CrowPi 2
by Elecrow

CrowPi 2 - All in one STEM Learning Platform & Raspberry Pi Laptop

USER MANUAL

V1.4 2021

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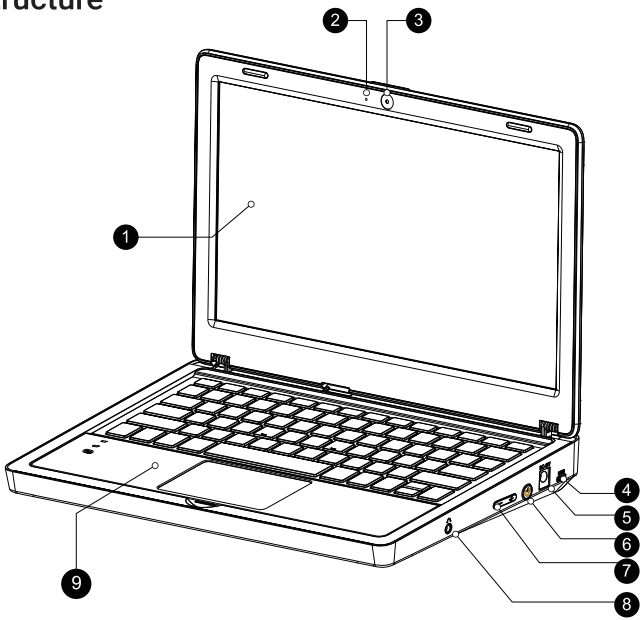
Product info

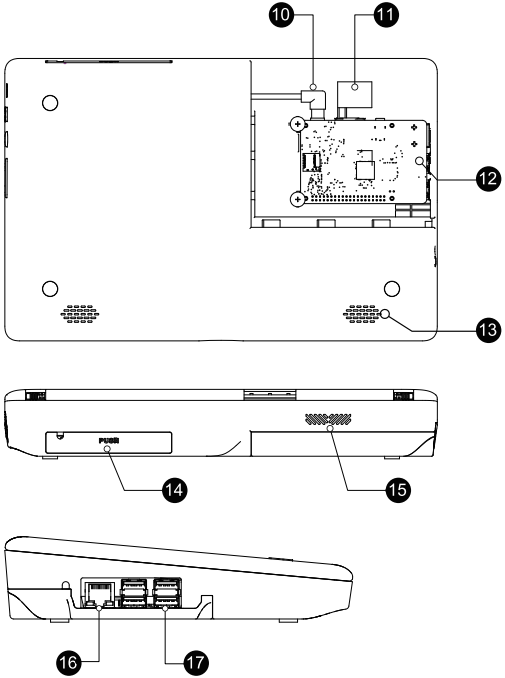
CrowPi 2 combines Raspberry Pi and a range of common sensors, it's just as useful for learning about STEM education and setting up as a portable laptop. No matter you are Raspberry Pi fan , a STEM educator, or someone who wants to experience something interesting, CrowPi 2 will be your best choice!

Main features

1. 11.6-inch **1920*1080** IPS screen
2. Sleek body made out of **environmentally-friendly** material, portable for **on-the-go** use
3. **Wireless keyboard** detaches from body or stays connected via magnet
4. Convert between playing and learning in second
5. Get started via **one-step installation** of **Raspberry Pi 4B**
6. **2MP camera**, **microphone**, and **stereo output** built in
7. Switch between projects using one button and get creative using Raspberry PI GPIO pins, all of which connect to the onboard sensors or function as independent outputs
8. **All-in-one board** includes all necessary sensors for learning hardware and software
9. **Self-developed software** for learning Scratch, Python, AI, and Minecraft step-by-step via an engaging dialogue teaching mode
10. **Offline account management** for saving learning progress and achievements and convenient for further study

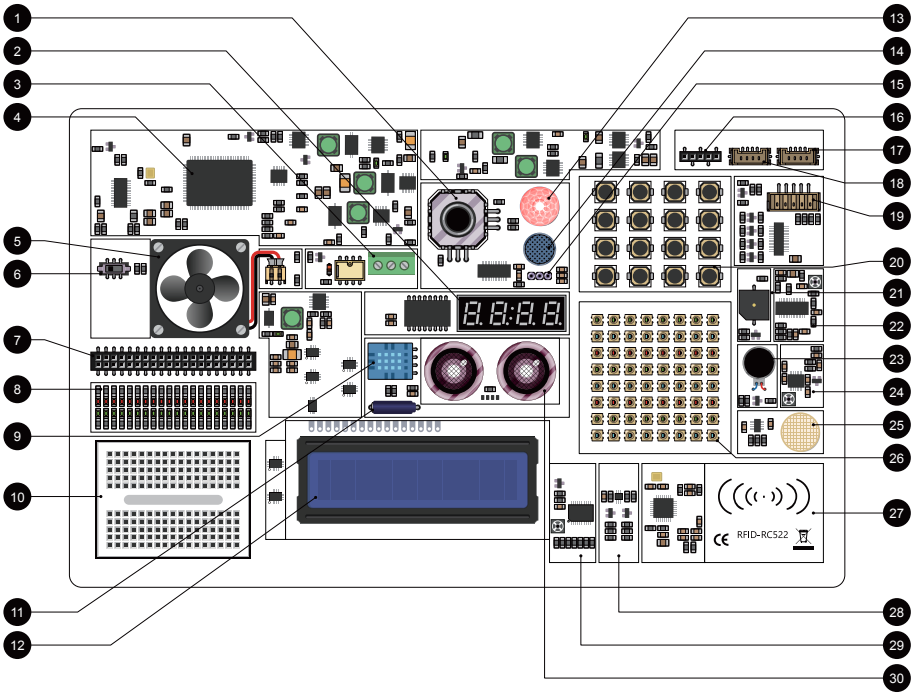
Structure





1. 11.6 -inch 1920 * 1080 resolution screen
2. Microphone
3. Two-megapixel camera
4. 5V USB power supply port
5. DC 12V power supply port
6. Power switch
7. Screen brightness +/-
8. 3.5mm headphone jack
9. Removable wireless keyboard
10. Raspberry Pi power supply head (reserved)
11. HDMI connector
12. Raspberry Pi fixed position
13. Speakers
14. Storage groove
15. Cooling hole
16. Raspberry Pi network port
17. Raspberry Pi USB port

Development board



1. Joystick
2. Segment
3. Relay
4. Screen driver
5. Cooling fan
6. Raspberry Pi and PCBA connection switch
7. GPIO interface
8. GPIO indicate LED
9. DHT11 temperature and humidity sensor
10. Breadboard
11. Tilt sensor
12. LCD1602
13. PIR sensor
14. Sound sensor
15. IR sensor interface
16. I/O/ADC/UART expansion interface
17. 9g servo interface
18. I2C expansion interface
19. Stepper motor interface
20. 4x4 button matrix
21. Buzzer
22. PIR sensitivity adjustment
23. Vibration motor
24. Sound sensor sensitivity adjustment
25. Touch sensor
26. 8x8 RGB matrix
27. RC522 RFID induction module
28. Light intensity sensor
29. LCD1602 brightness adjustment
30. Ultrasonic sensor

The main parameters

CrowPi 2 Specification	
Dimensions	291(L)*190(W)*46(H)mm
Weight	1.3kg
Screen	11.6-inch 1920*1080 IPS screen
Camera	2.0MP camera with microphone
Power supply	DC12V/ USB 5V power supply
Power port	Micro USB/ DC
Keyboard	2.4G wireless
Mouse	2.4G wireless
Audio output	Stereo speaker
Volume adjustment	Support
Screen brightness adjustment	Support
Induction screen function	Support
Audio port	3.5mm headphone jack
Compatibility	Compatible with Raspberry Pi 4B
Other function	storage box (power bank box)
Supporting operation system	Raspbian, Ubuntu, CentOS, Windows IOT, KALI, Pidora, ArchLinux,
	FreeBSD, Kodi, OpenWrt, RISC OS, RetroPie, LAKKA, Recalbox,
	LibreELEC, OSMC
Certification	CE, FCC, RoHS

Module list:

1. Joystick
2. Segment LED
3. Relay
4. Cooling fan
5. Switch converts connection between sensors and Raspberry Pi
6. GPIO pin socket
7. GPIO indicate LED
8. DHT11 temperature and humidity sensor
9. Breadboard
10. Tilt sensor
11. Hall sensor
12. PIR motion sensor
13. PIR sensitivity adjustment
14. Sound sensor
15. IR receiver
16. I/O/ADC/UART extension port
17. IIC port
18. 9G servo
19. Stepper motor
20. LCD1602 display
21. 4x4 button matrix
22. Buzzer
23. Vibration motor
24. Touch sensor
25. 8x8 RGB matrix
26. RC522 RFID sensing part
27. Moisture sensor
28. Light sensor
29. Ultrasonic sensor
30. Screen driver
31. Basic components pack
32. LCD1602 brightness adjustment
33. Sound sensor sensitivity adjustment

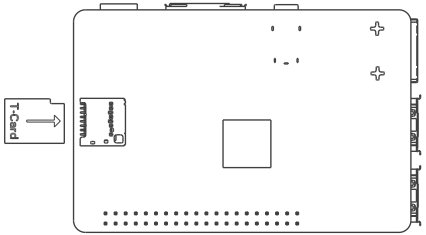
Conventional accessories:

Power supply x1	2.4G wireless mouse x1	Manual x1
Screwdriver x1	Stepper motor & Servo x1	RFID white card + tag x1
Infrared remote control x1	TF Card Reader x1	Crowtail -moisture sensor(with cable) x1
IR receiver x1	Motor + small fan x1	Components Pack x1

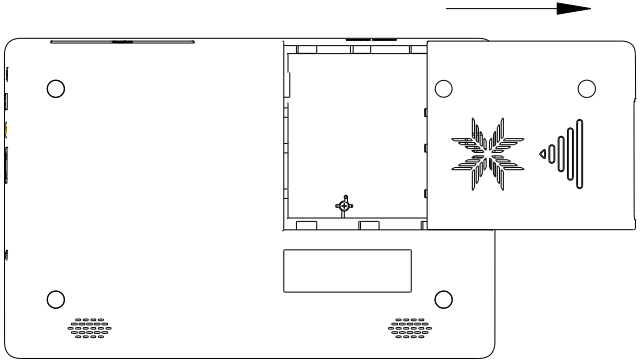
How to use

● Install Raspberry Pi

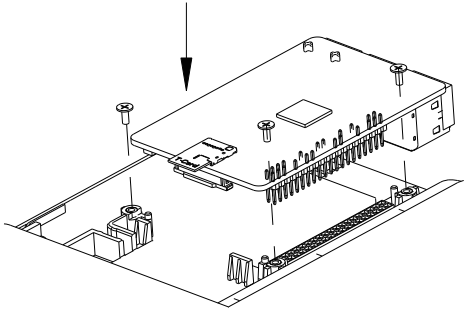
1. Insert the SD card (built in system) into the Raspberry Pi SD card slot.



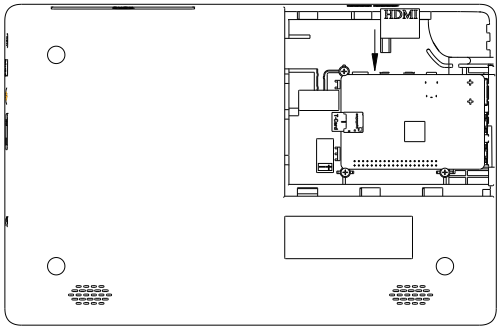
2. Push to the right to open the back cover of the CrowPi 2 Raspberry Pi compartment.



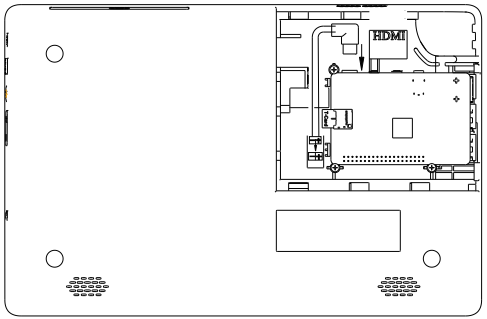
3. Vertically install the Raspberry Pi 4 with the TF card inserted into the Raspberry Pi compartment.



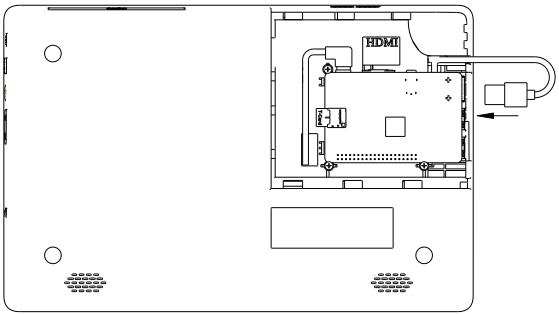
4. Connect the Micro HDMI adapter board to the Micro HDMI interface of the Raspberry Pi.

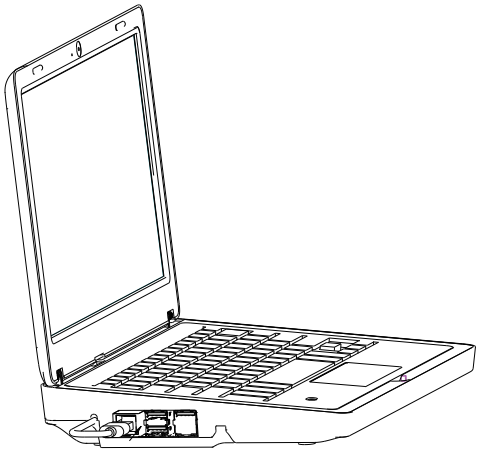


5. Connect the Raspberry Pi power cable and the 2pin interface to the female socket on the PCBA board, and insert the Type-c into the Raspberry Pi type-c power port.

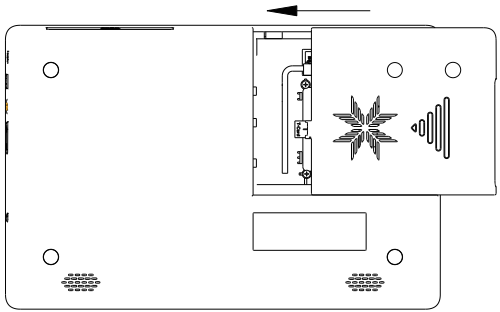


6. Remove the USB head and insert it into the USB port of the Raspberry Pi through the cable hole. It's for camera and microphone.

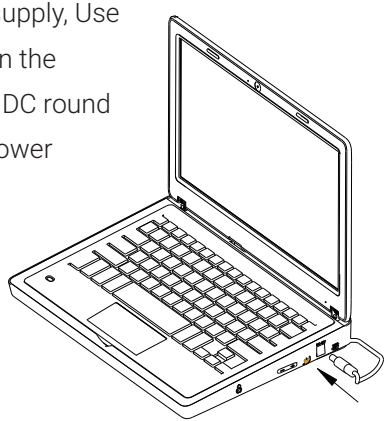




7. Close the cover.

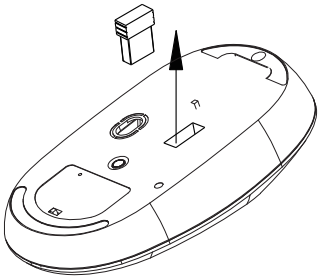


8. Connect the power supply, Use the 12V power supply in the accessories, insert the DC round head into the DC12V power supply port.

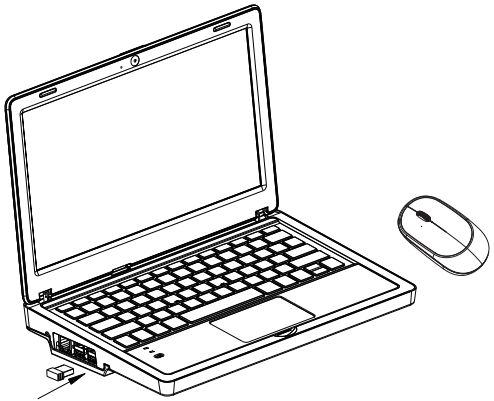


● Keyboard and mouse

1. Remove the wireless receiver in the mouse compartment .



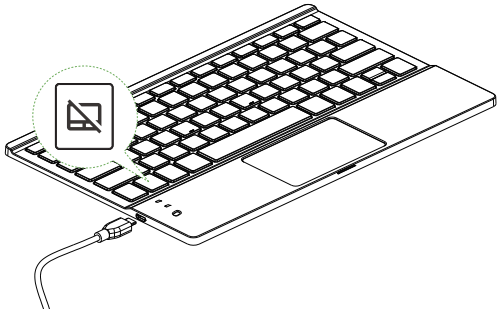
2. Insert any USB port of the Raspberry Pi.



3. Install a battery into the mouse,and then switch the button of keyboard and mouse to **"ON"** side.

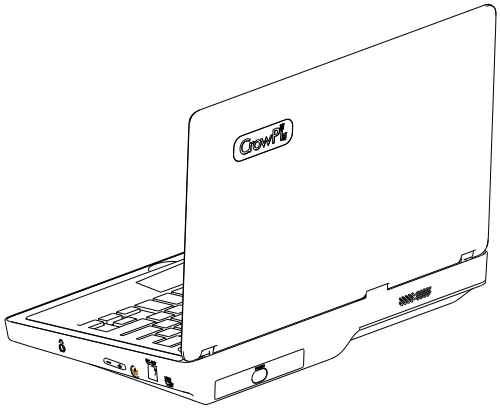
4. Get started, and you can use to open/close the touchpad.

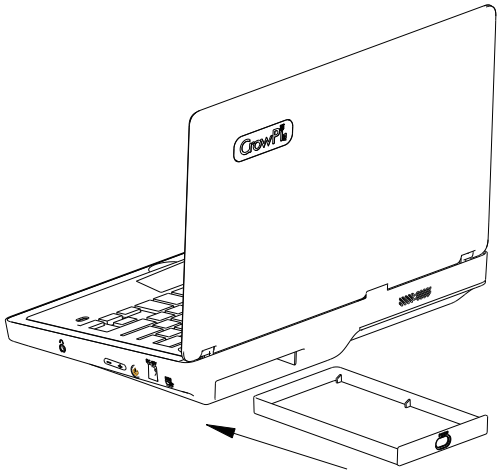
5. When the power led of keyboard is blink, it means that the power is almost exhausted, please use the micro usb cable to power the keyboard. And you can replace the battery of mouse if it runs out of power,



● Storage compartment

Use your finger to open and close the storage compartment.

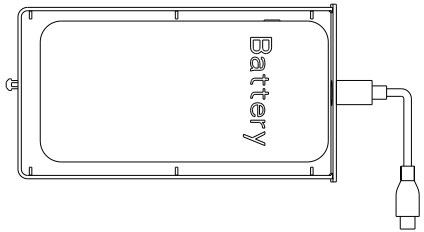




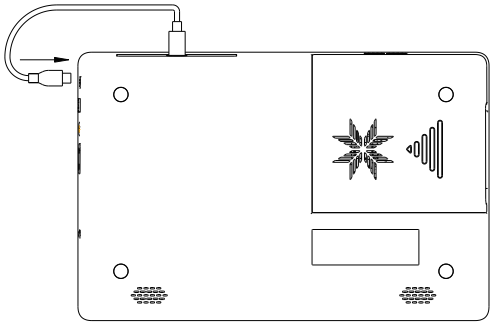
● Power bank

1. Install 5v power bank

1.1. Open the storage compartment, put the powerbank into the compartment, insert the wire through the wire hole, and then push it into device.



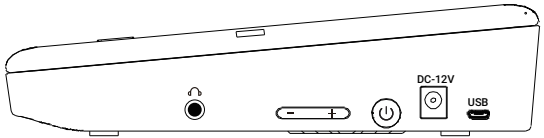
1.2. Access to 5V micro USB port.



2. Press the power button

● Screen brightness adjustment

Press the **+** button to increase the brightness, press **-** to decrease.



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 make sure that GPIO toggle switch have been switched to A successfully.

3. The wireless keyboard cannot be used

Please ensure that the power is sufficient, and ensure that the wireless transmitter is plugged into the USB port of the Raspberry Pi.

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 check if USB is connected .

6. Unable to connect to the network

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

Precautions

- Do not use in humid environment
- Do not use an unsuitable power supply to power the device
- Do not approach heat sources
- Do not bend the keyboard and screen
- Please do not use power bank and DC power supply to power the device at the same time

Software

This is a software specially designed for CrowPi 2 users, which integrates **scratch**, **python** programming and adaptation **tutorials**, **Micro:bit** and **Arduino IDE**, as well as the most popular programming game Minecraft.

In addition, it also can be used as entertainment device, which not only allows you to play small python games, but also enjoy videos and audios with a **built-in player**. Even if you want to learn the hottest AI related projects of recent years - **face and speech recognition**, we've provided some examples for you to get started.

Parts

Part name		Function
Learning	Python lessons	Let users quickly master the knowledge of python programming and software and hardware interaction
	Scratch lessons	Let users quickly master the knowledge of scratch programming and software and hardware interaction
Projects		20 small applications designed for quick familiarity with CrowPi 2 hardware features
Minecraft		Use game Minecraft to open the door to python programming world for children, teaching in fun
AI		Get the most popular knowledge of AI- face recognition and speech recognition
Python		Built-in python programming client
Game		Experience the fun of simple Mini Game written by python and develop your child's brain
Micro:bit		Makecode entry which is designed for Micro:bit programming
Scratch		Built-in Scratch Visual Programming Client
Arduino		Built-in Arduino programming IDE

Main page and User Settings

Main page

The page is the main software page, click on the corresponding module area to enter the corresponding section.

Click to return to the desktop.

Click to **Create and login accounts.**

Click to pop up the **shutdown window**.

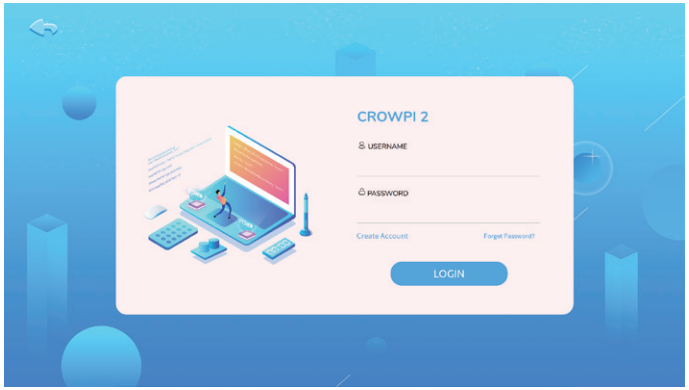
Click shutdown the device or to reboot.

Create and login accounts

Enter account login page, click go back to the previous step.

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

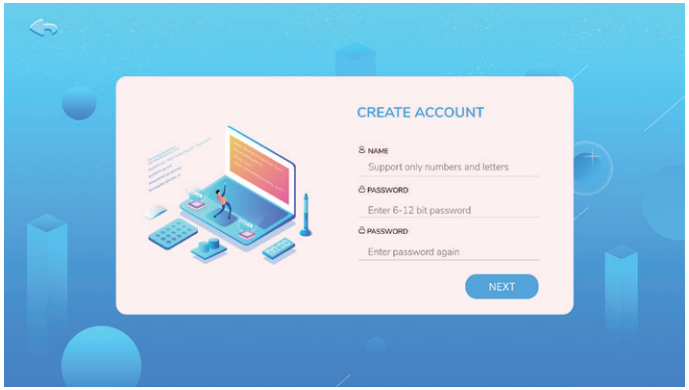
Click **Create Account** to create a new user account. Then go to the page shown in the image below, click back to the previous step.



Enter Name, only support numbers and letters.

Enter Password, limit the number of characters to 6-12 bits

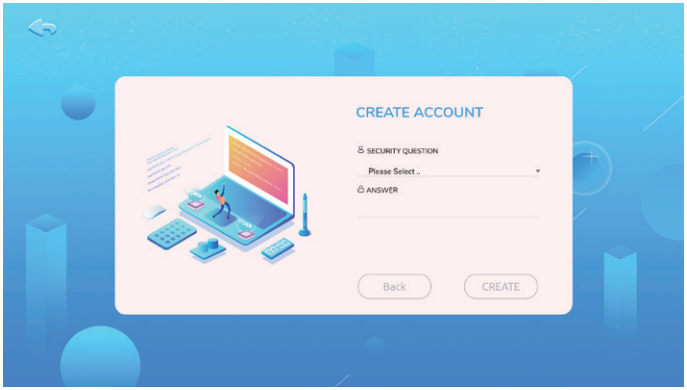
Reconfirm the password entered in the second step, Click NEXT



Set up secret questions and answers, click CREATE to complete account creation.

Go back to the login page and enter the username and password you just set up.

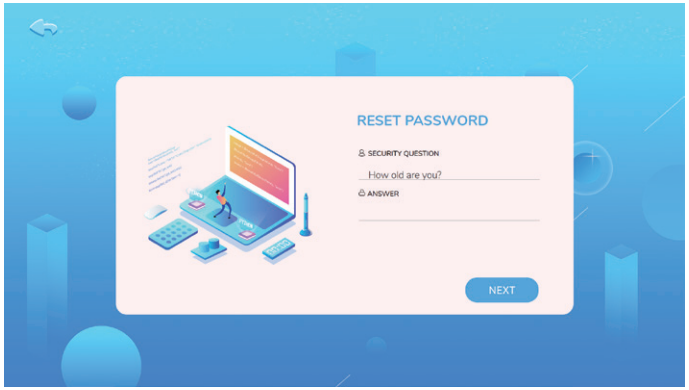
Then click LOGIN to sign in.



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

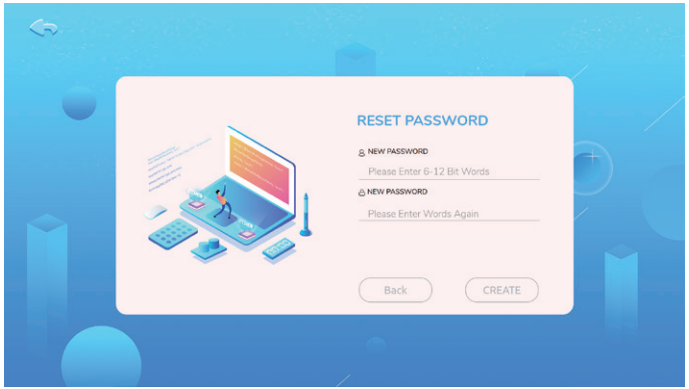
Forget password

If you forget your password, click Forget Password? on the login page to go to the password reset page, click back to the previous step.



Enter the secret question and answer, click NEXT to the next step, click back to previous step.

Enter the new password and confirm it twice, click CREATE complete password reset, go back to the login page and log in with the new password.



Operation Process

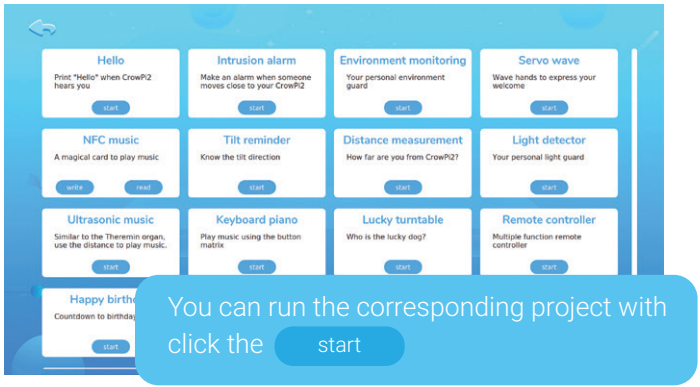
Learning

Integrated Scratch and python teaching resources, providing users with step-by-step tutorials to learn Scratch programming and python programming.

Projects

We provide 20 kinds of project use cases for users to quickly experience software and hardware interactions, understand the functions supported by the hardware that comes with the device.

Click on the icon to go to the projects selection page, as shows:



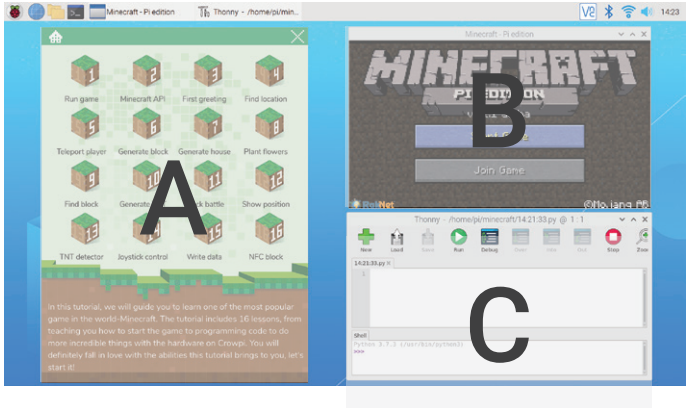
Attention

In the NFC music project, click write to write the number of music, then put the NFC card onto the NFC induction area, pick up the card after writing success. Next click read , then put then NFC card onto the induction area again.

Minecraft

Minecraft- the classic Minecraft raspbian version that combines gaming with programming.

Click on the icon and enter the desktop, pop up the Minecraft game window, the python programming client and the minecraft course teaching window. As shown in the figure below:



Zone A: Minecraft 16 course selection interface, click on the corresponding icon to enter the course, click back to the Dashboard page, click close the window.

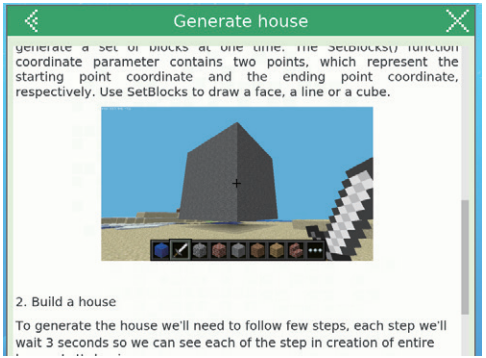
Zone B: Minecraft Game Client.

Zone C: Python programming client, which can change game interactions by entering code according to the course guidance in zone A.

Course page:

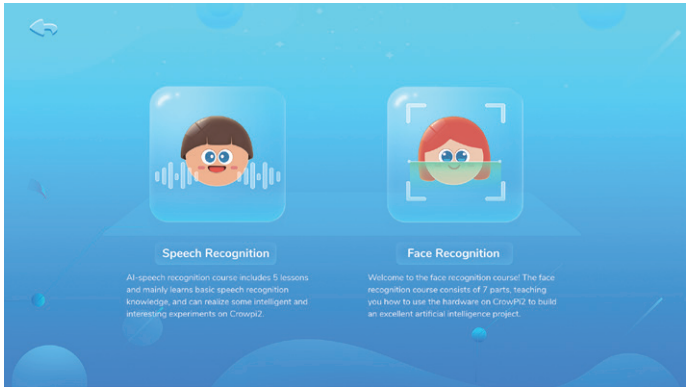
Drag the scroll bar on the right to browse and learn lessons.

Click back on the course selection page and click to close the window.



AI

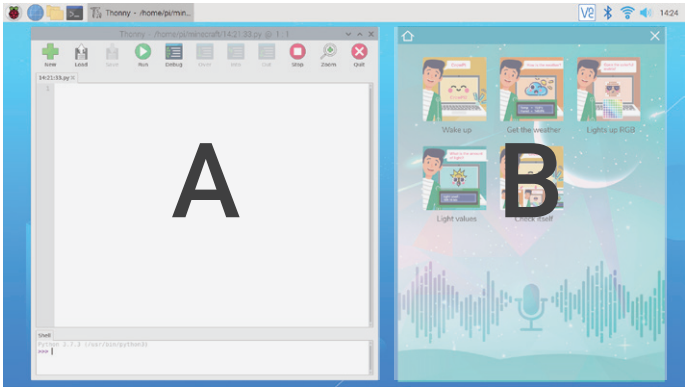
Enter AI Studies, divided into Face Recognition Speech and Recognition.



Face recognition : Seven face recognition courses allow you to master the simple principles of face recognition and simulate the application of preliminary scenes.

Speech Recognition : Five speech recognition courses, quickly master the setting of speech recognition wake-up words, call API , voice and hardware interaction and other content.

Click to enter speech recognition learning. Go back to the desktop and pop up the following two windows.



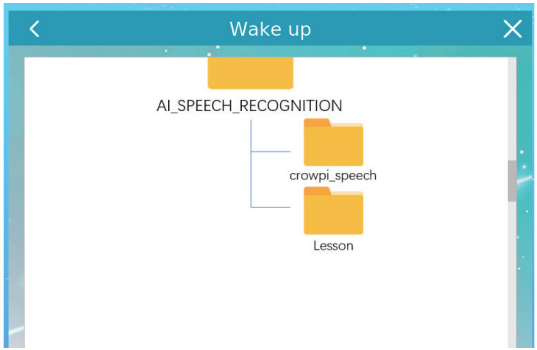
Zone A on the left is the Python programming client, and **Zone B** on the right is the speech recognition course selection window for a total of 5 lessons.

Click back to the main page and click to close the window.

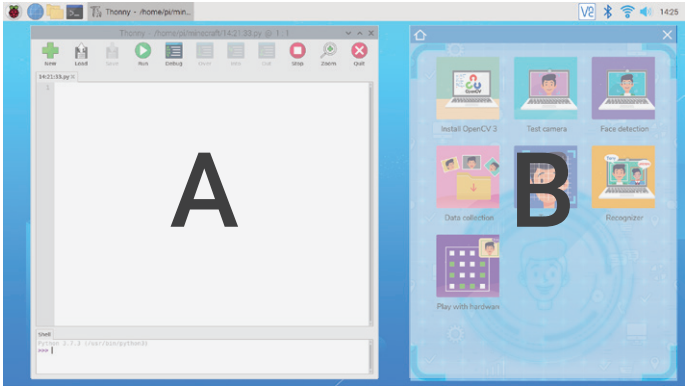
Click on the corresponding course icon to access the course instruction page:

Drag the scroll bar on the right to browse and learning.

Click to go back to the previous page, click to close window.



Click to enter face recognition learning. Return to the desktop and pop up the following two windows.



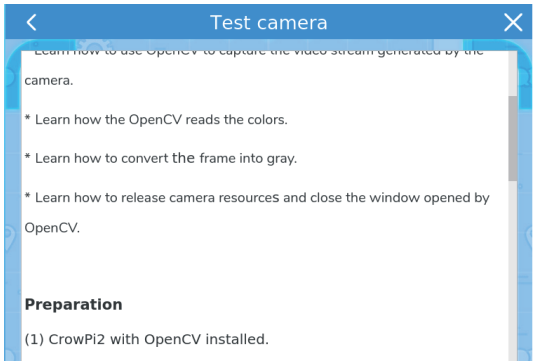
Zone A on the left is the Python programming client, and the right **Zone B** is the Face Recognition Course Selection Window for a total of 7 lessons.

Click go back to the main page and click to close window.

Click on the corresponding course icon to access the course instruction page:

Drag the scroll bar on the right to browse and learning.

Click to go back to the previous page, click to close window.



Python

Python programming - integrate the Python IDE for the convenience of Python developers
Click on the icon to return to the desktop and open the python programming client.

Game

Pygame-18 games written by python, users who is familiar with python can DIY games.

Micro:bit

Micro:bit programming - Makecode for Micro:bit visual programming.

Scratch

Scratch programming - integrated Scratch 3 software, learn to use visual programming.

Arduino

Arduino programming - a programming IDE designed for Arduino.

CrowPi 2
by Elecrow

For more information, please visit our forum:
https://forum.elecrow.com