

Petoil Nybble Q User Guide

1、Visual Inspection

Thank you very much for purchasing this product! We highly value your user experience and hope you have a smooth and enjoyable journey using it.

To ensure that the device has not been damaged during transportation and that all accessories are intact, we recommend following these steps upon receiving your package:

1. Verify the recipient's name, address, order number, and other information on the product packaging to ensure it matches your order. If there are any discrepancies, do not open the package and contact us or the shipping company immediately for assistance.
2. Inspect the packaging box for any visible damage, such as dents, moisture exposure, deformation, or signs of tampering. If you notice any damage, take photos as evidence and refrain from signing for or opening the package until you confirm that the device is in good condition. As shown in Figures 1.1 and 1.2, the Nybble Q you receive should be in perfect condition, free from any damage, and remain clean and intact.



Figures 1.1



Figures 1.2

2、Product List

Sticker ×1

Tail ×1

Screwdriver ×1

Self-tapping Screws ×3

Spare Leg Spring ×1
Type-C Data Cable ×1
Raspberry Pi Mounting Bracket ×1
Nybble Q Robot Cat ×1
Spare Servo and Connectors ×1
Spare Cat Tail Servo Horn ×1
Calibration Stand and Manual ×1
Spare Servo Internal Gears ×3
Postcard (Voice Command List on the Back) ×1

The complete list of components is shown in Figure 1.3.



Figure 2.1

Warm Reminder: The Nybble Q product parts are made using FDM 3D printing, which has limited strength along the Z-axis. Please avoid applying excessive force or dropping them off the table to prevent damage.

3、Tail Assembly

For easy transportation, the Nybble Q is shipped without the tail installed. Users need to assemble it themselves, which is a simple and quick process. Follow these steps:

- **Align the notch:** Locate the notch on the servo horn and align it with the metal axle of the tail.
- **Rotate to install:** Press the tail firmly against the metal axle and rotate it downward around the axle. It may come into contact with the servo horn during this process—continue applying pressure.
- **Secure in place:** When you hear a "click" sound, it means the tail's metal axle is securely embedded in the notch of the servo horn. You can refer to Video 3.1 for guidance.

The wheel on the tail should rotate freely. If there is friction, try the following adjustments:

- **Check for burrs:** Remove any residual burrs from the FDM-printed wheel.
- **Adjust the gap:** Hold the tail and pull the wheel along the axle to create some space, reducing friction.



Refer to Figure 3.2 for details.

Video 3.1

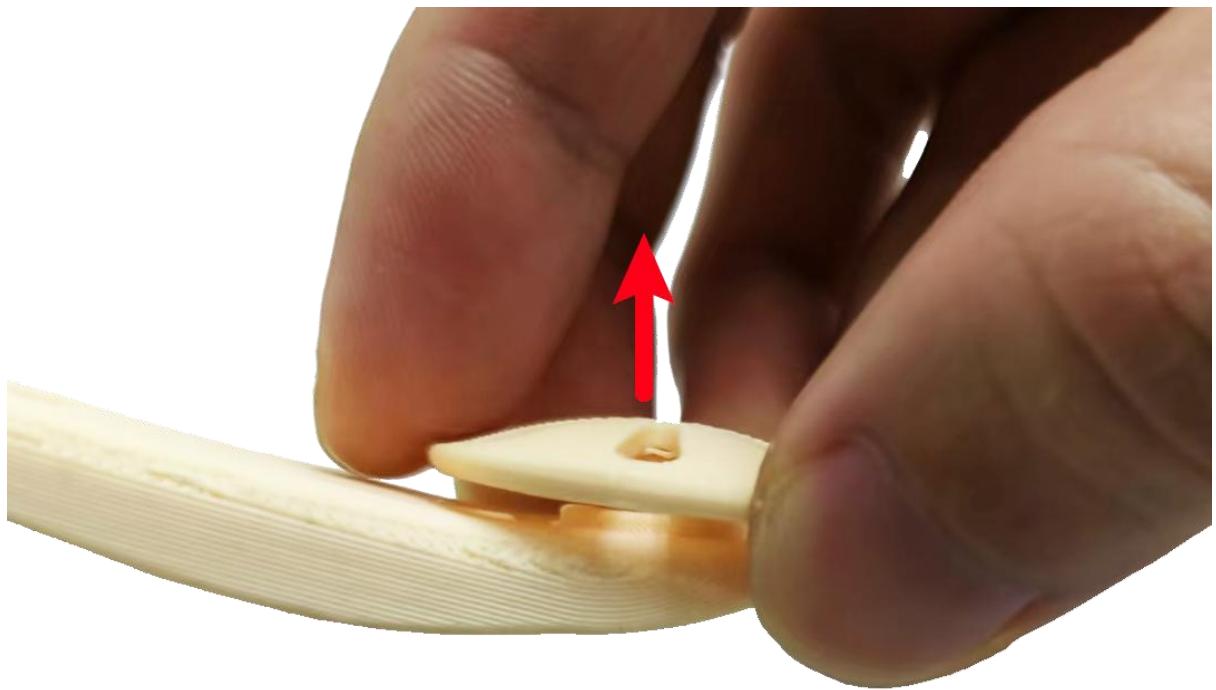
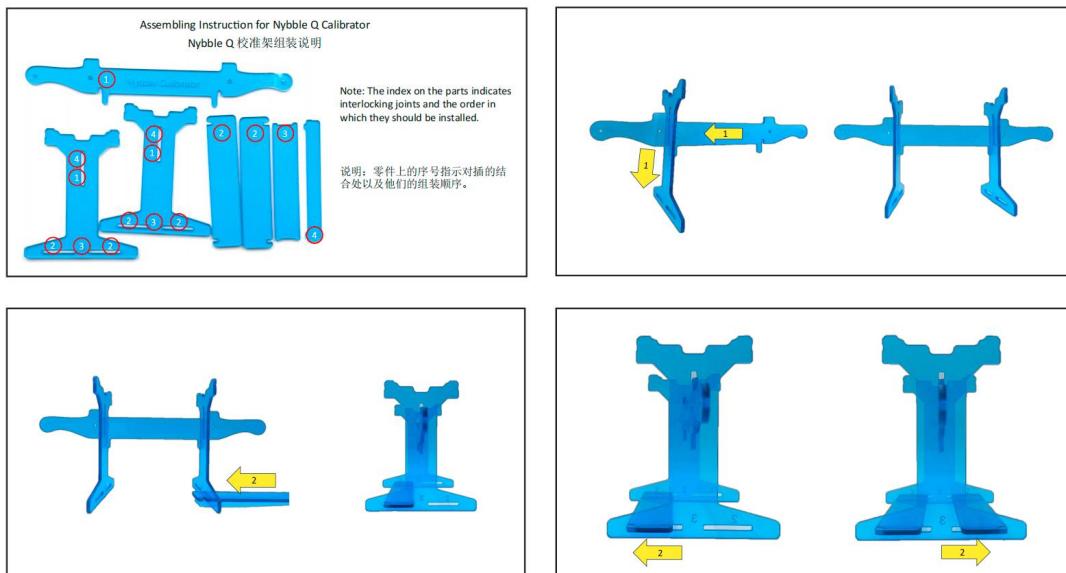
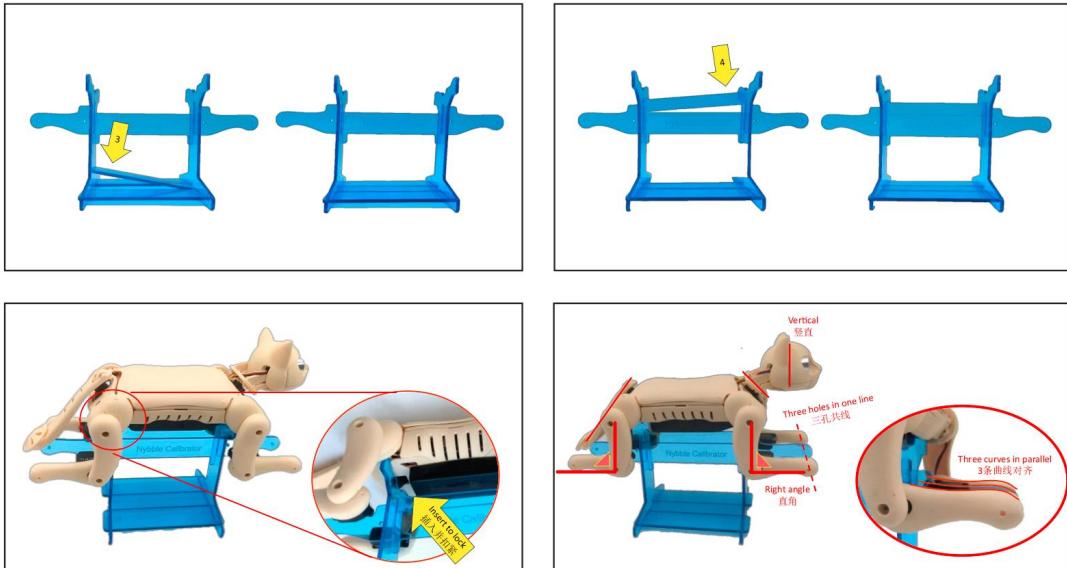


Figure 3.2

4、Bracket Assembly and Usage

To facilitate debugging and prevent falls, we have designed a dedicated bracket. Please assemble it according to the diagram and place the robot gently. The bracket is equipped with clips to ensure a secure connection and enhance stability.





5、Common Component Disassembly and Assembly

1、Battery

When the battery runs out of power, it needs to be charged by connecting a 5V power source via the Type-C port. Since the battery is attached to the body using a buckle mechanism and cannot be directly connected to Type-C, it must be removed first.

To remove the battery, push it horizontally in the direction of the cat head with considerable force. The buckle is designed to be tight to prevent accidental detachment during intense robot movements, so a certain amount of force is required for removal. Once the battery is detached, it can be charged. The indicator light will turn red, indicating that charging is in progress. For detailed instructions, refer to Video 5.1.1.



Video 5.1.1

2、Back Cover

If you need to perform secondary development or reset/restart the Nybble Q, you will need to open the back cover. The back cover is made using FDM printing and is secured to the body by small protrusions. Please press the back cover inward with two fingers (see Figure 5.2.1), and avoid pulling it forcefully to prevent damaging the connected touch circuit ribbon cable (see Figure 5.2.2). During installation, make sure the orientation is correct and that the ribbon cable is properly connected. You can refer to the logo on the back cover; the cat's head facing forward indicates the correct direction.



Figure 5.2.1

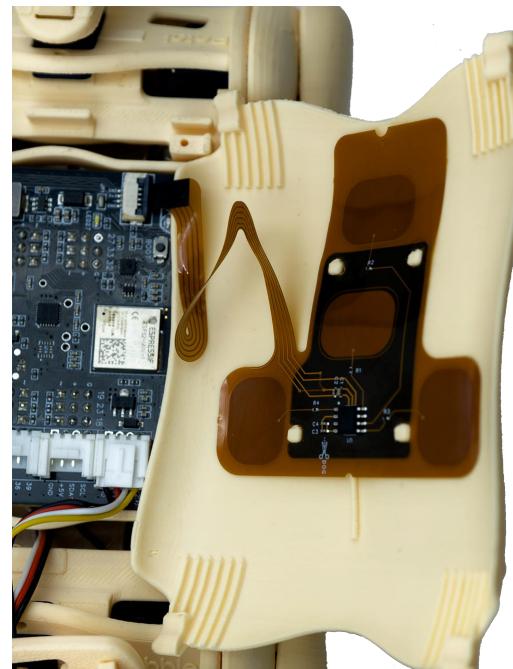
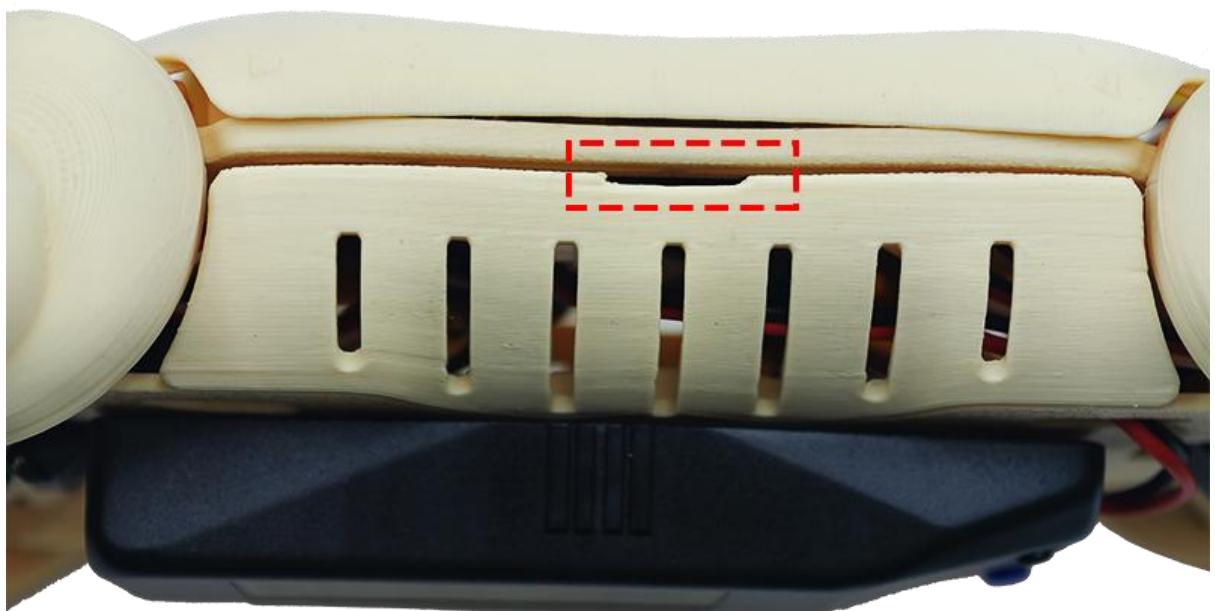


Figure 5.2.2

3、Side Panel

During subsequent use, when components such as the servo or battery need to be replaced, the Nybble Q belly side panel must be removed. The operation is simple: locate the notches on both sides of the side panel, hook your fingernail under them, and pry outward to remove the side panel, as shown in Figures 5.3.1 and 5.3.2.



Figures 5.3.1



Figures 5.3.2

6、Getting Started Instructions

1、Fixture

Please first test on the calibration bracket, as shown in Figure 6.1.1. After becoming familiar with the operation, you can proceed to use it on a stable desk or floor. When in use, make sure the device is within reach to prevent it from falling and causing damage. Additionally, be careful to avoid your hands getting pinched by the robot's legs.



Figure 6.1.1

2、Battery

Before use, please carefully read the instructions on the bottom of the packaging to ensure correct operation of the battery.

2.1 Press and hold the blue button on the battery for 2 - 3 seconds to turn the power on or off.

2.2 During charging, the indicator light will show red, as shown in Figure 6.2.1; when charging is complete, the indicator light will turn green, as shown in Figure 6.2.2.

2.3 Press the blue button briefly to check the battery's charge status:

- When fully charged, the indicator light will be blue.
- When the voltage is low, the indicator light will be red.
- As the battery charge decreases, the indicator light will gradually change from blue to red, as shown in Figure 6.2.3.

2.4 Please pay attention to the battery interface. Use the Type-C interface for charging, and use the 2P 2.54MM red-black wire terminal interface to power the Nibble Q, as shown in Figure 6.2.4. Do not mix them up.

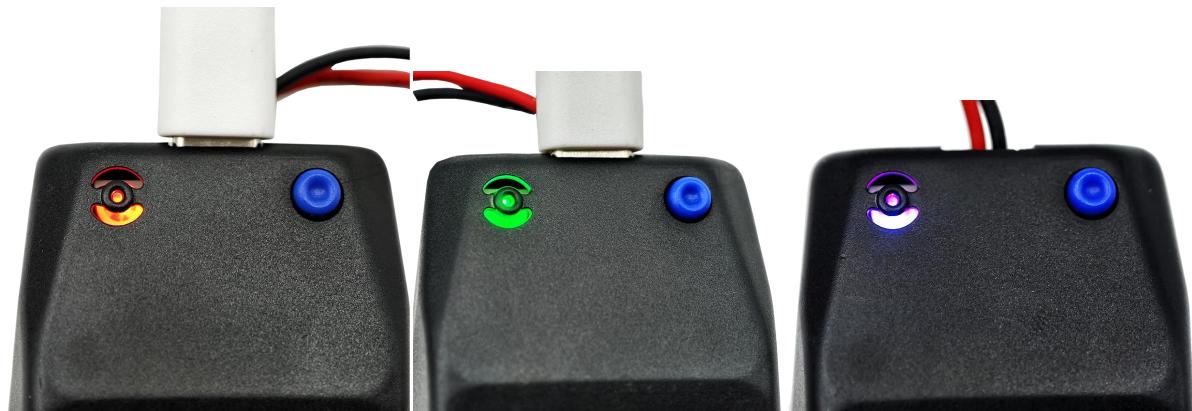


Figure 6.2.1

Figure 6.2.2

Figure 6.2.3



Figure 6.2.4

3、Nybble Q Status Instructions

Before powering on, ensure that the Nybble Q robot is placed steadily on a calibration rack or a flat surface.

If the device is in a sideways position when powered on, it will automatically enter calibration mode.

Press and hold the blue button on the battery for about 3 seconds to power on, and wait for about 5 seconds until the startup is complete.

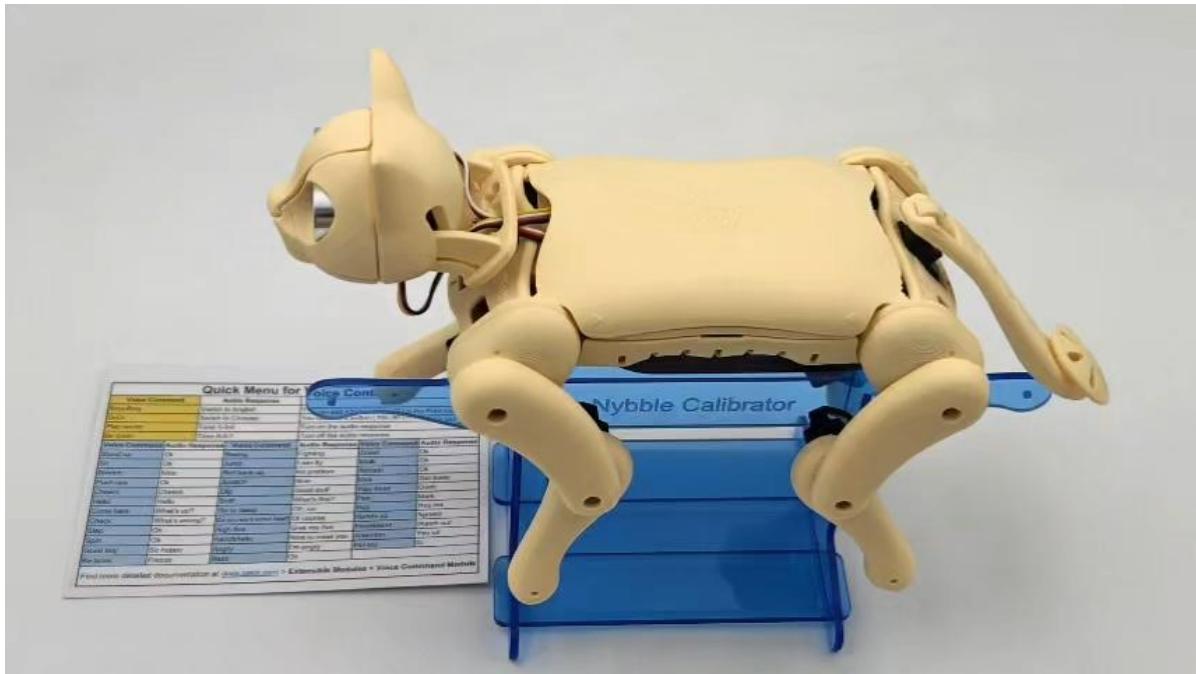
When Nybble Q detects low battery, it will pause all actions and emit a sound alert. Please refer to Video 5.1.1 for charging instructions.

7、Easy to Get Started

Nybble Q is a highly interactive smart robotic cat that integrates various modes of interaction, including touch sensing, ultrasonic obstacle avoidance, voice control, mobile app control, and micro:bit remote control. It supports secondary development with Arduino, Python, and graphical programming, providing users with a rich space for creation. For first-time users, you can experience human-computer interaction by controlling Nybble Q via voice commands and enjoy the charm of intelligent interaction.

1、Voice Control

Nybble Q has efficient command control capabilities, allowing for preset actions to be performed with simple instructions, as well as supporting custom commands to meet personalized needs. After powering on, you can easily control it by following the instructions on the included postcard. Refer to Video 7.1.1.



Video 7.1.1

2、Touch Sensitivity

Nybble Q utilizes advanced touch sensing technology, featuring four independent touch zones on its back, located on the left, right, center, and tail. Each touch zone recognizes different types of contact, triggering corresponding actions and feedback to create a more intuitive and natural human-machine interaction experience. This touch control system not only enhances interaction with the robotic cat but also adds an element of fun and intelligence to every operation, making interactions more dynamic and lifelike.

Touch Zones and Responsive Actions:

- **Left Touch Point:** Lightly touch the left area, and Nybble Q will turn its head to the left, mimicking real feline behavior.
- **Right Touch Point:** Touch the right area, and Nybble Q will turn its head to the right, further enhancing the bionic interaction experience.
- **Center Touch Point:** As the core touch point, a light touch can wake up the device or trigger a random action, adding an element of surprise and playfulness to the interaction.
- **Tail Touch Point:** Touching the tail area will prompt Nybble Q to exhibit lifelike body language, such as wagging its tail or raising its rear, expressing emotions in a more realistic way and strengthening the emotional connection with the user.

Operation Tips:

- If the same touch point is repeatedly touched or two touch points are pressed simultaneously, Nybble Q will not execute a new action.
- A new command can only be triggered after the current action is completed, ensuring a smooth interactive experience.

The distribution of the back touch points is shown in Figure 7.2.1.



Figure 7.2.1

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.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.