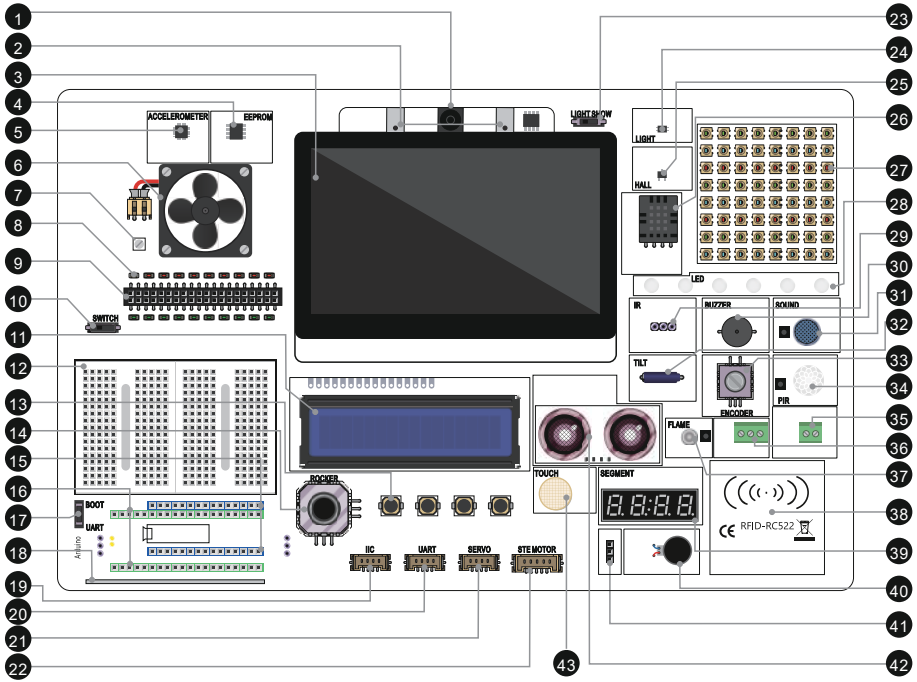
Power-On Status LED: The device remains red after powering on.

Power Button: Short press 1s to power on, long press 5s to power off(release upon completion).

Debug port: Used for debugging microcontroller modules such as Arduino Nano and Pico series.

Development board

1.Camera
2.2*Microphone
3.4.3-inch LCD Screen
4.EEPROM Chip
5.Gyroscope/Accelerometer Sensor
6.Cooling fan
7.Fan Control
8. LED Ambient Light
9.GPIO Interface
10.Controller Board Selection Switch
11.LCD1602
12.Breadboard
13.4* Buttons
14.Joystick
15.Arduino Nano Interface
16.Pico Interface
17.Debug/UART Selection Switch for Arduino
18.Micro:bit Interface
19.I2C Interface
20.UART Interface
21.Servo Interface
22.Stepper Motor Interface
23.LED Ambient Light Switch
24.Light Sensor
25.Hall Sensor
26.Temperature and Humidity Sensor
27.8*8 RGB Matrix LED
28.6*LEDs
29.IR Sensor Interface
30.Buzzer

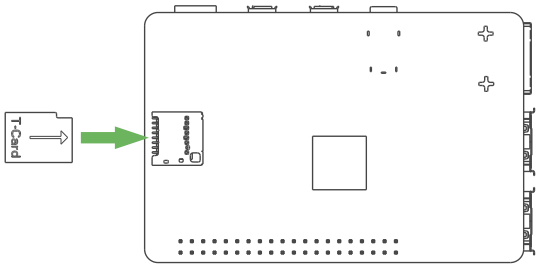


31.Sound Sensor
32.Tilt Sensor
33.Encoder
34.PIR Sensor
35.Analog Voltage Sampling Terminal
36.Relay Terminal
37.Flame Sensor

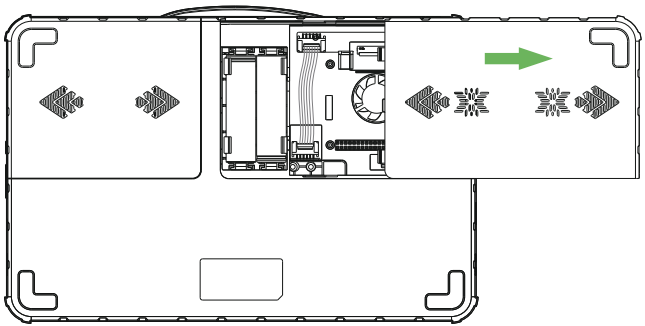
38.RC522 RFID Module
39.7-Segment Digital Display Module
40.Vibration Motor
41.Motor Interface
42.Ultrasonic Sensor
43.Touch Sensor

Install Raspberry Pi

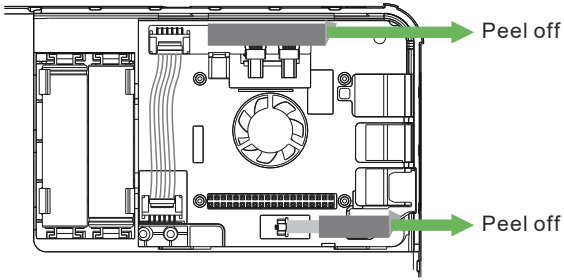
1.Insert the SD card (with built-in system) into the Raspberry Pi's SD card slot.



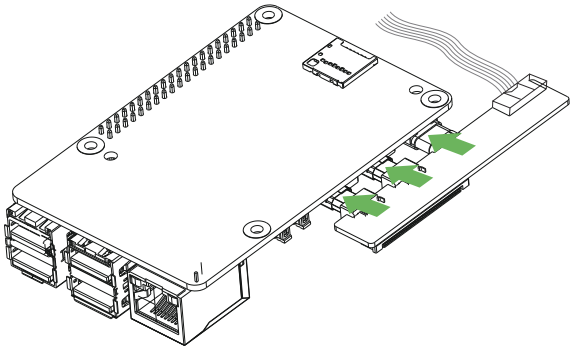
2.Slide to the right to open the back cover of the CrowPi 3 Raspberry Pi enclosure.



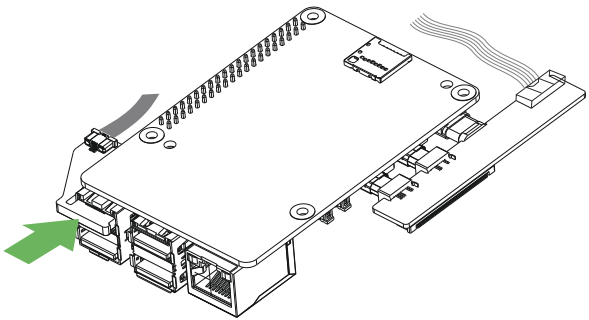
3. Peel off the masking tape on the function adapter board and the camera signal adapter board.



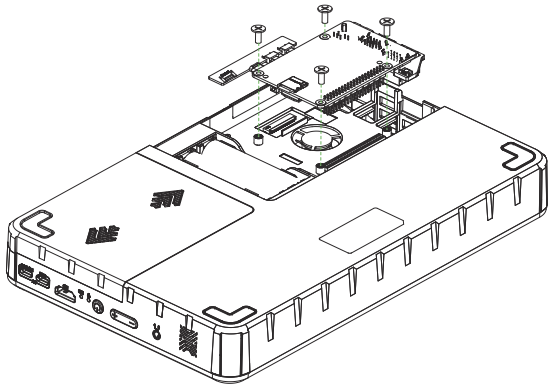
4.Insert the function adapter board into the Raspberry Pi's Micro HDMI port and Type-C port.



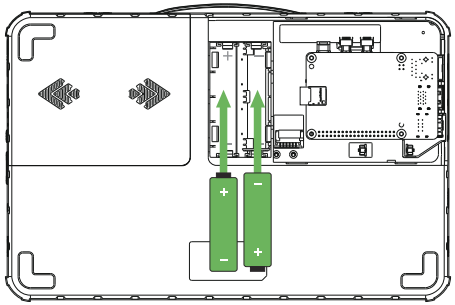
5.Insert the camera signal adapter board into the outermost USB 2.0 port of the Raspberry Pi 5.



6.Vertically install the Raspberry Pi 5 with the inserted TF card into the Raspberry Pi enclosure.

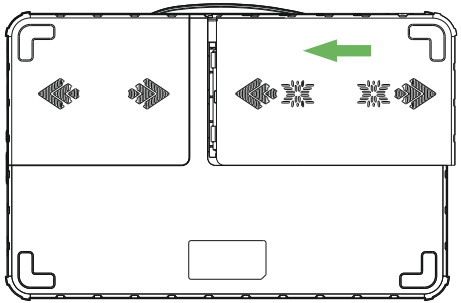


7.Place two 18650 batteries in the correct positive and negative direction.



Note: 1. The battery is not included in the Basic Kit. If you need it, please purchase it separately or opt for the Advanced Kit.
2. Users who do not need built-in batteries can skip this step.

8.Close the cover.



Education

This is a software specifically designed for CrowPi 3 users, featuring over 150 meticulously planned learning courses that offer a convenient, ready-to-use experience. The provided electronic components, circuits, and courses cover a wide range of knowledge points, ensuring that users can quickly grasp the basic principles of electronics and programming through practical operations. For the most popular artificial intelligence applications, such as facial and speech recognition, as well as AI interaction, we have also provided some AI courses and built-in model libraries.

Home page and User settings

1. User Account:

Manage your account and check your learning progress.

2. Points:

The feature isn't available yet.

3. Network status:

Display the network status of the device.

4. Binding Statu:

The feature isn't available yet.

5. README:

A brief overview of the main interface and the functions of each section.

6. Ai Chat:

The feature isn't available yet.

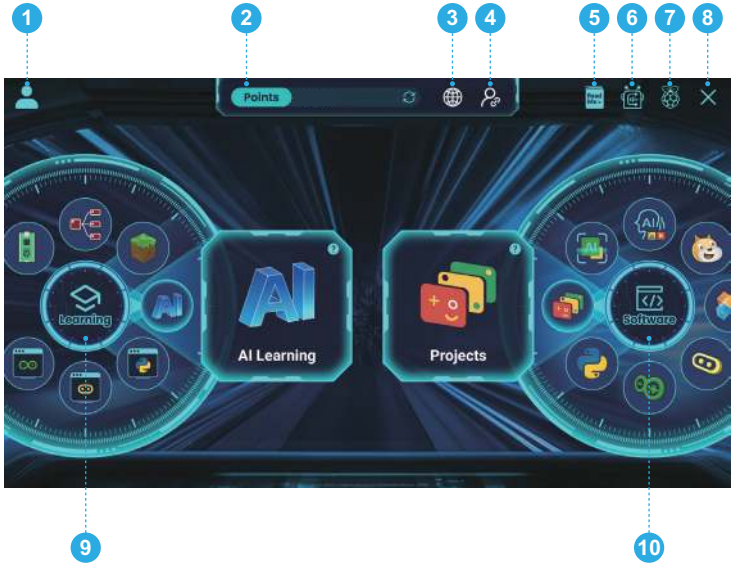
7. Raspberry Pi Desktop:

Return to the Raspberry Pi Desktop.

Click to return to the learning interface.

8. Close:

Close the learning interface.



9. Learning Courses:

All the courses on the CrowPi 3 include AI, Python, Node-RED, Micro:bit, Pico, Arduino and Minecraft.

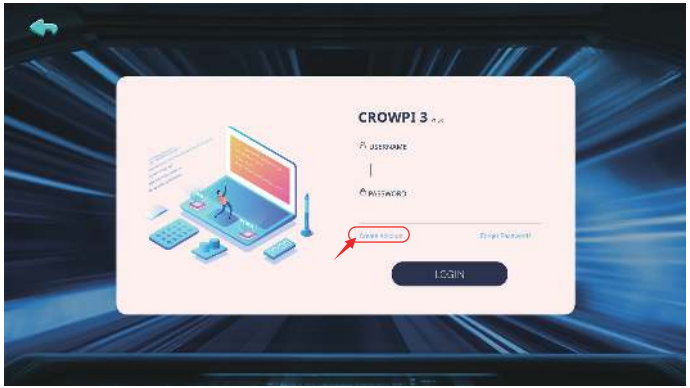
10. Applications:

All the applications on the CrowPi 3 include Projects, AI Computer Vision, Python IDE, Arduino IDE, Micro:bit, Game and Scratch.

Create & Login Accounts

The first time you use the software you need to register a new account.

1. Click , then click Create Account



2. After finish create account, enter your USERNAME and PASSWORD, then click LOGIN

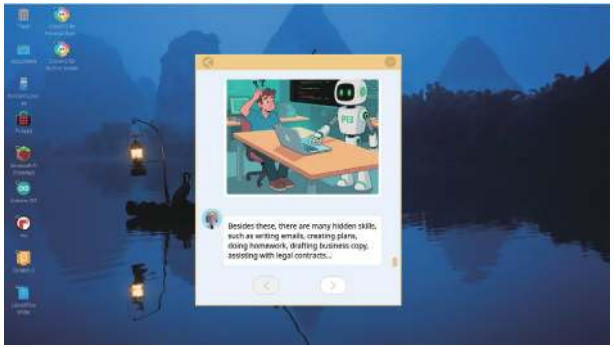
3. Once you've successfully logged in, click , pop up a personal user window, where you can view the progress of your course and your private folder. Click to Log Out log out of your account.



Learning

AI Learning

This AI course includes 29 lessons designed for beginners. It covers AI voice interaction, voice-controlled hardware, voice-driven image and video generation, object recognition, and voice cloning projects. Each module features hands-on examples to help learners deeply understand AI applications. The course follows a step-by-step approach to steadily build AI development and practical skills, making it an ideal choice for beginners aiming to master AI comprehensively.



Click , retuen to the learning interface.

Click , Release all hardware pins.

Click , open the operation guide.

Click , Minimize the course page.

Click , close the course page.

Learning(AI)

Lesson Number	Part Name
Lesson 1	What is Ai
Lesson 2	What is LLM
Lesson 3	What is Agent
Lesson 4	Hello AI
Lesson 5	AI usage skills
Lesson 6	What is API
Lesson 7	AI Via API
Lesson 8	Ai Character Control
Lesson 9	Ai asr
Lesson 10	Ai tts
Lesson 11	Model Deployment
Lesson 12	Ollama VS vLLM
Lesson 13	Offline LLM
Lesson 14	Ollama Deployment
Lesson 15	Vllm Deployment
Lesson 16	AI Tool Call
Lesson 17	Turn on the buzzer
Lesson 18	Turn on the vibration module

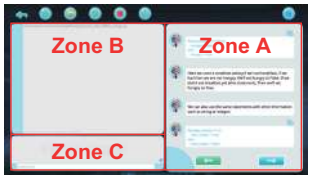
Lesson Number	Part Name
Lesson 19	Turn on the digital tube
Lesson 20	Check the temperature
Lesson 21	Turn on the RGB light
Lesson 22	Set brightness
Lesson 23	Offline ASR
Lesson 24	Offline TTS
Lesson 25	Offline AI
Lesson 26	AI generated images
Lesson 27	AI Vision Basics
Lesson 28	Gesture music player
Lesson 29	Offline AI Recognition

Learning

Python Learning

This Python course features 38 lessons based on the CrowPi 3 platform, covering 26 common sensors and external modules like temperature and humidity detection, light sensing, sound control, and display output. The curriculum progresses from basic to advanced concepts, using engaging hands-on projects to help students grasp programming logic and hardware interaction. Through project-based learning, students not only master Python fundamentals but also enhance their development skills. This course is ideal for beginners looking to start and practice programming with real-world applications.





Zone A is the teaching steps area.

Zone B is the code writing area.

Zone C is the output results area.

Click , return to the last page.

Click , open the operation guide.

Click , return to learing interface.

Click , create a new python project.

Click , open your code folder.

Click , run your code.

Click , stop compiling the code.

Click , download to the development board.

Learning(Python)

Lesson Number	Part Name
Lesson 1	Python3 and GPIO usage
Lesson 2	Making a buzzer alarm
Lesson 3	Use the vibration module
Lesson 4	Use and control the relay
Lesson 5	Using the tilt sensor
Lesson 6	LED flashing
Lesson 7	Traffic light experiment
Lesson 8	Magnetic field detection
Lesson 9	Encoder adjustment buzzer
Lesson 10	Controlling 4 digit Segment
Lesson 11	Using the joystick module
Lesson 12	Making circuit using the bread board
Lesson 13	Control and move servo
Lesson 14	Control the step motor
Lesson 15	Powering 8x8 RGB LED
Lesson 16	Detect motion using the PIR sensor
Lesson 17	Using the touch sensor
Lesson 18	Controlling LCD display
Lesson 19	EEPROM read and write
Lesson 20	Using The Flame Sensor

Lesson Number	Part Name
Lesson 21	ADC reads analogue values
Lesson 22	Using the sound sensor
Lesson 23	Detect light using the light sensor
Lesson 24	Using the DHT20 sensor
Lesson 25	Using the ultrasonic sensor
Lesson 26	RGB LED distance rainbow
Lesson 27	Using the IR receiver
Lesson 28	Play songs using the IR remote
Lesson 29	Using the button matrix
Lesson 30	Morse code translator
Lesson 31	Using RC522 RFID module
Lesson 32	RFID numbers part 1
Lesson 33	RFID numbers part 2
Lesson 34	Recording using the microphone
Lesson 35	Taking footage using the camera
Lesson 36	PIR activated video
Lesson 37	Accelerometer and Gyro
Lesson 38	Expand I2C device

Node-RED Learning

This Node-RED course includes 33 lessons built around the CrowPi 3 hardware platform, using visual programming to read sensor data, connect devices, and enable remote monitoring. Through practical projects, students learn the IoT development process and visualization control techniques. The course enhances skills in project design and debugging making it perfect for beginners to systematically start and easily create smart hardware interactions.



Click , retuen to the learning interface.

Click , Release all hardware pins.

Click , open the operation guide.

Click , Minimize the course page.

Click , close the course page.

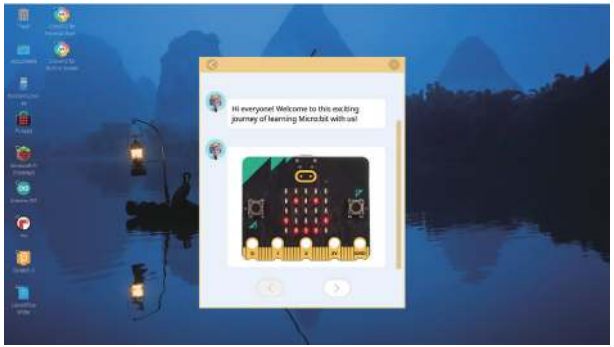
Learning(Node Red)

Lesson Number	Part Name
Lesson 1	Node RED
Lesson 2	Bomb Defusal Basics
Lesson 3	Bomb Timer Upgrade
Lesson 4	Guess the Number Console
Lesson 5	Guess the Number Online
Lesson 6	Number Match Logic
Lesson 7	Web Based Quick Math
Lesson 8	View Score File
Lesson 9	Filter Student Scores
Lesson 10	Weather API Basics
Lesson 11	Interactive Weather Webpage
Lesson 12	GPT Chat Basics
Lesson 13	MQTT Chat Integration
Lesson 14	Environmental Data Collection
Lesson 15	Web Based Crop Monitoring
Lesson 16	Flame Buzzer Hardware Test
Lesson 17	Standalone Flame Alarm
Lesson 18	NFC Music Card System

Lesson Number	Part Name
Lesson 19	NFC Web Music Player
Lesson 20	Distance Sensor Test
Lesson 21	Start Distance Challenge
Lesson 22	Tilt Sensor Test
Lesson 23	Balance Game Challenge
Lesson 24	PIR Sensor Basics
Lesson 25	Smart PIR Light
Lesson 26	Basic Light Control
Lesson 27	Interactive Light Control
Lesson 28	Window Sensor Init
Lesson 29	Window Interactive Control
Lesson 30	Motion Sensor Test
Lesson 31	Smart Box Monitor
Lesson 32	Smart Clock Basics
Lesson 33	Interactive Wake Clock

Micro:bit Learning

This micro:bit course features 27 lessons showing how to run 26 sensor projects on the CrowPi 3 platform. The micro:bit module can be programmed through CrowPi 3 or directly control its hardware, making operation simple. Each lesson includes engaging projects to help students easily master hardware control and sensor applications. it's an ideal, structured course for beginners.



Click , retuen to the learning interface.

Click , Release all hardware pins.

Click , open the operation guide.

Click , Minimize the course page.

Click , close the course page.

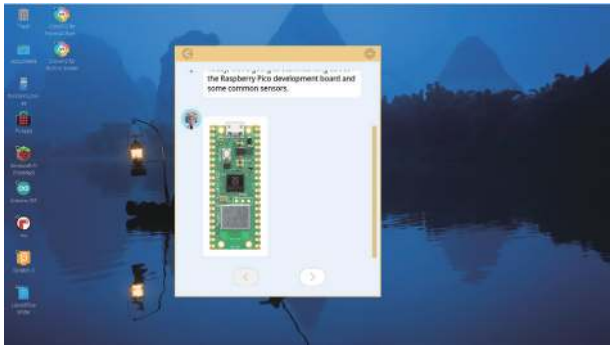
Learning(Micro:bit)

Lesson Number	Part Name
Lesson 1	CrowPi 3 Microbit Pico
Lesson 2	LED
Lesson 3	Traffic Light
Lesson 4	The Buzzer
Lesson 5	PWM Controlled Buzzer Volume
Lesson 6	Capacitive Touch
Lesson 7	Tilt Sensor
Lesson 8	Relay Function
Lesson 9	Ultrasonic Sensor
Lesson 10	LCD Display
Lesson 11	Seven Segment Display
Lesson 12	Voltage Detection
Lesson 13	Servo Motor
Lesson 14	RGB LED Dot Matrix Display
Lesson 15	Button Control
Lesson 16	Button Controlled LED
Lesson 17	RFID
Lesson 18	Flame Sensor

Lesson Number	Part Name
Lesson 19	Light Sensor
Lesson 20	Vibration Feedback
Lesson 21	Hall Sensor
Lesson 22	Stepper Motor Control
Lesson 23	Rocker Joystick Control
Lesson 24	EEPROM Read And Write
Lesson 25	Temp Humidity Sensor
Lesson 26	Encoder
Lesson 27	Infrared Remote Control

Pico Learning

This Pico course offers 28 lessons focused on hardware sensors, using the CrowPi 3 platform and Arduino code for programming. It requires no extra PC-side setup and supports plug-and-play operation for easy use. Packed with practical examples, the course helps students quickly master Pico development and sensor applications, making it perfect for beginners to get started efficiently.



Click , retuen to the learning interface.

Click , Release all hardware pins.

Click , open the operation guide.

Click , Minimize the course page.

Click , close the course page.

Learning(Pico)

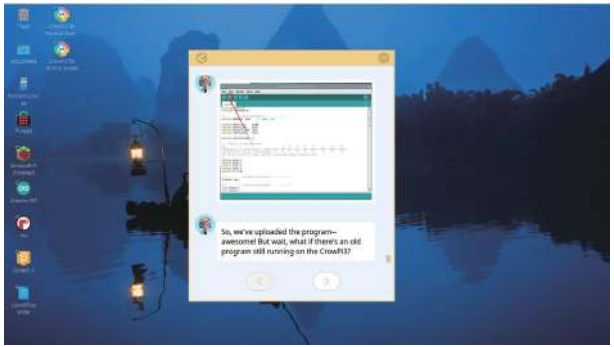
Lesson Number	Part Name
Lesson 1	CrowPi 3 Raspberry Pico
Lesson 2	LED Light Control
Lesson 3	Traffic Light
Lesson 4	The Buzzer
Lesson 5	PWM Regulated Buzzer
Lesson 6	Sound Sensor
Lesson 7	Vibration Feedback
Lesson 8	Relay Function
Lesson 9	Capacitive Touch Sensor
Lesson 10	Tilt Sensor
Lesson 11	Hall Sensor
Lesson 12	Human Body Induction
Lesson 13	Flame Sensor Controlled LEDs
Lesson 14	Servo Motor
Lesson 15	Ultrasonic Sensor
Lesson 16	Voltage Detection
Lesson 17	RGB LED Matrix
Lesson 18	Seven Segment Display

Lesson Number	Part Name
Lesson 19	Stepper Motor
Lesson 20	LED Control Via Light Sensor
Lesson 21	Encoder
Lesson 22	Temp Humidity Sensor
Lesson 23	Rocker Joystick Control
Lesson 24	RFID Function
Lesson 25	EEPROM Read Write
Lesson 26	Infrared Remote Control
Lesson 27	Button Control
Lesson 28	Button Controlled LED

Learning

Arduino Learning

This Arduino course consists of 28 lessons using the Arduino Nano board combined with the CrowPi 3 hardware platform for programming instruction. Each project is completed using the Arduino IDE and covers hardware control and sensor applications. With rich, practical content, the course helps students master the Arduino development process and CrowPj3 hardware operation. It's an ideal, structured introduction for beginners.



Click , retuen to the learning interface.

Click , Release all hardware pins.

Click , open the operation guide.

Click , Minimize the course page.

Click , close the course page.

Learning(Arduino)

Lesson Number	Part Name
Lesson 1	CrowPi 3 Arduino Nano
Lesson 2	LED
Lesson 3	Traffic Light
Lesson 4	The Buzzer
Lesson 5	Buzzer PWM Volume
Lesson 6	Touch Sensor
Lesson 7	Sound Sensor
Lesson 8	Tilt Test
Lesson 9	Human Sensing
Lesson 10	Relay Function Test
Lesson 11	Vibration Feedback
Lesson 12	Flame Sensor
Lesson 13	Hall Sensor
Lesson 14	Voltage Detection
Lesson 15	Ultrasonic Sensor
Lesson 16	Servo Motor
Lesson 17	Nixie Tube
Lesson 18	Light Sensor

Lesson Number	Part Name
Lesson 19	RGB LED Matrix
Lesson 20	IR Control
Lesson 21	Temp Humidity Sensor
Lesson 22	Remote Rod Control
Lesson 23	Encoder
Lesson 24	Stepper Motor
Lesson 25	Button Control
Lesson 26	Button controlled LED
Lesson 27	EEPROM Read Write
Lesson 28	RFID Experiment

Minecraft Learning

This Minecraft course includes 16 lessons that use the game to teach coding by creating fun features like bomb generation. It also guides students to enhance gameplay with CrowPi 3 hardware, boosting both programming and hardware control skills. Combining play with learning, this engaging course is perfect for gaming fans to quickly get started with coding.









Learning(Minecraft)

Lesson Number	Part Name
Lesson 1	Run game
Lesson 2	Minecraft API
Lesson 3	First greeting
Lesson 4	Find location
Lesson 5	Teleport player
Lesson 6	Generate block
Lesson 7	Generate house
Lesson 8	Plant flowers
Lesson 9	Find block
Lesson 10	Generate TNT
Lesson 11	Block battle
Lesson 12	Show position
Lesson 13	TNT detector
Lesson 14	Joystick control
Lesson 15	Write data
Lesson 16	NFC block

Application

Projects

This course features 15 project demos designed to give you a quick overview of all hardware modules on the CrowPi 3. Each project includes a demo video and detailed instructions, with one-click execution to clearly showcase the functions and interactions of sensors and devices. Through project-based learning, students gain a comprehensive understanding of how to apply various hardware components.



Ai Computer Vision

This AI computer vision course covers key applications such as object recognition, and object tracking. Through hands-on examples, it explains the core principles and technical details behind AI vision. Each program can be run with one click, combining image processing with hardware interaction to help students deeply understand the visual recognition workflow and build strong practical AI skills.



Application

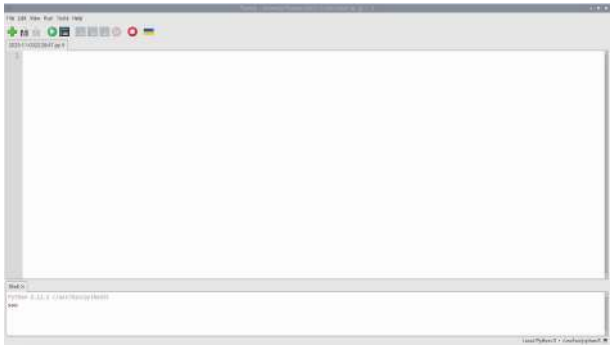
Games

Includes 18 easy Python mini-games that you can play with just a click. With a variety of game rules, they offer a fun way to unwind while learning. These engaging games boost your interest and help develop hands-on skills and logical thinking.



Python IDE

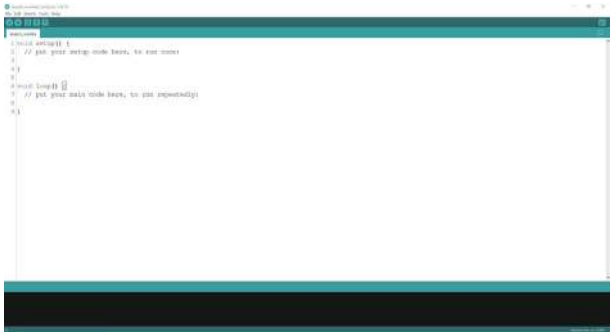
On the CrowPi 3, we use Thonny as the Python editor. Thonny IDE is a lightweight development environment designed for Python beginners, featuring a clean and intuitive interface. It supports code editing, debugging, and running programs, With built-in debugging tools, it makes understanding program flow easier-ideal for teaching and beginner coding practice.



Application

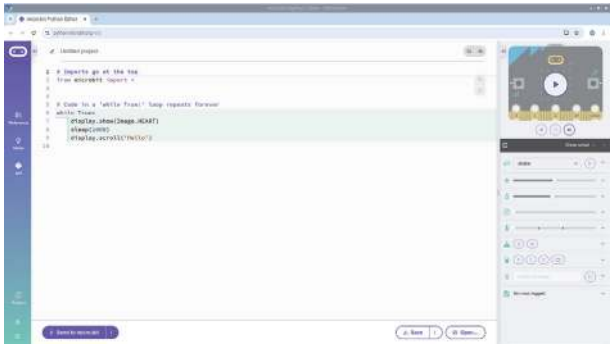
Arduino IDE

Arduino IDE is an integrated development environment tailored for Arduino boards, supporting code writing, editing, compiling, and uploading. Its clean and intuitive interface suits both beginners and professionals. With built-in examples and libraries, it enables quick hardware project development. The serial monitor lets users debug and monitor device status in real time.



Micro:bit IDE

The micro:bit IDE is a programming environment designed specifically for the BBC micro:bit. It supports both block-based and text coding, making it easy to use and perfect for beginners. With online editing, compiling, and downloading features, it helps users quickly create and debug interactive electronic projects, fostering hands-on programming learning and practice.

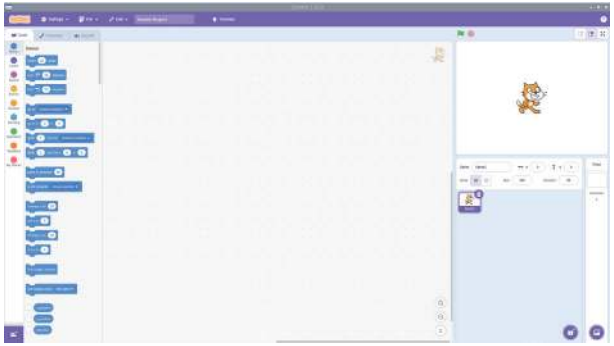


Application



Scratch

Scratch is a visual programming tool perfect for kids and beginners. By dragging and dropping code blocks, users can easily create animations games, and interactive stories, It fosters logical thinking and creativity without the need for complex syntax, offering an intuitive and easy-to-use experience. Although there's no dedicated Scratch course on the Pi3 platform, students interested can freely open the software to explore and enjoy programming on their own.



The main parameters

Dimensions	285(L)*185(W)*38(H)mm
Weight	1.1kg
Screen	4.3-inch 800*480 IPS screen
Camera	2.0MP camera with microphone
Power supply	PD5V/5A
Type-C port	5V/2A
Audio output	Stereo speaker
Volume adjustment	Support
Screen brightness adjustment	Support
Audio port	3.5mm headphone jack
Compatibility	Compatible with Raspberry Pi5, Arduino Nano, micro:bit, Pico Series
Other function	Storage box
Supporting operation system	Raspbian, Ubuntu, CentOS, Windows IOT, KALI, Pidora, ArchLinux, FreeBSD, Kodi, OpenWrt, RISC OS, RetroPie, LAKKA, Recalbox, LibreELEC, OSMC

Conventional accessories

Basic Kit

Power Supply x1

Screwdriver x1

Stepper Motor x1

Infrared Receiver Head x1

User Manual x1

RFID Card + Tag x1

IR Remote Control x1

Motor + Fan Blade x1

USB A to Micro B Cable x1

Type-C to Type-C Cable x1

Magnet x1

TF Card Reader x1

Crowtail- 9G Servo x1

Components Pack x1

128G TF Card with Customized System x1

Advanced Kit

Power Supply x1

Screwdriver x1

Stepper Motor x1

Infrared Receiver Head x1

User Manual x1

RFID Card + Tag x1

IR Remote Control x1

Motor + Fan Blade x1

USB A to Micro B Cable x1

Type-C to Type-C Cable x1

Magnet x1

TF Card Reader x1

Crowtail- 9G Servo x1

Components Pack x1

128G TF Card with Customized System x1

NFC Tag x10

Raspberry Pi 5 16GB x1

32G TF Card with Customized System x1

Minecraft Paper x5

Crowtail-I2C HUB x1

18650 Lithium Battery x2

Game Controller x2

Laptop Tote x1

2.4G Wireless Keyboard+ Mouse x1

FAQ

1. Unable to boot

Make sure you are using the correct charger and that the SD card is inserted into the Raspberry Pi.

2. The module or sensor on the PCBA board cannot be used

Please set the controller board selection switch to the correct position. If connecting to Raspberry Pi 5, set it to position 1.
If connecting to Arduino Nano and Pico, set it to position 2.

3. After setting up the circuit on the breadboard and not getting the expected output

Please confirm whether the controller board selection switch has been switched to position 2.

4. The screen goes black and crashes

Please check whether the high-current peripheral is mounted to cause the insufficient power supply.

5. Camera and microphone do not work

Please confirm if the camera signal adapter board is fully connected.

6. Unable to connect to the network

Please turn on the wireless network or connect to the Raspberry Pi Ethernet network port.

7. The wireless keyboard and mouse do not work

a. Check the battery level of the keyboard and mouse. Insert the receiver, and turn on the mouse first, then the keyboard.

b. If it doesn't work, repair the devices:
- Turn off both devices, reinsert the receiver.
- Turn on the mouse, click to complete pairing, then turn off the mouse.
- Turn on the keyboard, press and hold **“Esc + Q”** keys until the blue light stays on, then turn off the keyboard.

c. Finally, reinsert the receiver, turn on the mouse first, then the keyboard to use normally.

You can also watch the video for guidance: https://www.youtube.com/watch?v=N3sRteGedFc.

8. Why can't I adjust the volume/brightness

If you first press the "+" key, you are adjusting the volume; if you first press the "-" key, you are adjusting the brightness.

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception,

which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC’s RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.





More content is being updated continuously.
If you have any questions, customer support is always stand by.

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