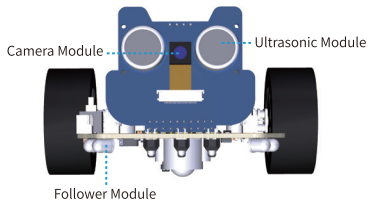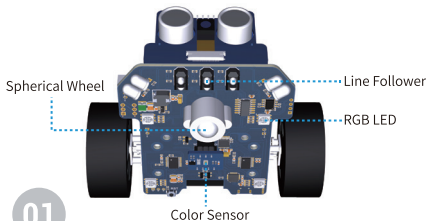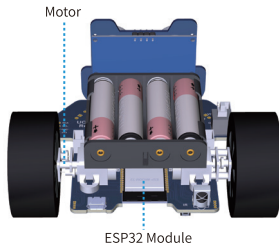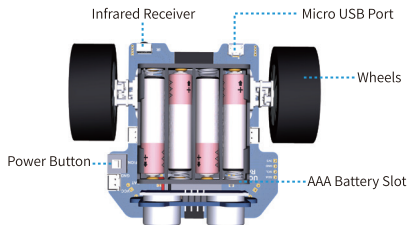# UCBOT

Let's begin!

UCTRONICS

ROBOT PARTS

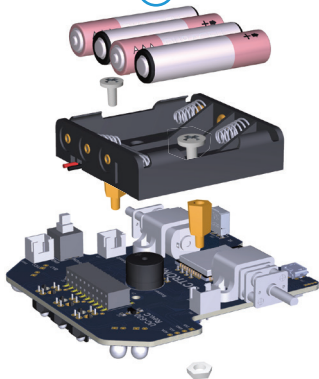*UCBOT* is a compact yet powerful smart robot from UCTRONICS. We hope it can inspire your kids to get great ideas, grow their interests in science and engineering, and become their best robot friend. Have fun with UCBOT!

Infrared Receiver

Micro USB Port

Wheels

Power Button

AAA Battery Slot

Motor

ESP32 Module

Spherical Wheel

Line Follower

RGB LED

Color Sensor

Camera Module

Ultrasonic Module

Follower Module

INSTALLATION

Mount the battery holder onboard with M2 screws and nuts, put your 4 AAA batteries in, and then connect the battery container to the "BAT" connector onboard.
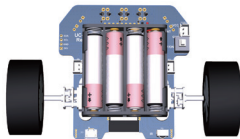
01

It's very simple to assemble our UCBOT, and you will only need 3 steps to get your robot running, 1,2,3, let's go!
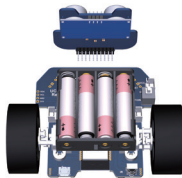
02

Put the wheels on. The robot is ready to move!

03

Don't forget the head! Align the pins and insert its head to the body.

INDICATOR LIGHT

Booting procedure | detect camera | detect color sensor | test motors | WIFI turned on for connection

- Failed camera initiating: Red light blinks fast. Please ensure the camera is correctly connected, and then re-power the robot.
- Failed color sensor initiating: Yellow light blinks fast. Please ensure the color sensor at the bottom of the robot is correctly connected, and then re-power the robot.
- Motor test: Move forward for 400ms, then backward for 400ms. If the motors do not move on startup, please check whether the battery is underpowered or the motor gears are stuck.
- WIFI turned on, pending connection: Blue light "breathes" (gradually dims).
- Enter home WIFI connection mode: Purple light "breathes" (gradually dims).
- Phone successfully connected to the robot WIFI: White light blinks with a buzzer sound.
- Phone successfully connected to the Home WIFI: Green light blinks with a buzzer sound.
- Home WIFI and Phone WIFI both disconnected: Pending connection, blue light blinks.

MOBILE APP
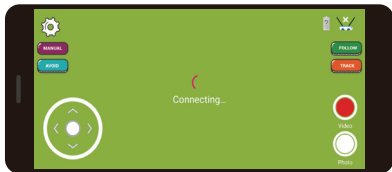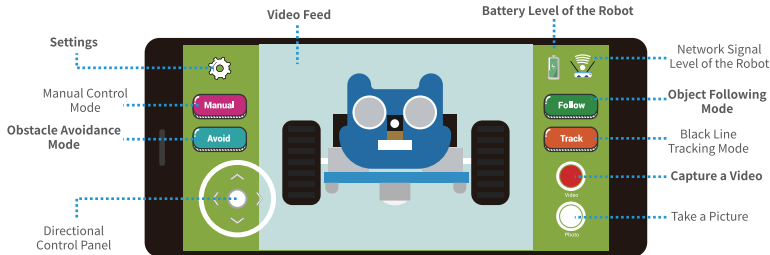

Open Google Play, search for **UCBOT** and install the app. Launch the APP and you'll see a welcome page. Let's get started.

Firstly, you should open your phone's WIFI, and then find the "UCBOT_xxxx" hotspot. Enter the password *12345678*, and hit *connect*.
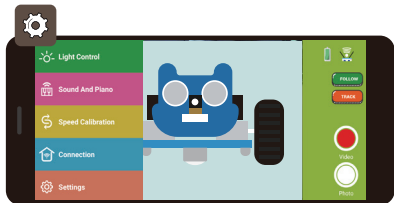
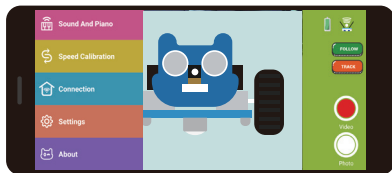When this pops up while the robot's working, the connection is lost and you need to reconnect the WIFI.

Settings

Manual Control Mode

Obstacle Avoidance Mode

Directional Control Panel

Video Feed

Battery Level of the Robot

Network Signal Level of the Robot

Object Following Mode

Black Line Tracking Mode

Capture a Video

Take a Picture

This is the main control panel of the APP, and you can go over it closely.

NOTE

1.When you are in Avoid, Follow or Track mode, you have to click manual or move the directional control arrows to exit it.
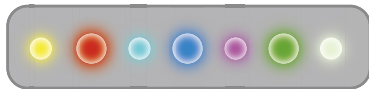2. The best distance for Follow mode is 9cm/3.5inch.

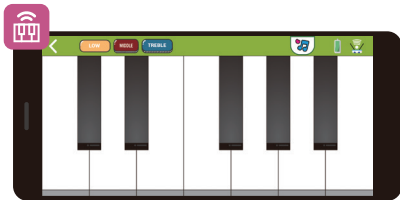Hit the gear icon on the upper left, and you'll see a group of control options

You might need to swipe down a little on smaller screens to see all the options.

Hit **_light control_** and you will see this interface. When you touch and move the slider, you will see the robot's light changes with it. Isn't that interesting?
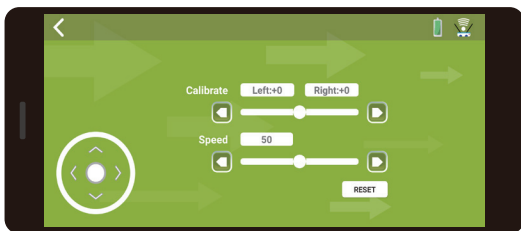

More colors await your exploration. Set your customized colors and let your robot shine bright in the dark.

Hit **Sound And Piano**, and do you see something familiar? Let's play a song! If you hit the musical note icon on the upper right, the robot can even sing for you!
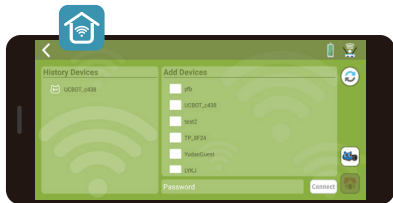
Let's have 4 songs first. Here is a secret: if it's your parents' birthday, you can drive the car to their side, play the birthday song to give them a surprise, and tell them happy birthday and you love them forever!

The robot's moving slow? Let's hit **Speed Calibration**，where you can make your robot run faster, or slower. You can also calibrate the robot's speed difference so that it runs a perfect a straight line.
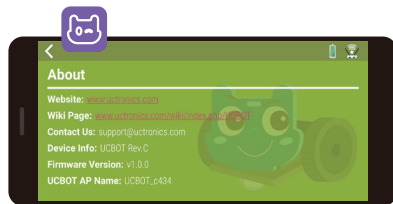
Hit **Connection**, and you will see it like this. You can switch between robot and home WIFI connections if needed.

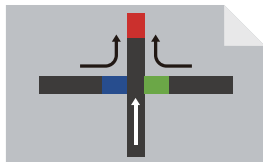Note the icon on the lower right, and you can switch between them.

Hit **settings**, and you can change the UCBOT's name and password. Give your robot a unique name to find it easier.

This is the information of this app.When connected the first time, the UCBOT's name will be shown **UCBOT_xxxx**.
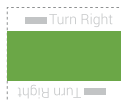
TRACKING COLOR CODE

The robot recognizes three colors: Red, Green, and Blue. In the box, you will find three color stickers and three maps, which you can use for games. Let's move the robot with your imagination! You can also build your own bigger maps and stick our color stickers on it. Try to keep same widths between the black lines and color stickers.
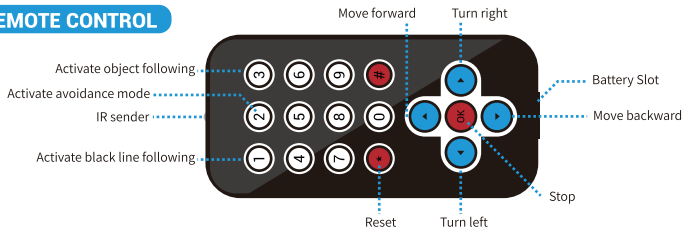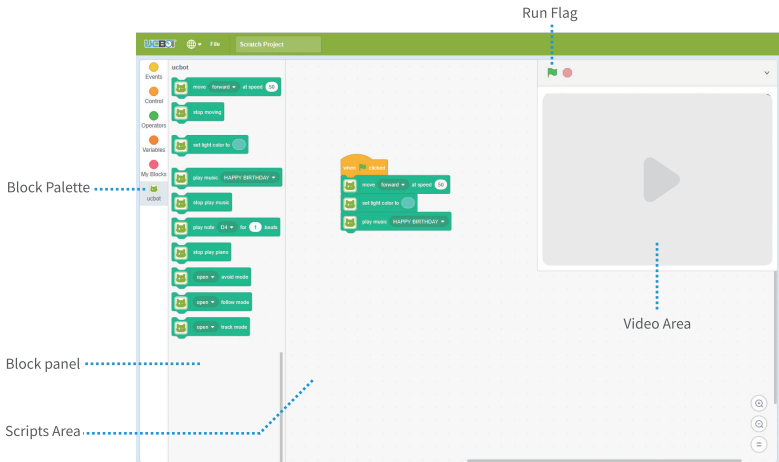
Stop

Turn Left

Turn Right

🟥 Stop   🟦 Turn Left   🟩 Turn Right

REMOTE CONTROL

Move forward   Turn right

Activate object following
Activate avoidance mode
IR sender
Activate black line following

Battery Slot
Move backward
Stop

Reset   Turn left

NOTE Due to safety reasons, we have removed the battery inside. If you want to use the remote control, Please prepare your own CR2025 3V lithium coin batteries.

BLOCKS PROGRAMMING

Run Flag

Block Palette

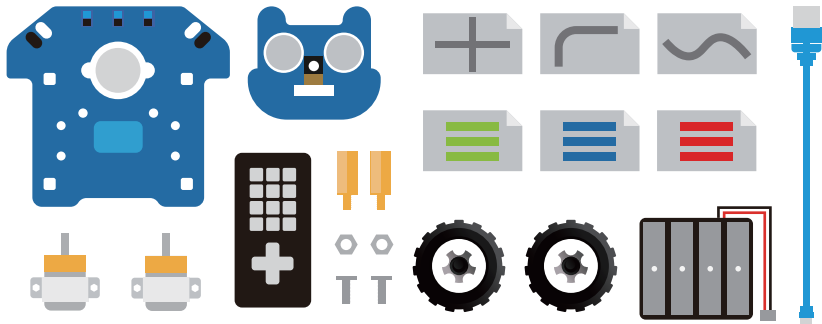Block panel

Scripts Area

Video Area

You must be familiar with this if you've had experiences with Scratch. You can use a Windows device to use our block-based visual programming software. To download this software, go to:https://github.com/UCTRONICS/UCBOT/tree/master/SCRATCH/ucbot-scratch-win64.exe

CUSTOMIZED DEVELOPMENT

Customized software development

UCBOT is a smart robot based on ESP32-S Ai-Thinker and developed on ESP-IDF. You can customize software development in Arduino IDE. The link to our test code is: https://github.com/UCTRONICS/UCBOT.git

PRODUCT LIST

CONTACT US: SUPPORT@UCTRONICS.COM