HALO S PRO User Manual

Safety Instructions

-Please read this user manual carefully before operating the HALO S PRO robot.

-The HALO S PRO robot operates on a 100-240 V AC power supply.

-Do not touch the ball-feeding wheel while it is in operation.

-Keep a safe distance from the ball ejection port when the robot is working.

Warnings

-All joints of this product are automatically adjustable. Do not strike, press, or drop the product.

-This product is designed for table tennis entertainment or training. If you experience any physical discomfort during use, stop using the product immediately and seek medical attention.

-Do not modify, disassemble, or repair the product yourself.

-Children under 14 years old should not use the product alone. Adult supervision is required.

Attention

-Before connecting to the power supply, check if the power adapter is damaged, leaking, or malfunctioning. If so, do not use it.

-If the product exhibits any abnormalities after powering on, such as unusual noises or odors, please turn off the robot immediately and disconnect the power.

-Do not pour damaged balls or foreign objects into the ball return module to avoid machine malfunction.

Warm Tips

-This product is only compatible with D40+ table tennis balls.

-Regular cleaning and maintenance of the product are recommended to ensure a better user experience.

-New table tennis balls should be cleaned before use.

CONTENT

Please read this manual carefully before using the product and keep it properly.

I. Product Composition

No.	Name	QTY	Image
1	Robot	1	
2	E-PAD S	1	
3	Ball Recovery Net	1	
4	Expansion Tank	1	
5	Power Adapter	1	

II. Product Installation and Technical Parameters

2.1. Installing the Robot

2.1.1. Open the packaging box, remove the robot and accessories, and check for any

missing parts. If any parts are missing, please contact the PONGBOT customer service team at Service@pongbotsports.com immediately.

2.1.2. Unlock the omnidirectional wheel lock, remove the expansion tank, and attach one end of the elastic band to the robot's ball frame to store more table tennis balls. (Refer to Figure 2-1)

Figure 2-1

2.1.3. Take out the ball recovery net, unzip it, pass it from the front of the robot's head to the back, install the net fixing claw on the ball machine, spread out the ball recovery net, adjust the horizontal level of the left and right nets, and finally zip up the ball recovery net (Figure 2-2).

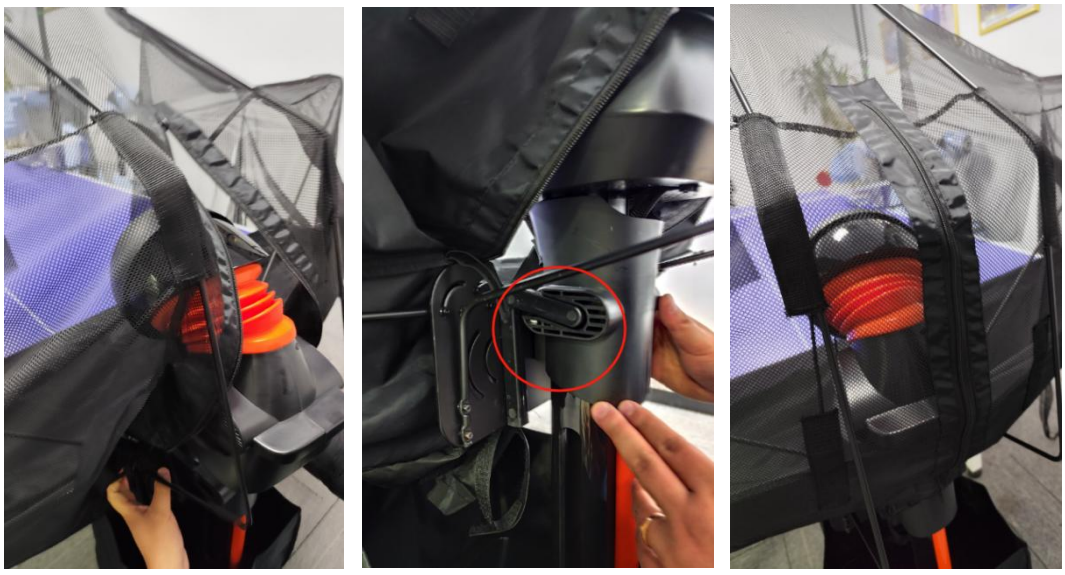


Figure 2-2

2.1.4. Stick the Velcro of the ball recovery net to the correct position, and fix the lower end of the ball recovery net on the robot (Figure 2-3).

Figure 2-3

2.1.5. Push the robot to the center of the table's bottom edge, ensuring that the support rods on both sides of the ball recovery net are in contact with the table's bottom edge. Lock the omnidirectional wheel buckle. Straighten the elastic bands on both sides of the ball recovery net, pass them over the top of the table's net supports, and fix them on the table's net supports. (Figure 2-4)

Figure 2-4

2.1.6. If you need to install the robot at position 2 or 3, first unfold the user manual, lay it flat on the table, and follow the instructions to place the labels on the corresponding positions of the table. Remove the robot's ball recovery net, move the robot to position 2 or 3, and ensure the ball discharge tube is close to the side of the table. (Figure 2-5)

Figure 2-5

Users can also visit the following website to view the robot installation video:

https://www.youtube.com/embed/WBnh5xHgiHs

2.1.7. Pour table tennis balls into the ball frame, connect the power adapter, and switch the robot to the "|" position to power on.

Extension:

Connecting the Power Adapter

Take out the power adapter and connect the input cable. Connect the input end to the power source, and the output end to the robot's DC connector.

Robot Power On/Off

Power On: Switch the robot to the "|" position. The LED light on the robot's head will light up.

Power Off: Switch the robot to the "O" position. The LED light on the robot's head will turn off.

Pouring Table Tennis Balls

Pour clean table tennis balls into the ball storage frame. For the first use, it is recommended to pour approximately 150 table tennis balls.

Do not pour damaged balls or foreign objects into the ball storage frame to avoid robot malfunction.

2.2 Robot Technical Specifications

Model	HALO S PRO
Ball Feeding Method	Rubber paddle wheel, horizontally upward feeding
Serving Method	Dual-wheel drive
Ball Speed	2~15 m/s, 21 gears with EPAD
Spin Type	360° arbitrary rotation
Spin Speed	Maximum 100 rpm, 23 gears with EPAD
Ball Frequency	30~90 balls per minute, 11 gears with EPAD
Recommended Installation	Position 1: Ball recovery net installed separately at the center of the table's baseline.

Position	Position 2/3: Middle positions on the left and right sides of the table, placed according to the position calibration tool prompts.
Left/Right Swing Function	Automatic, continuous
Left/Right Swing Angle (refer to recommended installation positions for Positions 1, 2, and 3)	Position 1: 44° (-22°～22°) Position 2: 44° (4°～48°) Position 3: 44° (-48°～-4°)
Up/Down Arc Adjustment Function	Automatic, continuous
Up/Down Arc Adjustment Angle	60° (-20°～40°)
Side Spin Adjustment Function	Automatic, continuous
Side Spin Adjustment Angle	135° (0°～135°)
Two-Bounce Ball	Supported, switchable between one-bounce and two-bounce modes
Net Weight	11KG
Gross Weight	23KG
Product Dimensions	320*300*1083mm

Product Packaging Size	610*660*1200mm
Rated Voltage	DC24V
Included Accessories	Adapter / Ball Recovery Net
APP	Android/ IOS
Communication	Bluetooth
Voice Prompts	Power-on announcement Standby announcement Device status announcement Built-in ball course voice introduction
Switch/Buttons	Yes. Power switch / Network pairing button (Wi-Fi, Bluetooth)
Position Calibration	For Positions 2/3, use the product's position calibration tool for calibration
CE Certification	Yes
Compatibility	Standard configuration
System	Android/ IOS
Built-in Course Groups	Total of 576 groups: Position 1: 396 groups = 66 (courses) x 3 (difficulty levels) x 2 (left and right hands) Position 2: 90 groups = 15 (courses) x 3 (difficulty levels) x 2 (left and right hands) Position 3: 90 groups = 15 (courses) x 3 (difficulty levels) x 2 (left and right hands)
Custom Drills	Custom drill editing, free drop point control, simulated trajectory animation, unlimited drill storage
Custom Lighting	Custom 16-color lighting for each ball
Voice Switch	Supported

Upgrade (Online OTA)	Supported

2.3 E-PAD Technical Specifications

Model	**E-PAD S**
Compatibility	Standard configuration
Remote Control Type	Capacitive touch screen
Display Size	5.0 inches
Pairing	Bluetooth
Charging Interface	USB Type-C
Battery	2100mAh lithium battery
Built-in Course Groups	Total of 576 groups: Position 1: 396 groups = 66 (courses) x 3 (difficulty levels) x 2 (left and right hands) Position 2: 90 groups = 15 (courses) x 3 (difficulty levels) x 2 (left and right hands) Position 3: 90 groups = 15 (courses) x 3 (difficulty levels) x 2 (left and right hands)
Custom Drills	Supports custom drill editing and storage (60 groups), each drill supports 10 custom balls
Pong Smart Drills	Supports 60 Pong Smart drills (based on 75 built-in balls; balls support random landing area function; each drill supports 10 balls)

Mobile APP Synchronization	Mobile custom drill synchronization: 20 groups
Holding Hand	Left or right hand selection
Voice Switch	Yes
Operation	Run time and group count settings; Sequence and random mode settings; Real-time adjustment of drill distance, left/right drop points, and frequency
Firmware Upgrade	Via mobile APP

Battery Indicator

E-PAD S Status	Battery Level	Indicator Status
Working Condition	≥75%	3 bars
	50%-75%	2 bars
	25%-50%	1 bar
	≤10%	0 bar

E-PAD S Power On/Off

Power On: Press the power button on top of the E-PAD S for 2 seconds and wait for the screen to light up.

Power Off: Long press the power button on top of the E-PAD S and wait for the screen to turn off.

E-PAD S Charging

When at low battery (the battery indicator is empty or the device cannot power on), please connect the charging cable and power source. Full charge takes approximately

4 hours.

Notes:

*The original charging cable is PONGBOT E-PAD S exclusive charging cable. It does not support fast charging for other devices or data transfer.

*For optimal charging performance, please use the manufacturer-supplied charging cable. If using another cable due to special circumstances, ensure it is a USB-A to Type-C cable.

*The ideal charging temperature range is 15℃~45℃. Below 15°C, charging speed may slow down, and charging time may increase.

*Avoid overcharging or over-discharging of the lithium battery. If the device will not be used for an extended period, it is recommended to charge it once a month.

Environmental Protection

Old electrical and electronic products should not be mixed with unsorted municipal waste. Proper disposal of this product helps conserve valuable resources and prevents potential negative impacts on human health and the environment due to improper waste management.

Warnings

*Do not incinerate batteries, as this may cause battery explosion or release of toxic substances.

*Do not allow batteries to short circuit, as this may cause battery fires.

*Do not open the product unless for maintenance or disposal.

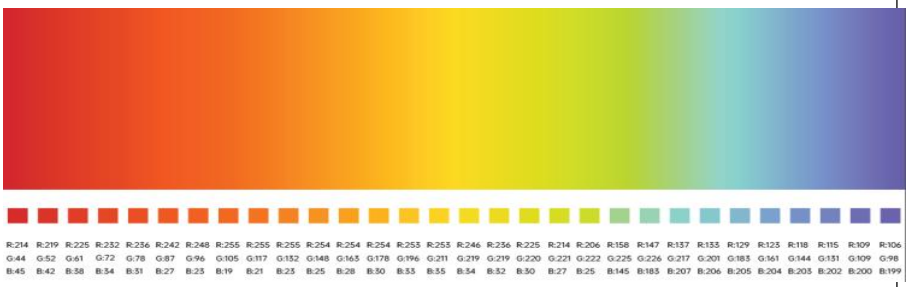
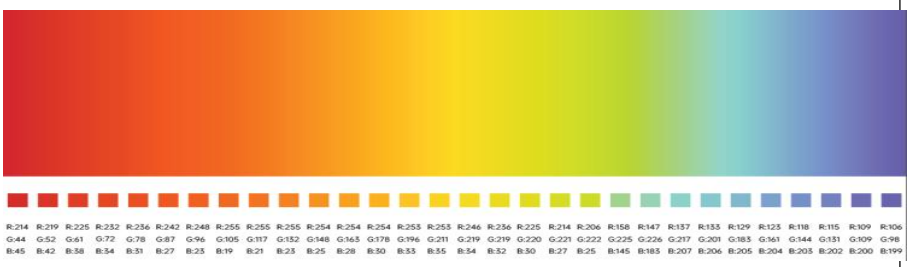
*Always follow basic safety measures. Disconnect the power before removing the battery.

2.4 Robot LED Light Codes

Upper Light	Lower Light	Light Code

Color	Frequency (time/second)	Color	Frequency (time/second)	Explanation
Blue	1	Blue	1	Bluetooth not connected
Blue	Constantly bright	Blue	Constantly bright	Bluetooth connected
Yellow	1	Yellow	1	Bluetooth pairing mode
White	Constantly bright	White	Constantly bright	Firmware upgrade status
Red	1	Red	1	Device malfunction

Spin Indication During Ball Serving:

The higher the wheel speed, the light color shifts towards red. When the speed approaches 0, the color of the LED light approaches blue.	
The higher the wheel speed, the light color shifts towards red. When the speed approaches 0, the color of the LED light approaches blue.	

1. Upper Light: Red, Lower Light: Blue, indicating a strong topspin
2. Upper Light: Red, Lower Light: Red, indicating a high-speed non-spinning ball
3. Upper Light: Blue, Lower Light: Red, indicating a strong backspin
4. Upper Light: Blue, Lower Light: Blue, indicating a low-speed non-spinning ball

III. PONGBOT APP Usage

3.1 APP Download and Installation

Users can download the PONGBOT APP and complete the installation via the following methods: Google Play Store, Apple Store, or scan the QR code below for download

During installation, if prompted to enable location or Bluetooth permissions, please allow them.

3.2 Account Registration and System Settings

3.2.1 After opening the APP, new users should click Register New Account on the login screen. Follow the prompts to complete the registration. Once registered, users can log in with their account and password. Verification codes are valid for 60 minutes (Figures 3-1 and Figure 3-2).

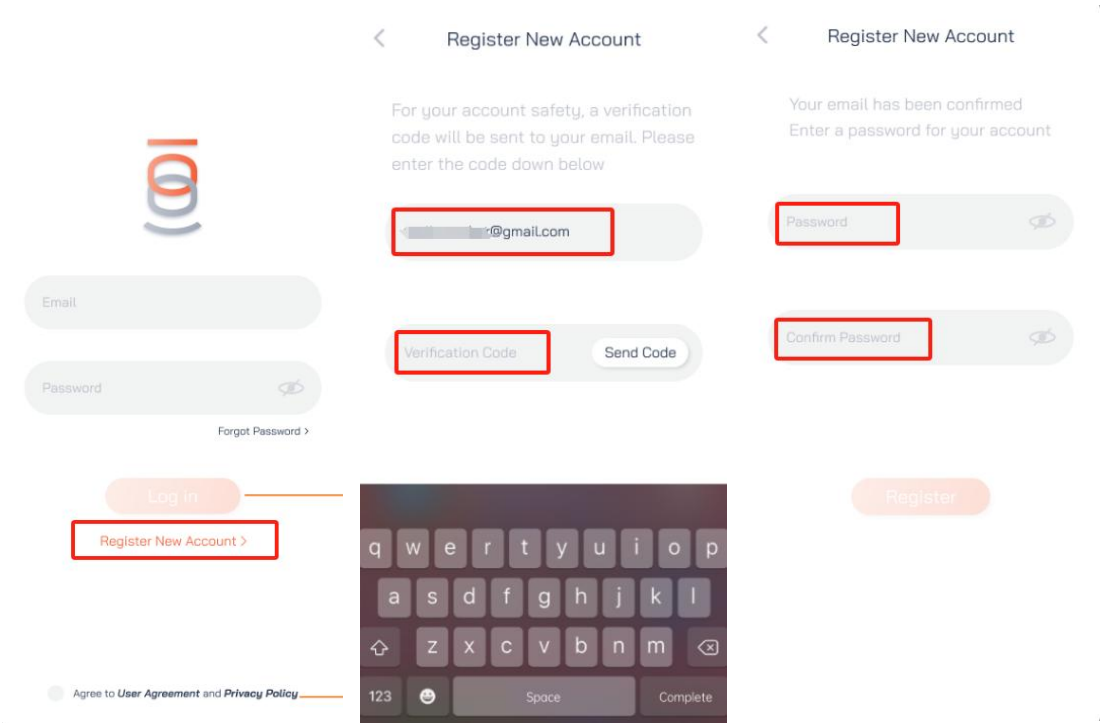


Figure 3-1

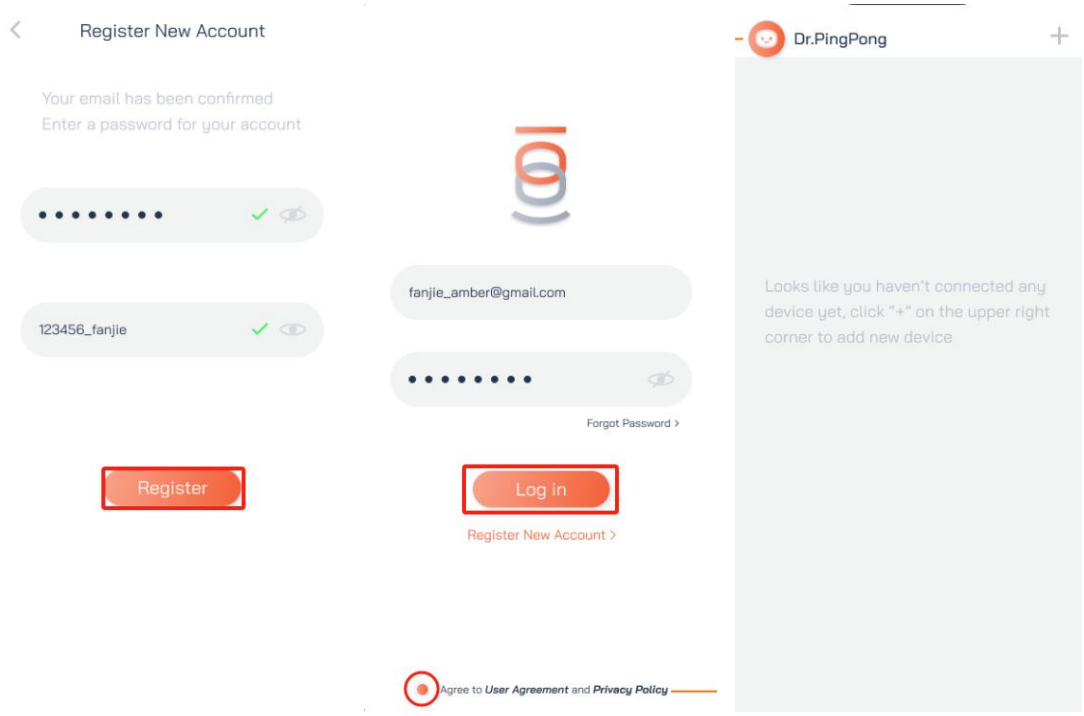


Figure 3-2

3.2.2 Modify User Name, Profile Photo, and Password

Click the Profile Photo-My Account in the top-left corner of the APP homepage to make changes (Figure 3-3).

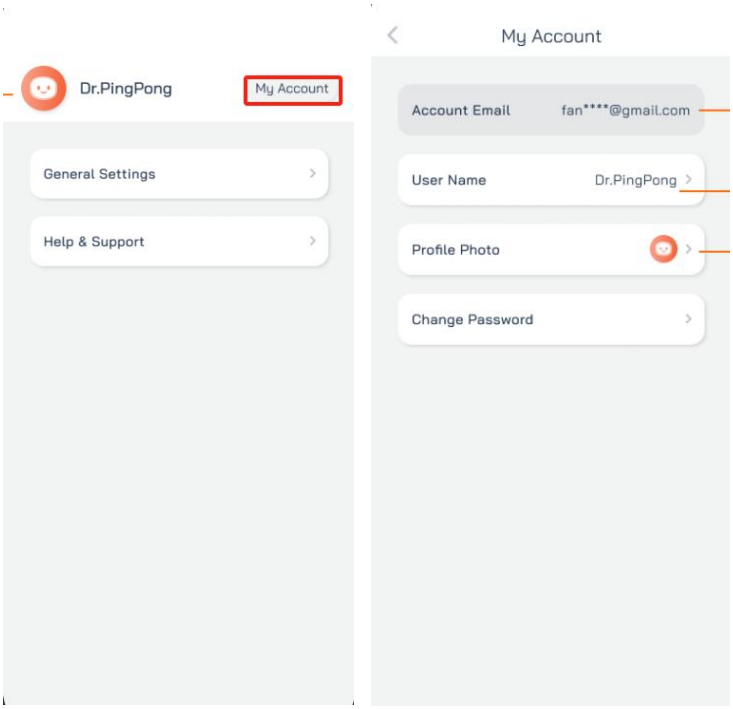


Figure 3-3

3.2.3 System Settings

Click the Profile Photo-General Settings in the top-left corner of the APP homepage, then users can check or update the APP version in the About section; switch languages in the Language section; and review the user agreement and privacy policy in the Legal Information section (Figure 3-4).

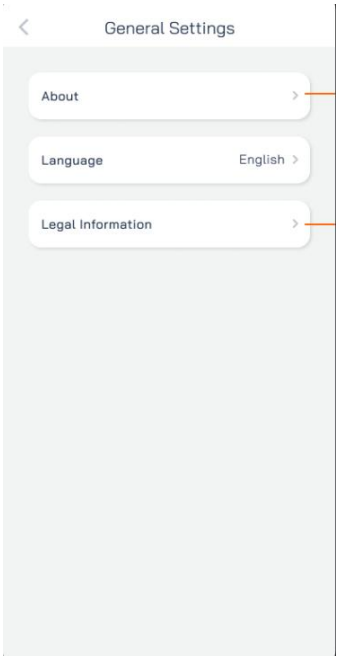


Figure 3-4

3.2.4 Help & Support

Click the Profile Photo-General Settings in the top-left corner of the APP homepage to view the help videos of corresponding products (Figure 3-5).

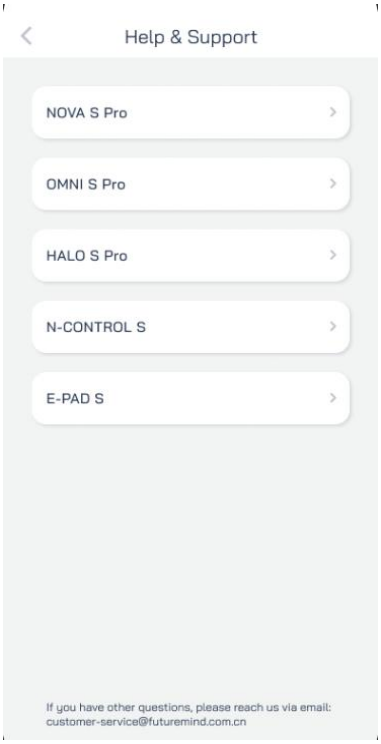


Figure 3-5

3.3 Add Device

3.3.1 Robot Bluetooth Pairing

Connect the robot to a power source and switch the power button to the " | " position. Open Bluetooth and enter into the PONGBOT APP, click the "+" icon in the top-right corner, and select the corresponding robot model. The APP will automatically search for nearby robots of the same model. In the device list, select the one with the matching last two digits of the SN (serial number) on the robot's nameplate. Click the Connect button and wait for the APP to complete the Bluetooth pairing with the robot (Figure 3-6).

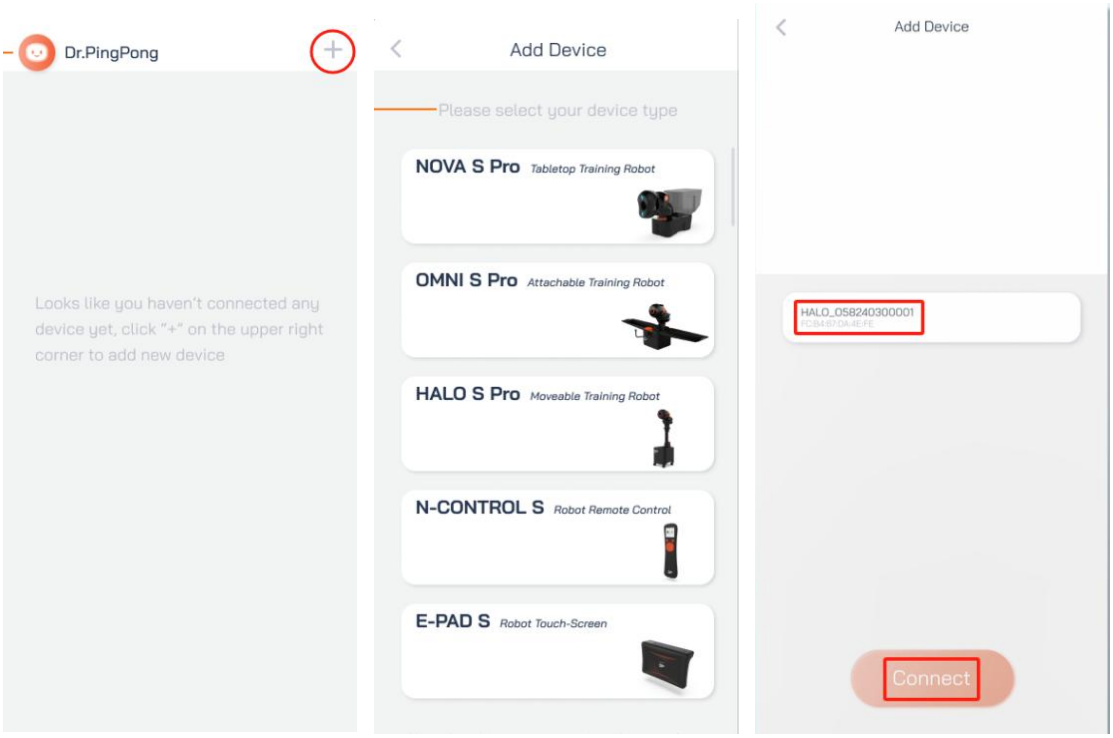


Figure 3-6

3.3.2 Device Initialization

Select the robot with Bluetooth already connected. Click the START button and wait for the robot to complete its initialization and enter the robot control page (Figure 3-7).

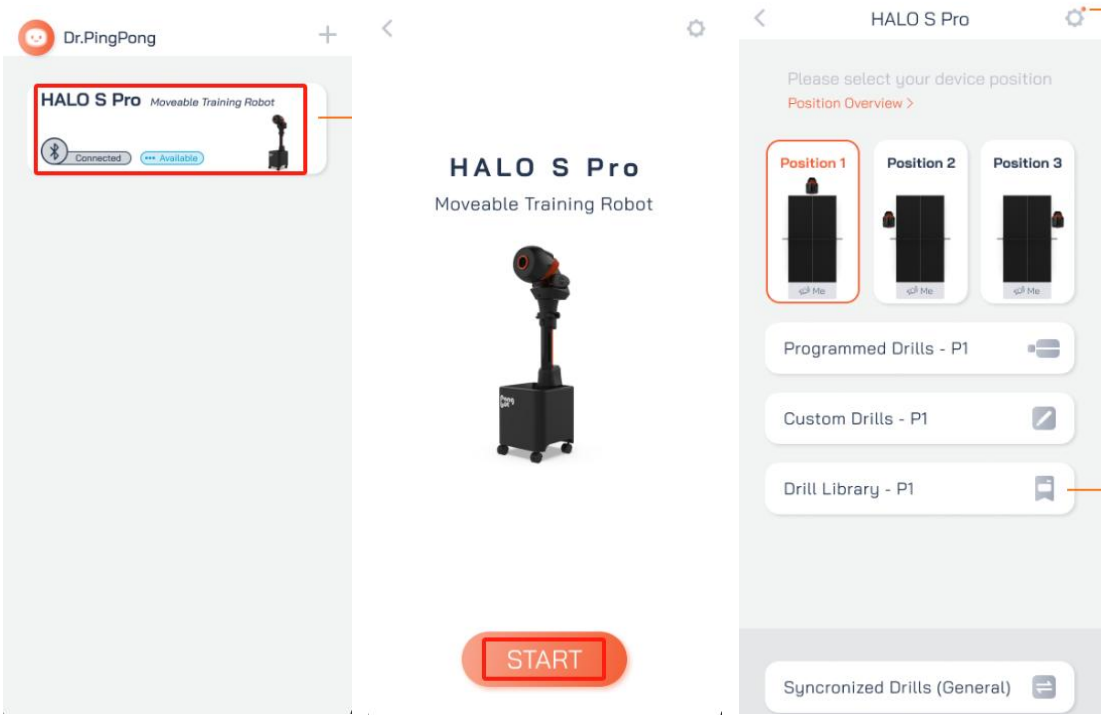


Figure 3-7

3.4 Use of Built-in Drills

We have developed the PongSmart AI platform, which enables us to create a human-machine collaborative training environment. Additionally, we have established a strategic partnership with the China Table Tennis College (CTTC, led by former head coach of the Chinese National Table Tennis Team, Shi Zhihao).

3.4.1 Details of Built-in Ball Parameters

Training Drills	
Drill Name	**Push(F)**
Drill Type	Basic
Brief	The training technique for Forehand Push primarily focuses on handling short court underspin balls within the table tennis table. During training, it is necessary to step forward and draw back the racket, pushing the bottom of the table tennis ball. Fingers and wrists should be used to generate power for the hit.
Drill Name	**Push(B)**
Drill Type	Basic
Brief	The training technique for Backhand Push emphasizes dealing with short court underspin balls within the table tennis table. During the training process, stepping forward and drawing back the racket are required, pushing the bottom of the ball. Fingers and wrists should be engaged to complete the hit.
Drill Name	**Drive(F)**
Drill Type	Basic
Brief	The training plan for Forehand Drive, the most commonly used topspin return technique in table tennis, involves ensuring the hit is made at the highest point of the incoming ball. The racket needs to be drawn back, and the forearm quickly contracted to complete the hit.
Drill Name	**Drive(B)**

Drill Type	
Brief	The training plan for Backhand Drive, the most commonly used topspin backhand return technique, requires hitting the ball at its highest point. Drawing back the racket and quickly contracting the forearm are essential for completing the hit.
Drill Name	**Loop(F)**
Drill Type	Basic
Brief	Forehand Backspin Loop is a common technique for dealing with long underspin balls away from the table. When executing this shot, it's crucial to draw back the racket early, rotate the body, squat, push off the ground, and turn. Leg power is used to transfer weight to the waist, rotating the body and arm to complete the hit. When dealing with strongly spinning underspin balls, reduce ball impact and increase racket wrapping and friction.
Drill Name	**Loop(B)**
Drill Type	Basic
Brief	Backhand Backspin Loop is a common technique for handling long underspin balls. It requires early racket preparation, body rotation, squatting, pushing off the ground, and turning. Leg power is utilized to shift weight to the waist, rotating the body and arm to complete the hit. For strongly spinning balls, reduce impact and increase racket wrapping and friction.
Drill Name	**Flick(F)**
Drill Type	Basic
Brief	When executing a forehand flick, the player should position their body slightly forward, with the knees slightly bent for better stability and balance. The racket should be held in the forehand grip, ready to make contact with the ball.
Drill Name	**Flick(B)**

Drill Type	Basic
Brief	When executing a backhand flick, the player should position their body slightly forward, with the knees slightly bent for better stability and balance. The racket should be held in the backhand grip, ready to make contact with the ball.
Drill Name	**Push(F)-Loop(F)**
Drill Type	Combine
Brief	The action of transitioning from a forehand push to a forehand backspin loop involves first executing a controlled push with the forehand to set up the ball, followed by a powerful pull with underspin using the same hand to create a spinning attack.
Drill Name	**Push(F)-Loop(B)**
Drill Type	Combine
Brief	The action of transitioning from a forehand push to a backhand backspin loop involves first executing a controlled push with the forehand to set up the ball, followed by a powerful pull with underspin using backhand to create a spinning attack.
Drill Name	**Push(B)-Loop(F)**
Drill Type	Combine
Brief	The action of transitioning from a backhand push to a forehand backspin loop involves first executing a controlled push with the backhand to set up the ball, followed by a powerful pull with underspin using forehand to create a spinning attack.
Drill Name	**Push(B)-Loop(B)**
Drill Type	Combine
Brief	The action of transitioning from a backhand push to a backhand backspin loop involves first executing a controlled push with the backhand to set up the ball, followed by a powerful pull with underspin using backhand to create a spinning attack.

Drill Name	**Drive(F)-Drive(F)**
Drill Type	Combine
Brief	Forehand Drive with Footwork combines forehand drive with footwork training.After stabilizing power and returns with fixed-point forehand drive, incorporate footwork movements to handle balls at two different landing points. After each hit, reset your posture and adjust your steps based on the incoming ball's position.
Drill Name	**Drive(F)-Drive(B)**
Drill Type	Combine
Brief	Forehand Drive and Backhand Drive combines forehand drive, backhand drive, and footwork movements. After each hit, reset your posture and adjust your steps according to the incoming ball's location.
Drill Name	**Loop(F)-Loop(F)**
Drill Type	Combine
Brief	Forehand Backspin Loop with Footwork integrates forehand backspin loop and footwork adjustments. It primarily deals with consecutive underspin balls with varying landing points. After each forehand backspin loop, quickly reset, adjust your stance, locate the next hit's sweet spot, and draw back the racket to complete the hit.
Drill Name	**Flick(F)-Drive(F)**
Drill Type	Combine
Brief	When training the forehand flick and forehand drive, if the opponent is playing short balls and the spin is not strong backspin, you can decisively flick the ball to disrupt the opponent's attack rhythm
Drill Name	**Flick(F)-Drive(B)**
Drill Type	Combine

Brief	When training the forehand flick and backhand drive, if the opponent is playing short balls and the spin is not strong backspin, you can decisively flick the ball to disrupt the opponent's attack rhythm
Drill Name	**Flick(B)-Drive(F)**
Drill Type	Combine
Brief	When training the backhand flick and forehand drive, if the opponent is playing short balls and the spin is not strong backspin, you can decisively flick the ball to disrupt the opponent's attack rhythm
Drill Name	**Flick(B)-Drive(B)**
Drill Type	Combine
Brief	When training the backhand flick and backhand drive, if the opponent is playing short balls and the spin is not strong backspin, you can decisively flick the ball to disrupt the opponent's attack rhythm
Drill Name	**Loop(F)-Drive(F)**
Drill Type	Combine
Brief	Forehand Backspin Loop with Forehand Drive trains the transition between underspin and topspin. When facing different spin types, adjust your stance through footwork to locate the sweet spot and prepare the racket in advance.
Drill Name	**Loop(F)-Drive(B)**
Drill Type	Combine
Brief	Forehand Backspin Loop with Backhand Drive focuses on transitioning between underspin and topspin, requiring footwork adjustments and early racket preparation for varying spin types.
Drill Name	**Loop(B)-Drive(F)**
Drill Type	Combine

Brief	Backhand Backspin Loop with Forehand Drive emphasizes the transition between underspin and topspin, utilizing footwork to locate the sweet spot and prepare the racket in advance.
Drill Name	**Loop(B)-Drive(B)**
Drill Type	Combine
Brief	Backhand Backspin Loop with Forehand Drive emphasizes the transition between underspin and topspin, utilizing footwork to locate the sweet spot and prepare the racket in advance.
Drill Name	**Push(F)-Sideway(F)**
Drill Type	Combine
Brief	Backhand Backspin Loop with Backhand Drive trains the transition between underspin and topspin, emphasizing footwork and early racket preparation for different spin types.
Drill Name	**Push(F)-Drive(F)**
Drill Type	Combine
Brief	The key to transitioning from a forehand push to a forehand topspin drive lies in maintaining momentum and smoothly shifting from a controlled push motion to a powerful, upward stroke.
Drill Name	**Push(F)-Drive(B)**
Drill Type	Combine
Brief	The key to transitioning from a forehand push to a backhand topspin drive lies in maintaining momentum and smoothly shifting from a controlled push motion to a powerful, upward stroke.
Drill Name	**Push(B)-Drive(F)**
Drill Type	Combine

Brief	The key to transitioning from a backhand push to a forehand topspin drive lies in maintaining momentum and smoothly shifting from a controlled push motion to a powerful, upward stroke.
Drill Name	**Push(B)-Drive(B)**
Drill Type	Combine
Brief	The key to transitioning from a backhand push to a backhand topspin drive lies in maintaining momentum and smoothly shifting from a controlled push motion to a powerful, upward stroke.
Drill Name	**Slice(F)-Slice(B)**
Drill Type	Combine
Brief	The essentials of executing a forehand and backhand slice involve a controlled, angled swing path with a decelerated hitting action to create spin and trajectory.
Drill Name	**2/3 Court Random Drive**
Drill Type	Complex
Brief	The key to practicing random forehand drive across two-thirds of the table is to maintain balance, quick footwork, and accurate timing in delivering powerful shots.
Drill Name	**Push(F)-Loop(F)-Drive(F)**
Drill Type	Complex
Brief	Forehand Push, Sideway Backspin Loop with Forehand Drive is a comprehensive training technique involving multiple landing points and spin variations. It trains various technical movements and spin changes, affecting the overall offensive and defensive systems, from table control to sideway attacks and defensive diving shots.
Drill Name	**Push(F)-Loop(B)-Push(B)-Loop(F)**
Drill Type	Complex

Brief	The action essence of transitioning from a forehand push to a backhand underspin loop, followed by a backhand push to a forehand underspin loop, involves seamless footwork, precise timing, and smooth conversion between strokes while maintaining control and spin.
Drill Name	**Drive(F)-Drive(F)-Drive(F)**
Drill Type	Complex
Brief	forehand drive with Footwork combines forehand drive with footwork training.After stabilizing power and returns with fixed-point forehand drive, incorporate footwork movements to handle balls at two different landing points. After each hit, reset your position.
Drill Name	**Random Drive**
Drill Type	Complex
Brief	Random drive is an advance random drop point training drill for daily training. It practices each shot timing and basic movement.
Drill Name	**Drive(F)-Drive(F)-Drive(F)-Drive(F)**
Drill Type	Complex
Brief	For practice this training drill, you have to fully understand forehand drive and backhand drive. Since the training drill is sequential, for continus same side drive, there is no need to complete recover.
Drill Name	**Drive(B)-Sideway(F)-Drive(F)**
Drill Type	Complex
Brief	Forehand Drive, Sideway Topspin Loop with Forehand Drive is a comprehensive training technique involving multiple landing points and spin variations. It trains various technical movements, affecting the overall offensive and defensive systems, from table control to sideway attacks and defensive diving shots.
Drill Name	**Loop(F)-Loop(F)-Loop(F)**

Drill Type	Complex
Brief	Three different drop point loops for training footworks. While training this drill, remember to quickly recover after each shot.
Drill Name	**Loop(F)-Loop(F)-Loop(F)**
Drill Type	Complex
Brief	Three different random drop point loops for training footworks. While training this drill, remember to quickly recover after each shot.
Drill Name	**Push(F)-Loop(B)-Drive(B)**
Drill Type	Complex
Brief	Forehand Push with Backhand 2 Shot simulates real-game returns, requiring timely resets and adjustments in stance and footwork based on the incoming ball's position and spin.
Drill Name	**Push(F)-Loop(F)-Drive(F)**
Drill Type	Complex
Brief	Forehand Push with Forehand 2 Shot is a comprehensive real-game simulation, requiring timely resets and adjustments in stance and footwork based on the incoming ball's characteristics.
Drill Name	**Push(F)-Loop(F)-Drive(B)**
Drill Type	Complex
Brief	Forehand Push with Forehand and Backhand Drive simulates real-game returns, necessitating timely resets and adjustments in stance and footwork based on the incoming ball's position and spin.
Drill Name	**Push(F)-Loop(B)-Drive(F)**
Drill Type	Complex

Brief	Forehand Push with Backhand and Forehand Drive is a comprehensive realgame simulation, requiring swift resets and adaptations in stance and footwork to incoming balls.
Drill Name	**Push(B)-Loop(F)-Drive(F)**
Drill Type	Complex
Brief	Backhand Push with Forehand 2 Shot simulates real-game returns, emphasizing timely resets and adjustments in stance and footwork based on the ball's trajectory and spin.
Drill Name	**Push(B)-Loop(B)-Drive(B)**
Drill Type	Complex
Brief	Backhand Push with Backhand 2 Shot simulates real-game returns, necessitating timely resets and adjustments in stance and footwork to handle incoming balls effectively.
Drill Name	**Push(B)-Loop(F)-Drive(B)**
Drill Type	Complex
Brief	Backhand Push with Forehand and Backhand Drive simulates real-game returns, requiring quick resets and adjustments in stance and footwork based on the ball's position and spin.
Drill Name	**Push(B)-Loop(B)-Drive(F)**
Drill Type	Complex
Brief	Backhand Push with Backhand and Forehand Drive is a comprehensive realgame simulation, emphasizing timely resets and stance/footwork adjustments for varying incoming balls.
Drill Name	**Flick(F)-Drive(F)-Drive(F)**
Drill Type	Complex

Brief	The action essence of transitioning from a forehand flick to two consecutive forehand drives involves rapid footwork, precise timing, and powerful, accurate strikes while maintaining consistent rhythm and balance.
Drill Name	**Flick(F)-Drive(B)-Drive(B)**
Drill Type	Complex
Brief	The action essence of transitioning from a forehand flick to two consecutive backhand drives involves rapid footwork, precise timing, and powerful, accurate strikes while maintaining consistent rhythm and balance.
Drill Name	**Flick(F)-Drive(F)-Drive(B)**
Drill Type	Complex
Brief	The action essence of transitioning from a forehand flick to a forehand drive, followed by a backhand drive, involves seamless footwork, precise timing, and smooth stroke conversion, maintaining power and accuracy throughout the sequence.
Drill Name	**Flick(F)-Drive(B)-Drive(F)**
Drill Type	Complex
Brief	The action essence of transitioning from a forehand flick to a backhand drive, followed by a forehand drive, involves seamless footwork, precise timing, and smooth stroke conversion, maintaining power and accuracy throughout the sequence.
Drill Name	**Flick(B)-Drive(F)-Drive(F)**
Drill Type	Complex
Brief	The key to transitioning from a backhand flick to two consecutive forehand drives involves rapid footwork, smooth body rotation, and precise timing to maintain power and accuracy in each attack.
Drill Name	**Flick(B)-Drive(B)-Drive(B)**
Drill Type	Complex

Brief	The key to transitioning from a backhand flick to two consecutive backhand drives involves rapid footwork, smooth body rotation, and precise timing to maintain power and accuracy in each attack.
Drill Name	**Flick(B)-Drive(F)-Drive(B)**
Drill Type	Complex
Brief	The essence of transitioning from a backhand flick to a forehand drive, followed by a backhand drive, in training involves seamless footwork, rapid body rotation, and precise timing to maintain power and fluidity throughout the sequence.
Drill Name	**Flick(B)-Drive(B)-Drive(F)**
Drill Type	Complex
Brief	The essence of transitioning from a backhand flick to a backhand drive, followed by a forehand drive, in training involves seamless footwork, rapid body rotation, and precise timing to maintain power and fluidity throughout the sequence.
Drill Name	**Push(F)-Slice(B)-Push(B)-Slice(F)**
Drill Type	Complex
Brief	The action essence of transitioning from a forehand push to a backhand slice, followed by a backhand push and a forehand slice, involves smooth footwork, precise timing, and controlled stroke mechanics to maintain rhythm and spin throughout the sequence.
Drill Name	**Slice(F)-Slice(B)-Push(F)**
Drill Type	Complex
Brief	The action essence of transitioning between forehand and backhand slices, followed by a forehand push, involves seamless footwork, precise timing, and controlled stroke execution to maintain rhythm and spin.
Drill Name	**Slice(B)-Slice(F)-Push(B)**
Drill Type	Complex

Brief	The action essence of transitioning between backhand and forehand slices, followed by a forehand push, involves seamless footwork, precise timing, and controlled stroke execution to maintain rhythm and spin.
Drill Name	**Loop(F)-Drive(F)-Drive(F)**
Drill Type	Complex
Brief	Forehand loop with 2 shots forehand drive simulates realgame returns, focusing on strategic adjustments through underspin loops against long underspin balls, transitioning into topspin attacks and subsequent forehand/backhand returns.
Drill Name	**Loop(F)-Drive(B)-Drive(B)**
Drill Type	Complex
Brief	Forehand loop with 2 shots backhand drive simulates realgame returns, focusing on strategic adjustments through underspin loops against long underspin balls, transitioning into topspin attacks and subsequent forehand/backhand returns.
Drill Name	**Loop(B)-Drive(F)-Drive(F)**
Drill Type	Complex
Brief	Backhand loop with 2 shot forehand drive simulates realgame returns, focusing on strategic adjustments through underspin loops against long underspin balls, transitioning into topspin attacks and subsequent forehand/backhand returns.
Drill Name	**Loop(B)-Drive(B)-Drive(B)**
Drill Type	Complex
Brief	Backhand loop with 2 shot backhand drive simulates realgame returns, focusing on strategic adjustments through underspin loops against long underspin balls, transitioning into topspin attacks and subsequent forehand/backhand returns.
Drill Name	**Loop(F)-Drive(F)-Drive(B)**

Drill Type	Complex
Brief	Forehand loop with forehand and backhand drive simulates realgame returns, focusing on strategic adjustments through underspin loops against long underspin balls, transitioning into topspin attacks and subsequent forehand/backhand returns.
Drill Name	**Loop(F)-Drive(B)-Drive(F)**
Drill Type	Complex
Brief	Forehand Backspin Loop with Backhand and Forehand Drive simulates realgame returns, focusing on strategic adjustments through underspin loops against long underspin balls, transitioning into topspin attacks and subsequent forehand/backhand returns.
Drill Name	**Loop(B)-Drive(F)-Drive(B)**
Drill Type	Complex
Brief	Backhand loop with forehand and backhand drive simulates realgame returns, focusing on strategic adjustments through underspin loops against long underspin balls, transitioning into topspin attacks and subsequent forehand/backhand returns.
Drill Name	**Loop(B)-Drive(B)-Drive(F)**
Drill Type	Complex
Brief	Backhand loop with backhand and forehand drive simulates realgame returns, focusing on strategic adjustments through underspin loops against long underspin balls, transitioning into topspin attacks and subsequent forehand/backhand returns.
Drill Name	**All Random**
Drill Type	Complex
Brief	All Random training incorporates short underspin balls within the table and inconsistent topspin balls at mid-to-far distances. Prompt footwork adjustments are crucial to locate the sweet spot and complete returns.

3.4.2 Machine Position Selection

The robot can be placed at Positions 1, 2, or 3. Users can arrange it according to their training needs. Once the placement position is confirmed, the corresponding machine number must also be selected in the APP interface. Note that Positions 2 and 3 do not support the training camp feature (Figure 3-8).

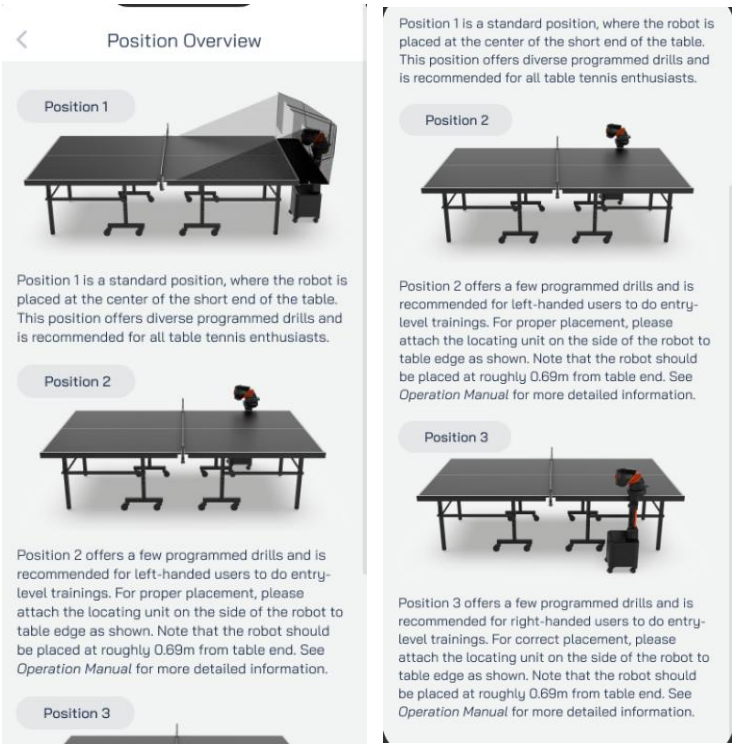


Figure 3-8

3.4.3 Serve Settings

After selecting a training drill, users can set the training duration, difficulty level, sequence, and dominant hand on the serve preparation page.

Default training duration is 5 minutes. Users can adjust the duration by clicking the "+" or "-" buttons.

Default difficulty level is 1 star. Increasing the difficulty level will enhance the speed, spin, and frequency of the serves.

For single-point drills, selecting sequential or random serve order yields the same effect. If a drill includes two or more balls, choosing sequential order will make the robot serve the balls in the predefined order. For example, in the Push(B)-Loop(F) drill, the robot will alternate between left and right sequences. If random order is selected, the robot will serve each ball randomly, with equal probability for each ball.

Users can select their dominant hand. Choosing a different hand will adjust the drop point of forehand serves to the corresponding side of the table. For example, if the dominant hand is left, the drop point of forehand attacks will be on the left side of the user's table.

After setting the parameters, click the Start button, and the robot will begin serving (Figure 3-9).

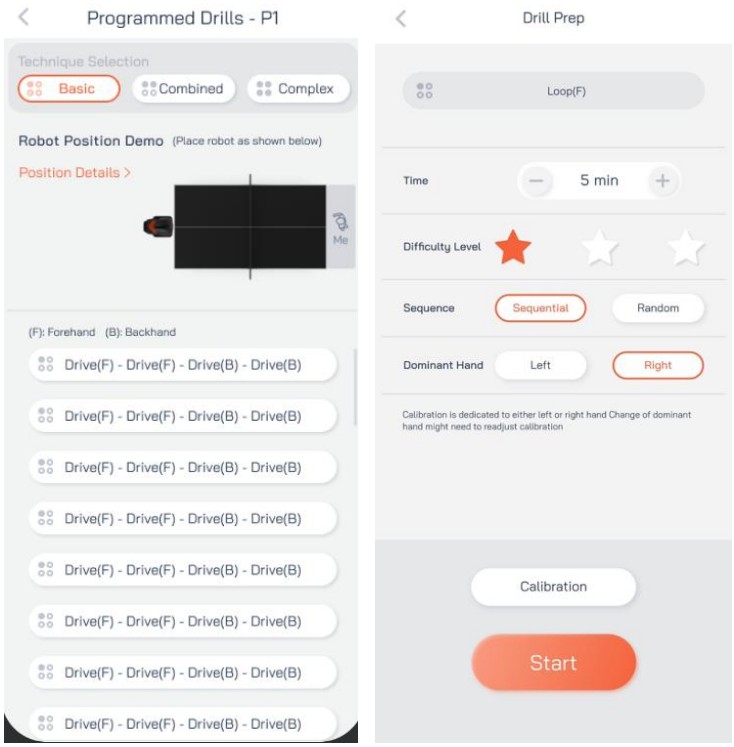


Figure 3-9

3.4.4 Ball Characteristics Calibration

If the default ball parameters do not meet drill needs, users can return to the serve preparation page and adjust the serve frequency and drop point settings in the Ball Characteristics Calibration section.

A higher frequency parameter increases the number of serves per minute.

If the Left & Right parameter is positive, the drop point moves to the player's right (facing the robot), with larger values shifting further right. Conversely, a negative value shifts the drop point to the left, with smaller values moving further left. If the Shorter & Longer parameter is positive, the drop point moves closer to the net, while a negative value shifts it towards the far end of the table.

After making adjustments, click the Combo Test button to check if the settings meet training needs. If satisfied, click the Confirm button to return to the Drill Prep page. Click Start to begin training.

In Calibration interface, the changes to parameters will apply to all balls in the drill (Figure 3-10).

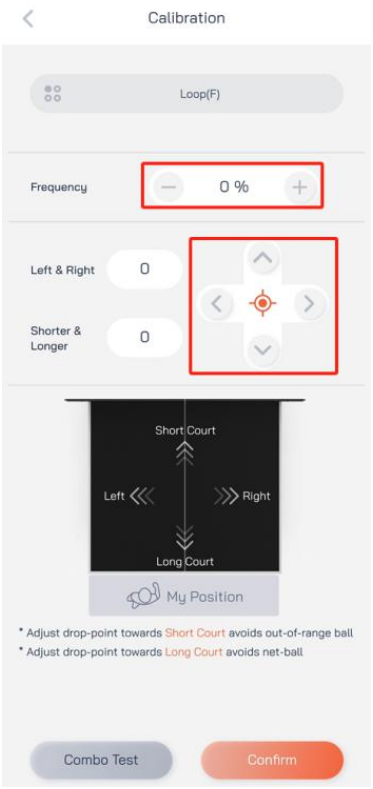


Figure 3-10

3.4.5 In Drill in Process interface, users can view the target training duration and the accumulated training time. They can also pause, continue, or stop the training (Figure 3-11).

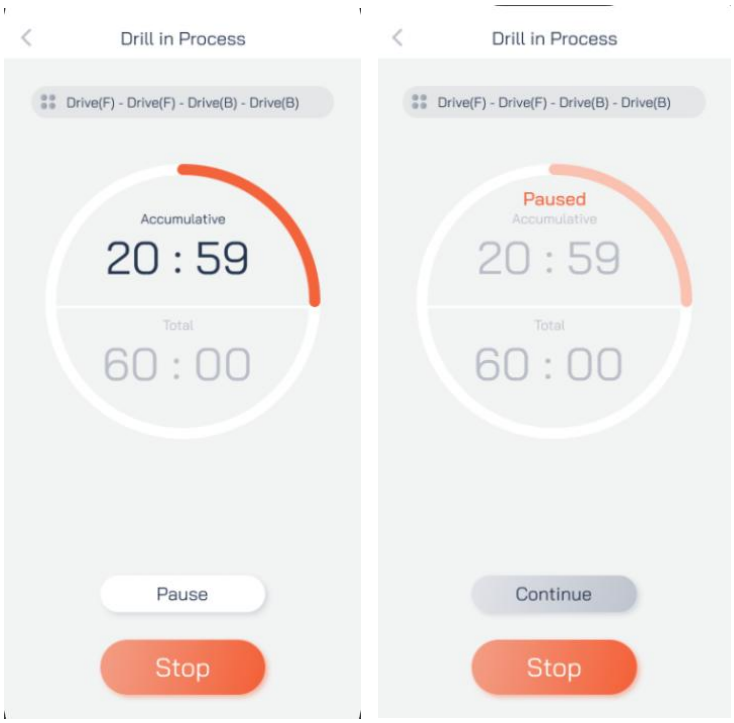


Figure 3-11

3.5 Custom Drills

Custom drills at Position 1 are divided into two types. One is [Mine], edited by users themselves. Another is [Library], where users can save training drills shared by other users in the library to their own custom drill list. Custom drills for positions 2 and 3 only have the type of [Mine], which refers to custom drills edited by users themselves. The following sections use Position 1 as an example (Figure 3-12).

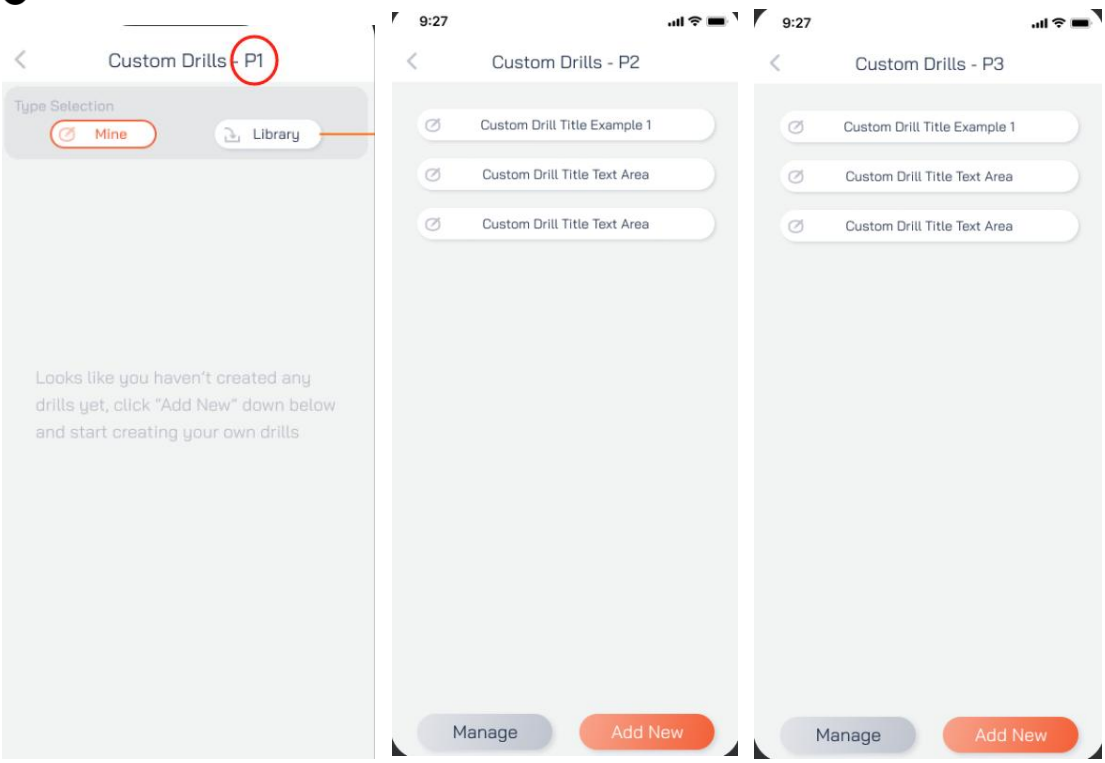


Figure 3-12

3.5.1 Add/Delete Custom Drills

Click the Add New button in the bottom-right corner to create a new custom drill. In the custom list, users can click the Manage button in the bottom-left corner, select the custom drill to delete, and click the Delete button (Figure 3-13).

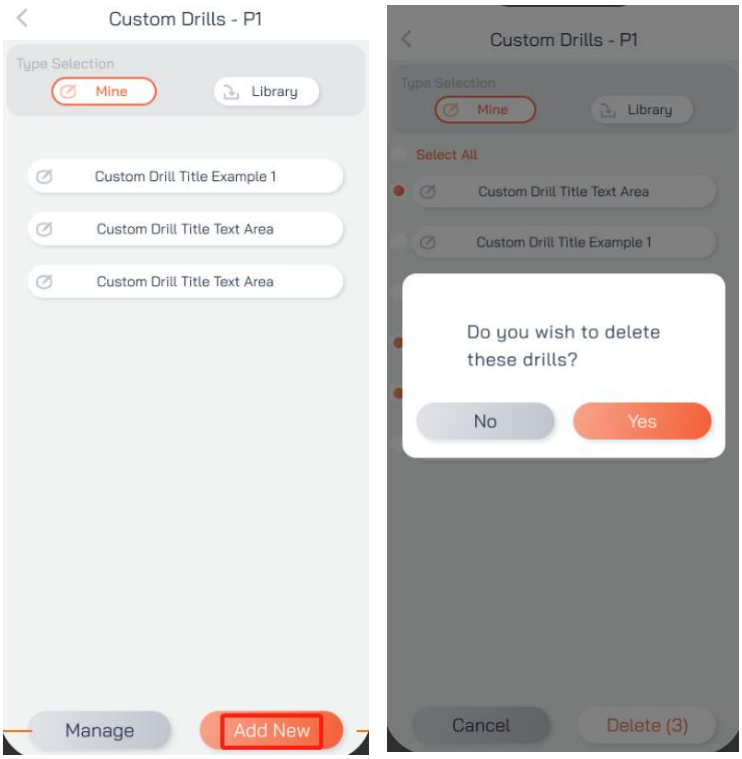


Figure 3-13

3.5.2 Custom Naming

Enter the custom drill title in the input box at the top of the custom parameter settings page. The name can be freely chosen by the user, typically based on the characteristics of the drill, such as forehand/backhand or topspin/underspin. The maximum length for the title is 35 characters (Figure 3-14).

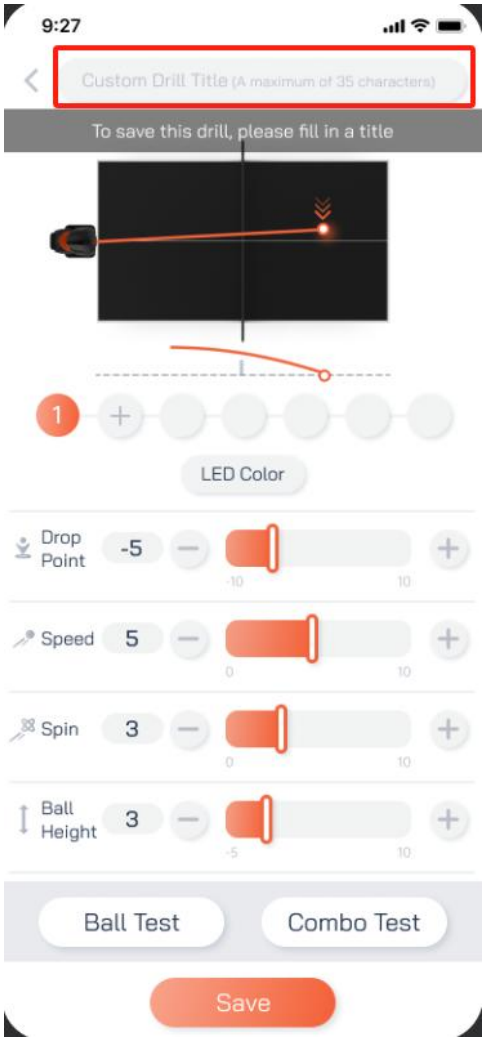


Figure 3-14

3.5.3 Real-time Animation

The animation at the top of the page displays the drop point and trajectory of the ball in the custom drill, helping users determine if the ball will hit the net or go out of bounds. This animation is for reference only (Figure 3-16).

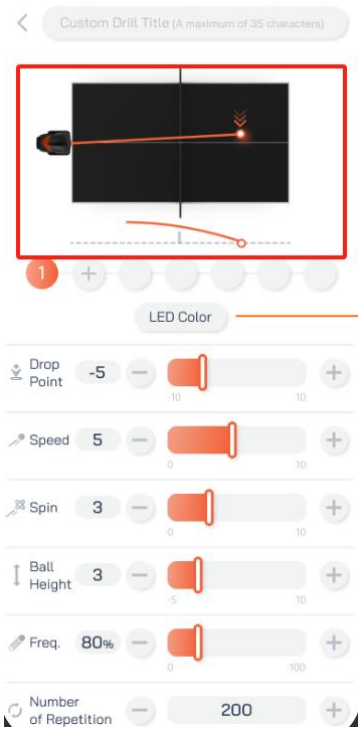


Figure 3-16

3.5.4 Add/Delete Ball

Click the "+" button to add a new ball. A drill can contain up to 7 balls. To delete a ball, long-press the ball and drag it to the red delete area at the bottom (Figure 3-17).

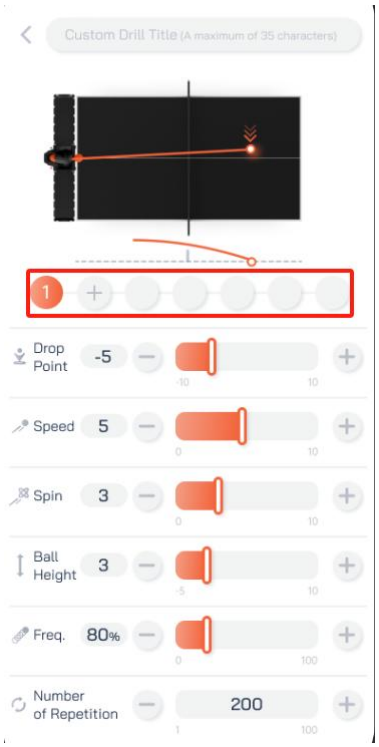


Figure 3-17

3.5.5 Drop Point

When the parameter value is 0, the drop point is near the center of the table. When the parameter value is positive, the drop point shifts to the right side of the table. When the parameter value is negative, the drop point shifts to the left side of the table. The larger the absolute value, the further the drop point moves from the center. Adjustment Method: Drag the slider or use the "+" and "-" buttons for fine-tuning. The adjustment method for other parameters is the same (Figure 3-18).

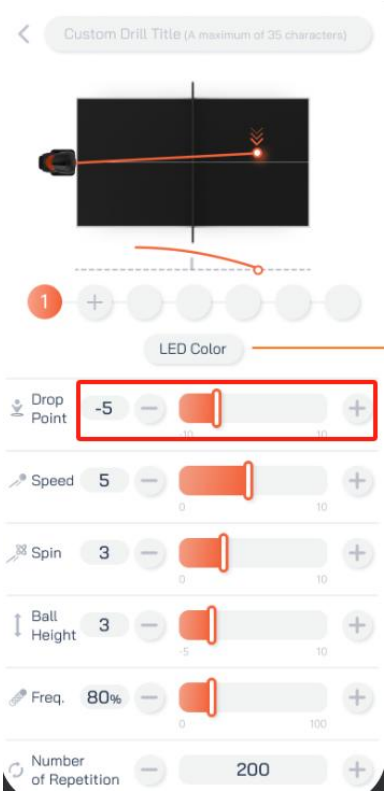


Figure 3-18

3.5.6 Speed

The speed parameter adjusts the speed at which the ball travels through the air, reflecting the forward momentum of the ball. Given that other parameters remain constant, a higher speed parameter results in a faster-moving ball. In terms of serve placement, a higher speed parameter means the ball will land closer to the bottom edge of the table (Figure 3-19).

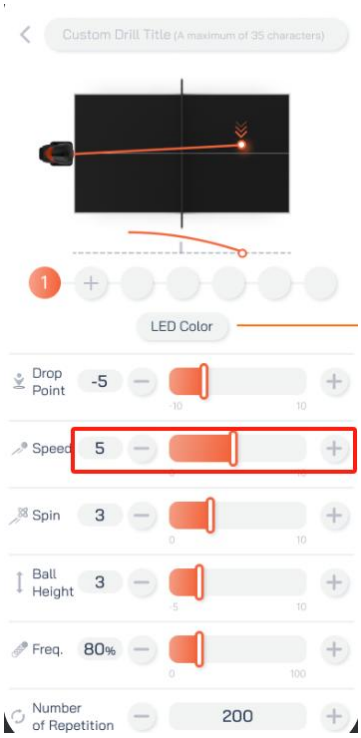


Figure 3-19

3.5.7 Spin

The spin parameter adjusts the speed at which the ball rotates around its axis, measured in revolutions per second (r/s). A higher spin parameter increases the spin intensity of the serves. When the spin parameter is set to 0, the ball serves without spin (Figure 3-20).

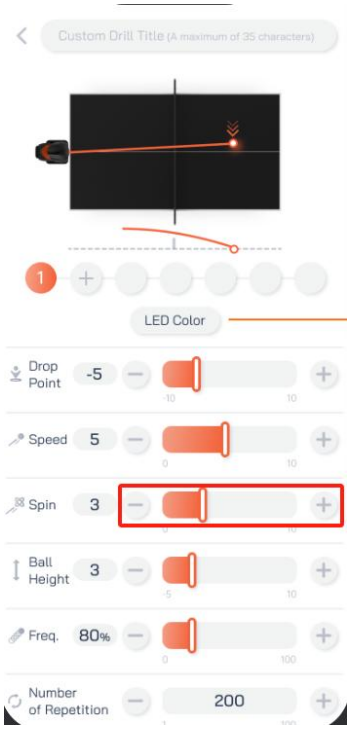


Figure 3-20

3.5.8 Height

The height parameter adjusts the height of the ball as it passes over the net. A higher parameter increases the robot's inclination angle, resulting in a higher arc.

To set a two-bounce serve (first bounce on the robot's side, second bounce on the player's side), set the arc parameter to a negative value and adjust the speed parameter accordingly (Figure 3-21).

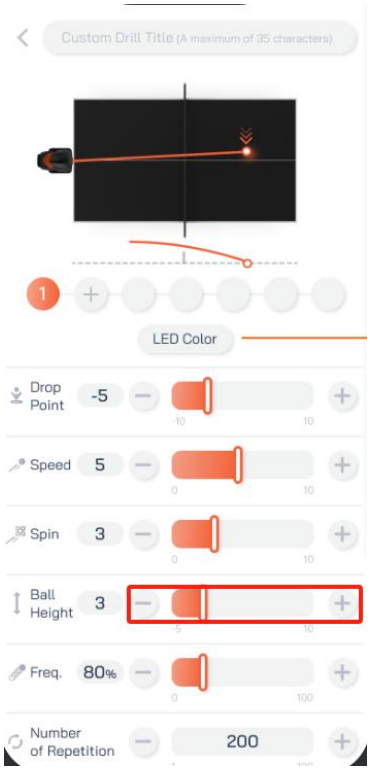


Figure 3-21

3.5.9 Frequency

The frequency parameter adjusts the number of serves per minute (30-90 balls/minute). A higher frequency parameter increases the number of serves. If the frequency level is divided into 100 levels, each increment of 10 increases the serve count by approximately 6 balls per minute. To increase the time interval between serves for recovery, reduce the frequency parameter of the first ball. Similarly, for specific drills requiring varied serve rhythms, adjust the frequency of each ball accordingly (Figure 3-22).

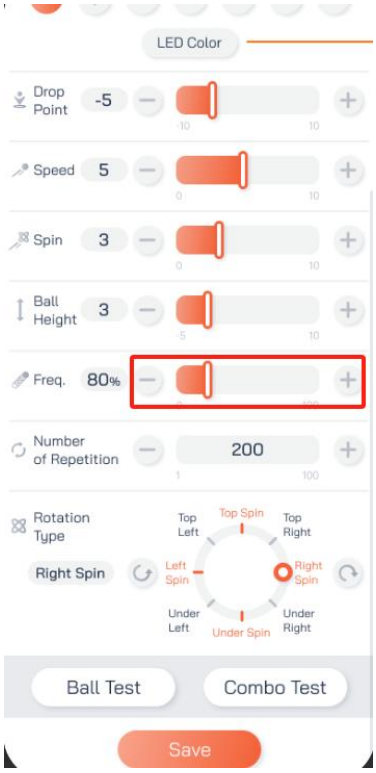


Figure 3-22

3.5.10 Number of Repetition

The number of repetition parameter adjusts how many balls is served in one cycle. For example, to practice a forehand push followed by two backhand attacks, there are two ways to achieve this. The first type is to create 3 balls. The first ball sets as a forehand push, and the second and third balls set as backhand attacks. The second type is to create two balls. The first ball sets as a forehand push, and the second ball sets as a backhand attack with the number of repetition set to 2 (Figure 3-23).

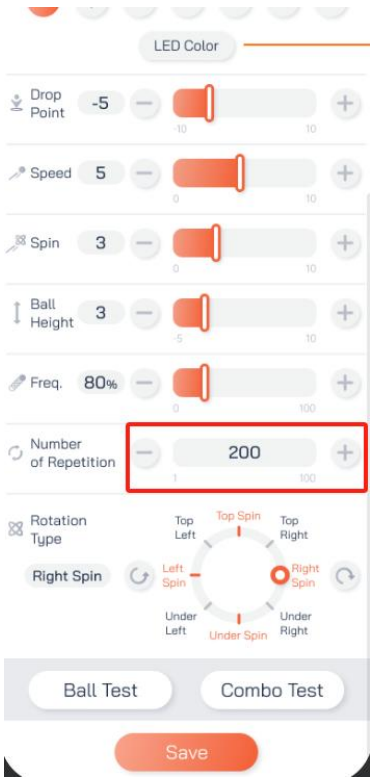


Figure 3-23

3.5.11 Rotation Type

When the rotation parameter is set to a non-zero value, users can drag the red dot representing the rotation type to the desired orientation based on their training needs (Figure 3-24).

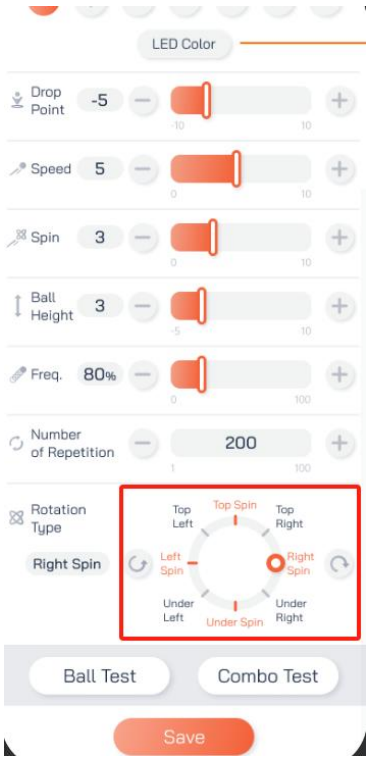


Figure 3-24

3.5.12 LED Color

Select the LED Color button to enable the custom LED color function. Once enabled, users can set the color of the LED light for each ball during serving (Figure 3-25).

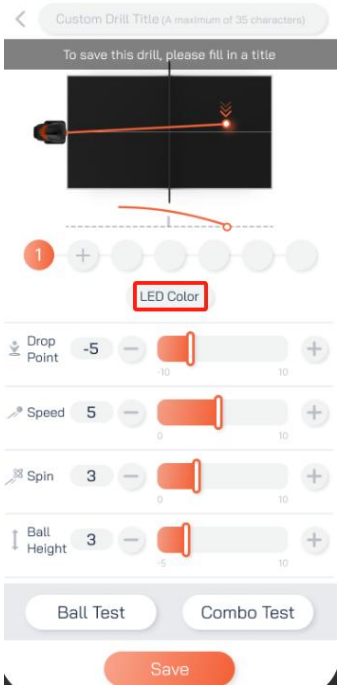


Figure 3-25

3.5.13 Ball Test and Combo Test

After setting the parameters for each ball, users can click "Ball Test". If the test result does not meet the requirements, users can adjust the parameters accordingly. Once the custom drill is set, users can click "Combo Test" to try out the custom drill. If the test result does not meet the requirements, users can adjust the parameters of each ball. If the drill meets the requirements, users can fill in a title for the custom drill at the top of the page and click "Save" at the bottom to save it (Figure 3-26).

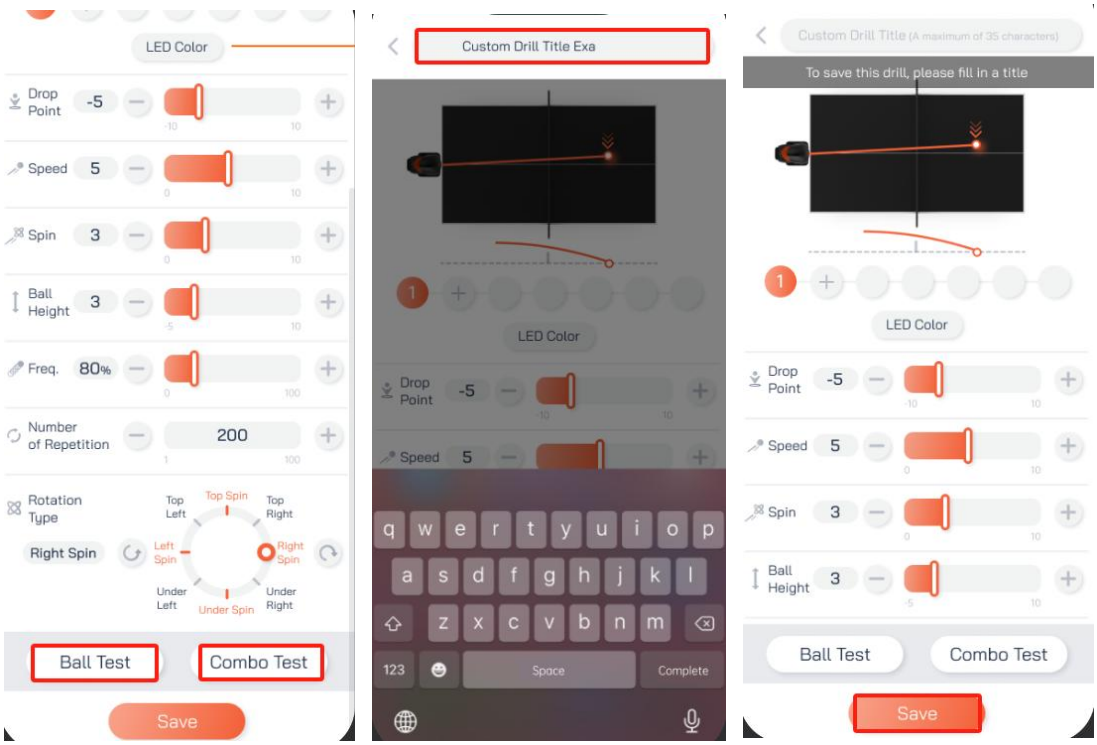


Figure 3-26

5.14 Serve Settings

After saving a custom drill, the system will automatically redirect to the Custom Drill List. To start training, users need to select the desired drill. On the Drill Prep Page, users can set the training duration and serve type.

During the serve, users can view the target training duration and the accumulative training time. They can also pause, start, or stop the training.

If users need to modify the parameters of a ball, they can click the Edit Combo button

to enter the parameter editing page. The editing process is the same as when creating a new drill. After completing the modifications and confirming them, click the Save button to save the changes (Figure 3-27).

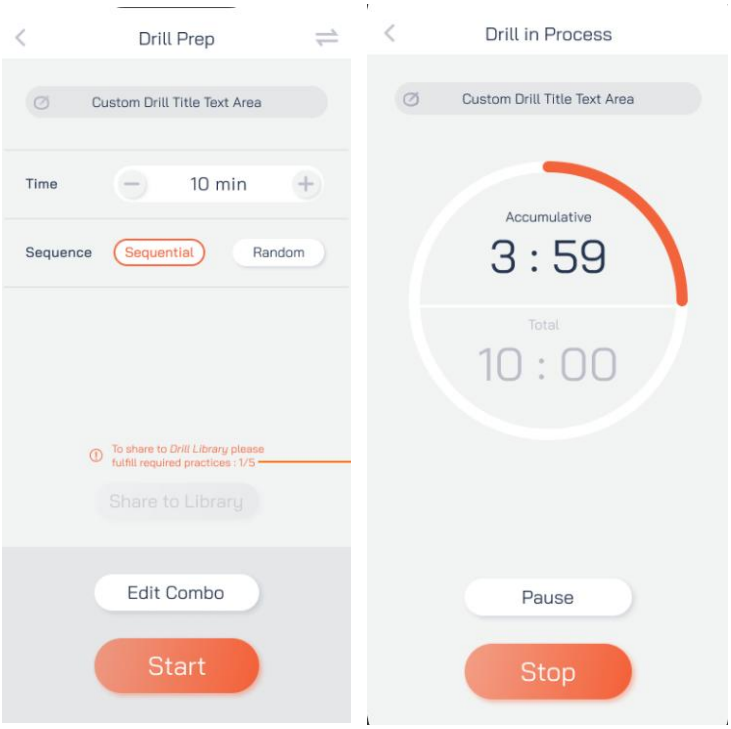


Figure 3-27

3.5.15 Custom Drill Example

To help users quickly familiarize themselves with custom drill editing, the following example uses Push(B)-Loop(F) and Flick(F)-Drive(B) to demonstrate the editing process.

①Push(B)-Loop(F)

The Push(B)-Loop(F) drill integrates forehand strokes, backhand strokes, and footwork. After each stroke, the player must adjust their stance and footwork based on the incoming ball's position.

Based on the description of the Push(B)-Loop(F) drill, we know it consists of 2 balls. The first ball is a forehand stroke. The second ball is a backhand stroke. Both balls are topspin.

Enter the Custom Drill page and click the Add button:

i. In the input box at the top, enter "Push(B)-Loop(F)" to title the drill.

ii. Start setting the parameters for the first single ball with drop point set to 4, speed set to 3, spin set to 2, frequency set to 50%, number of repetition set to 1, and rotation type set to Top Spin.

iii. Start setting the parameters for the second single ball with drop point set to -4, speed set to 3, spin set to 2, frequency set to 50%, number of repetition set to 1, and rotation type set to Top Spin.

iv. Click the Combo Test button to check if the balls served by the robot meet the drill requirements. If they meet the requirements, click the Save button to save it.

②Flick(F)-Drive(B)

The Flick(F)-Drive(B) drill focuses on transitioning from short-table underspin to long-table topspin, primarily training footwork adjustment and racquet angle transitions.

Based on the description of the Flick(F)-Drive(B) drill, we know it consists of 2 balls. The first ball is a forehand short-table underspin. The second ball is a backhand long-table topspin.

Enter the Custom Drill page and click the Add button:

i. In the input box at the top, enter "Flick(F)-Drive(B)" to title the drill.

ii. Start setting the parameters for the first single ball with drop point set to 6, speed set to 2, spin set to 4, frequency set to 10%, number of repetition set to 1, and rotation type selected set to Under Spin.

iii. Start setting the parameters for the second single ball with drop point set to -7, speed set to 3, spin set to 3.5, frequency set to 10%, number of repetition set to 1, and rotation type set to Top Spin.

iv. Click the Combo Test button to check if the balls served by the robot meet the drill requirements. If they meet the requirements, click the Save button to save it.

3.5.16 Share Custom Drill

In the Custom Drill List, click the drill you wish to share. On the Drill Prep page,

users can click the Share to Library button. On the sharing page, users can select an appropriate technical tag for the drill and input a description. Click the Preview button to confirm the shared drill's information is correct. If no further modifications are needed, click the Share button to share the custom drill to the library for other users to use. If modifications are needed, click the Back button in the top-left corner to return to the previous page and continue editing (Figure 3-28).

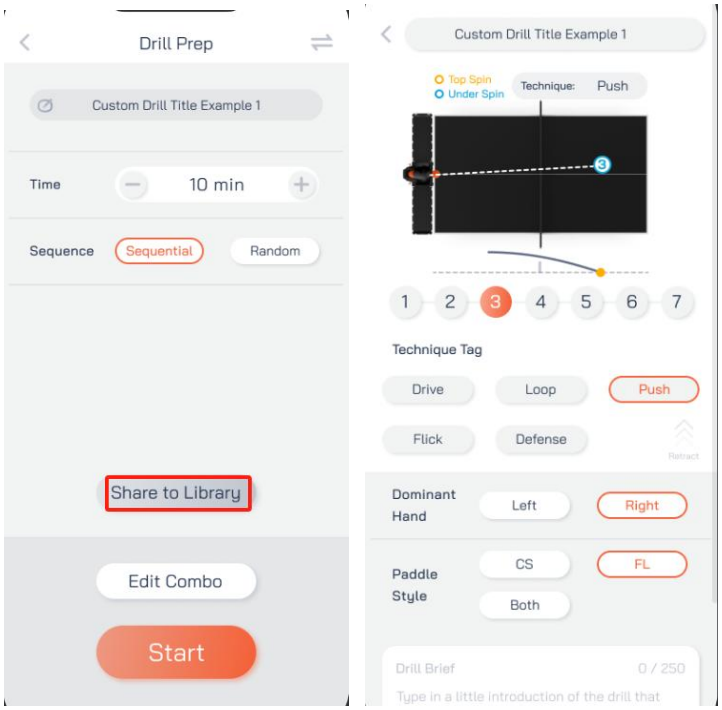


Figure 3-28

3.5.17 Synchronized Drills

On the Drill Prep page, in the top-right corner, users can click the Sync button to synchronize the drill to the E-PAD (Figure 3-29).

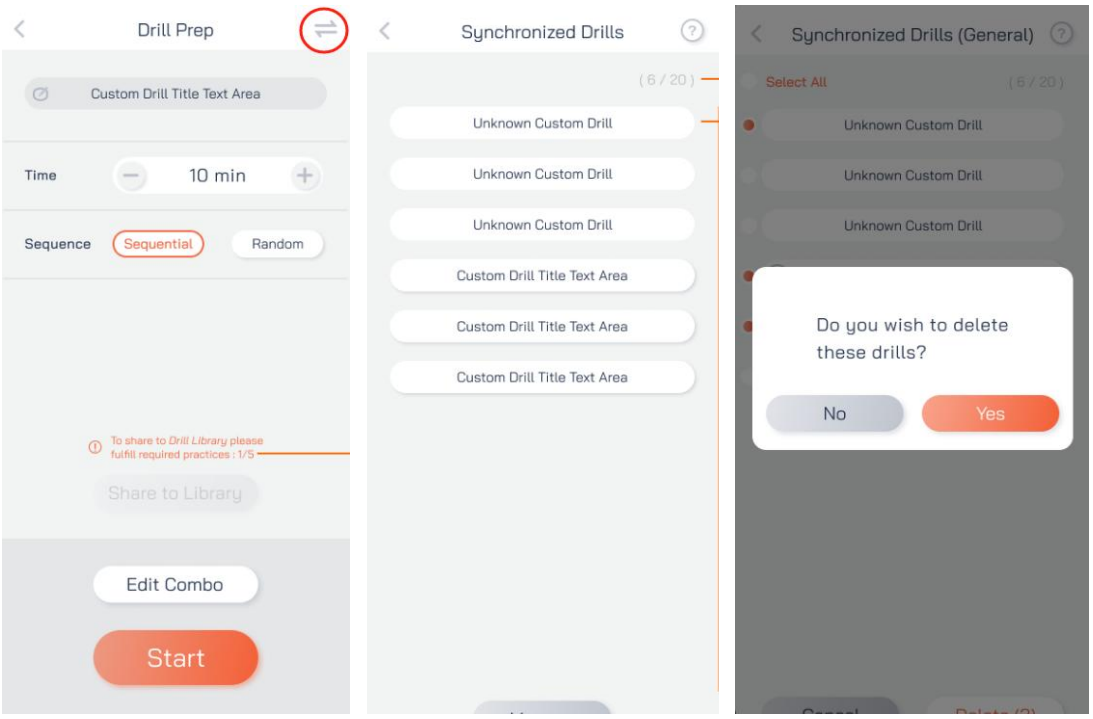


Figure 3-29

3.5.18 Drill Library

Users can save drills uploaded by other robot users to the Library in the Custom Drills List (see Section 3.7 for related operations). After click the Drill Title, users can start training. On the Drill Prep page, users can also adjust the drop point and frequency of the serves using the Try button.

3.6 Synchronized Drills

The Synchronized Drills feature allows users to synchronize drills created in the APP to the E-PAD. This enables users to train with their custom drills even in offline scenarios. Note that library drills cannot be synced to the E-PAD, and users can sync a maximum of 20 drills.

After opening the Synchronized Drills, users can click the Manage button to delete synchronized drills (Figure 3-30).

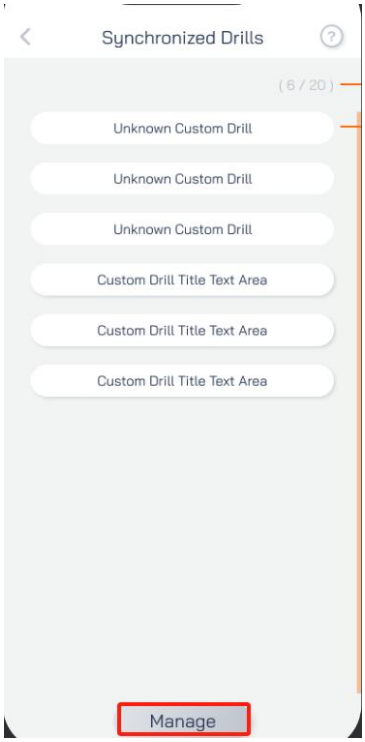


Figure 3-30

3.7 Drill Library

The PongSmart APP Drill Library serves as a platform for users to share and learn from custom drills. Here, users can share their own drills, and beginners can directly use drills created by other users.

After selecting the Drill Library, users can filter drills based on different criteria. Once a desired drill is selected, users can view the animation effects to check the spin and drop point of each ball. Users can also read the description or introduction provided by the sharing user. In the bottom-right corner, users can click the Try button to start training. If the drill meets the training requirements, click the Save button in the bottom-left corner to add it to the Drill Library list (Figure 3-31).

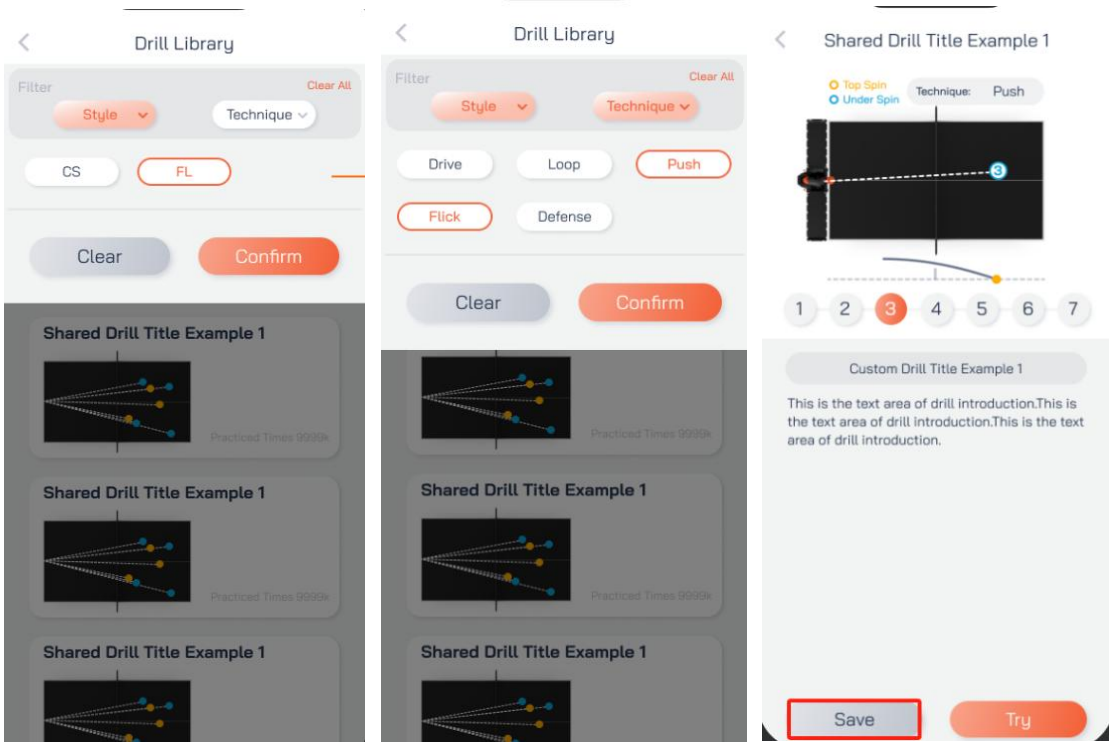


Figure 3-31

3.8 Settings

Click the Settings button in the top-right corner to view and configure the robot's related information.

Enter into the Device Name page, users can modify the name of the robot.

Enter into the Device Info page, users can view the robot's name, serial number, and version information. Enter into the Firmware Upgrade page, users can check the current version information. If a new version is available, click the Upgrade button to update. During the upgrade process, do not interrupt the process by disconnecting the phone's network, exiting the APP, or turning off the robot, as this may cause robot malfunctions. Enter into Programmed Drill Calibration page, users can adjust the drop point and check the accuracy of the drop point (same as Ball Characteristics Calibration). After completing the adjustments, click the Confirm button to save. Enter into Help & Support page, users can view related help videos or documents. Click the Delete Device button to unbind the APP from the robot (Figure 3-32).

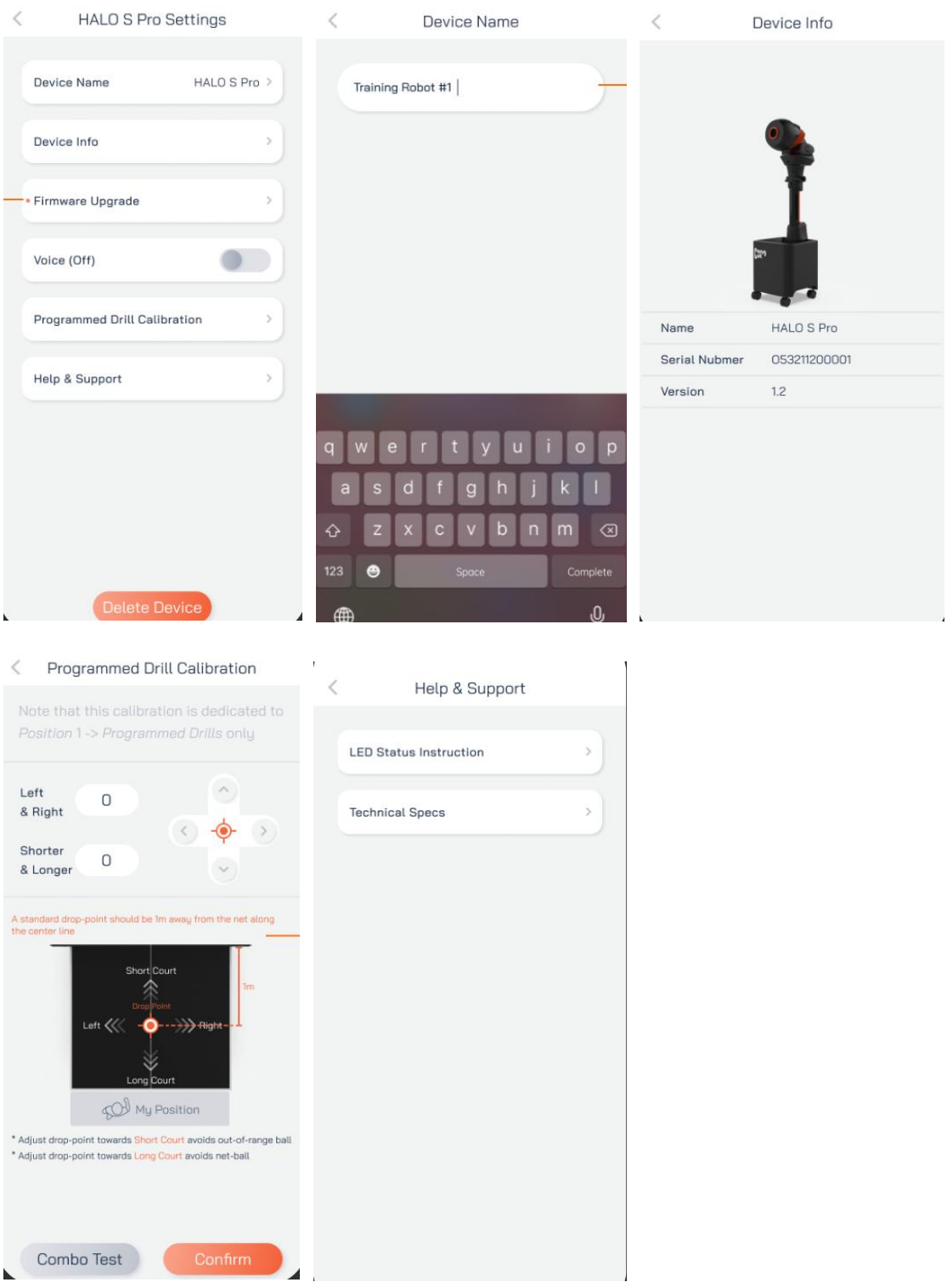


Figure 3-32

Additionally, the robot and the APP do not have a one-to-one strong binding relationship. If the currently paired APP phone is not near the robot or the Bluetooth function on the phone is turned off, other users can pair the robot with the PongSmart APP via Bluetooth without requiring the previous user to delete the robot from the

APP.

IV. Using E-PAD S

4.1 Hardware Introduction

Press the power button briefly to turn on the E-PAD S. To turn it off, press and hold the power button. In standby mode, tap the touchscreen to wake up the E-PAD S screen.

Use the provided Type-C charging cable. Connect the Type-C end to the E-PAD S and the USB end to a self-provided charger to begin charging (Figure 4-1).

Figure 4-1

4.2 Bluetooth Pairing

The E-PAD S is pre-paired with the robot via Bluetooth at the factory. After turning on both the robot and the E-PAD S, ensure the robot's Bluetooth icon in the top-left corner of the E-PAD S screen is connected. If connected, you can use the system directly.

If the robot's Bluetooth icon shows not connected, locate the network configuration button on the side of the robot's ball frame. Quickly press the button twice to enter the Bluetooth connection mode (the robot's LED light will flash yellow). Click the Bluetooth button in the middle of the top section of the E-PAD S screen to access the Bluetooth page. On the Bluetooth page, click the Connect button and wait for the Bluetooth pairing to complete. When the screen prompts Connection Successful, click the Back button in the top-right corner to return to the main page (Figure 4-2).

Figure 4-2

4.3 Robot Position

Click the Robot Position button at the bottom of the main screen. Based on the robot's placement, select the corresponding position. For example: Position 1 is located directly at the center of the bottom edge of the table. Positions 2 and 3 are located on the left and right sides of the table, respectively, 0.69 meters from the bottom edge. Click the Position Brief button on the right side of the screen to confirm the robot's placement. Alternatively, refer to the installation and pairing video for guidance. After selecting the appropriate position, click the Confirm button. Note that Positions 2 and 3 have fewer built-in drills compared to Position 1 (Figure 4-3).

Figure 4-3

4.4 Setting

4.4.1 Click the Setting button at the top of the main screen to enter the E-PAD S settings interface. Here, users can select their dominant hand based on their playing style.

4.4.2 Screen Auto-Lock refers to the period of time after which the E-PAD S automatically turns off its screen and enters sleep mode when there is no user activity.

4.4.3 Voice can enable or disable the robot's voice broadcast function.

4.4.4 Drop-point Calibration allows users to adjust the distance and lateral position parameters to fine-tune the drop point of the robot's built-in drills. Note that these adjustments only apply to built-in drills.

4.4.5 The software version and SN information of both the E-PAD S and the robot are displayed at the bottom of the screen (Figure 4-4).

Figure 4-4

4.5 Top 5 Ranking

Click the Top 5 Ranking button at the top of the main screen to access the Ranking page. The right side of the screen displays the top 5 used program drills. Users can directly select a drill, set the drill mode, and other parameters, then click the Start button to begin serving. Users can also click the Calibration button to modify the frequency and drop point parameters (Figure 4-5).

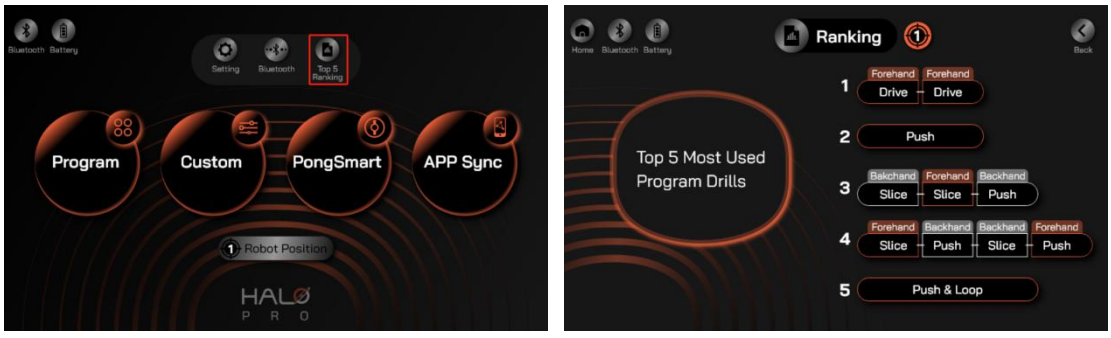


Figure 4-5

4.6 Built-in Drills

4.6.1 Built-in drills are divided into single-point, two-point, and multi-point programs. Each program includes basic drills and advanced drills. After selecting a built-in drill, users can choose different difficulty levels (higher levels mean greater difficulty).

Training modes include time-based and set-based options. Users can select the appropriate mode based on their drill requirements or goals. Users can choose between sequential or random serving sequences. The logic for serving sequences is consistent with the APP.

Users can also click the Calibration button to modify the frequency and drop point parameters. If the settings meet the requirements, click the Save button to save the changes. If not, users can continue adjusting the parameters or click the Reset button to reset the parameters to their default values before making further adjustments (Figure 4-6).

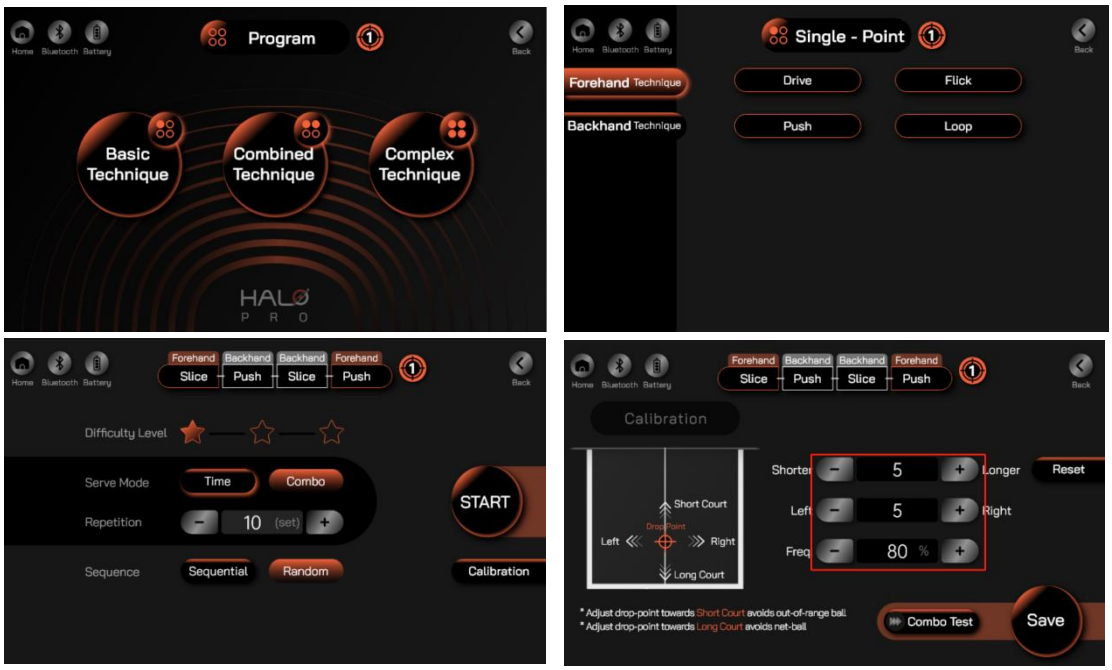


Figure 4-6

During practice, users can also adjust the drop point and frequency in real-time (Figure 4-7).

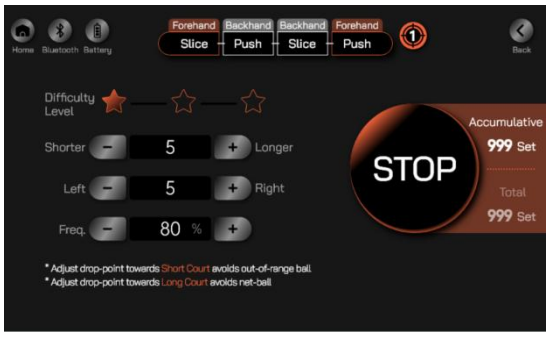


Figure 4-7

4.6.2 The settings for advanced drills, two-point and multi-point programs are consistent with the basic drills described above.

4.6.3 The settings for built-in drills in Positions 2 and 3 are the same as described above.

4.7 Custom Drills

4.7.1 Page Introduction

Custom Drill are divided into beginner program, intermediate program, and advanced program. Upon entering the Customize page, the distance of the first four balls in the drill is displayed in the upper middle of the interface (Figure 4-8).

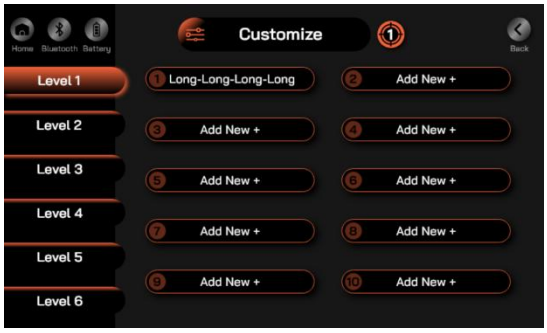


Figure 4-8

4.7.2 Add/Delete Ball

Click the "+" button to add a new ball. A drill can contain up to 10 balls. To delete a ball, press the ball and click the Delete button on the right to remove it (Figure 4-9).

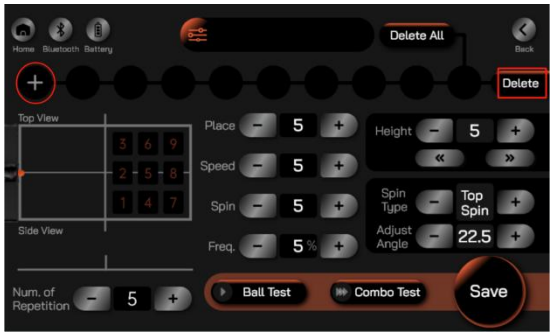


Figure 4-9

4.7.3 Real-time Animation

The animation at the top of the page displays the drop point and trajectory of the ball in the custom drill, helping users determine if the ball will hit the net or go out of bounds. This animation is for reference only (Figure 4-10).

Figure 4-10

4.7.4 Place

When the parameter value is 0, the drop point is near the center of the table. When the parameter value is positive, the drop point shifts to the right side of the table. When the parameter value is negative, the drop point shifts to the left side of the table. The larger the absolute value, the further the drop point moves from the center. Drag the slider or use the "+" and "-" buttons for fine-tuning. The adjustment method for other parameters is the same (Figure 4-11).

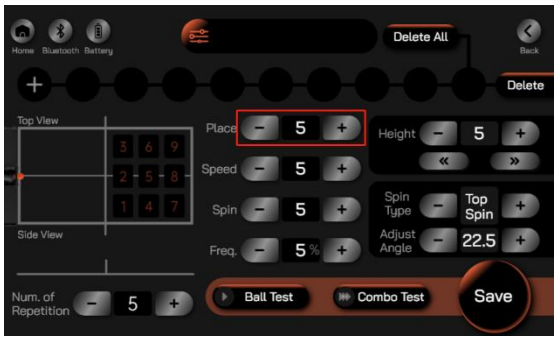


Figure 4-11

4.7.5 Speed

The speed parameter adjusts the speed at which the ball travels through the air, reflecting the forward momentum of the ball. Given that other parameters remain constant, a higher speed parameter results in a faster-moving ball. In terms of serve placement, a higher speed parameter means the ball will land closer to the bottom edge of the table (Figure 4-12).

Figure 4-12

4.7.6 Spin

The spin parameter adjusts the speed at which the ball rotates around its axis, measured in revolutions per second (r/s). A higher spin parameter increases the spin intensity of the serves. When the spin parameter is set to 0, the ball serves without spin (Figure 4-13).

Figure 4-13

4.7.7 Frequency

The frequency parameter adjusts the number of serves per minute (30-90 balls/minute). A higher frequency parameter increases the number of serves. If the frequency level is divided into 100 levels, each increment of 10 increases the serve count by approximately 6 balls per minute. To increase the time interval between serves for recovery, reduce the frequency parameter of the first ball. Similarly, for specific drills requiring varied serve rhythms, adjust the frequency of each ball accordingly (Figure 4-14).

Figure 4-14

4.7.8 Height

The height parameter adjusts the height of the ball as it passes over the net. A higher parameter increases the robot's inclination angle, resulting in a higher arc.

To set a two-bounce serve (first bounce on the robot's side, second bounce on the player's side), set the arc parameter to a negative value and adjust the speed parameter accordingly (Figure 4-15).

Figure 4-15

4.7.9 Spin Type

The spin type refers to when the spin parameter is not 0. It can be set to different spin types using the "+" and "-" buttons on the left and right. The fine-tuning button below allows for minor adjustments to the spin angle within a certain range. For example, if the spin type is set to left spin, and the fine-tuning parameter is positive, the spin type will adjust to left-bottom spin; if it is negative, it will adjust to left-top spin (Figure 4-16).

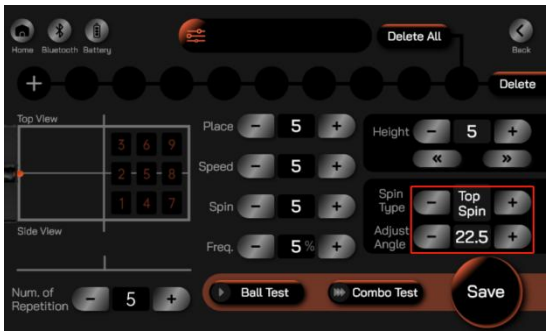


Figure 4-16

4.7.10 Number of Repetition

The number of repetition parameter adjusts how many balls is served in one cycle. For example, to practice a forehand push followed by two backhand attacks, there are two ways to achieve this. The first type is to create 3 balls. The first ball sets as a forehand push, and the second and third balls set as backhand attacks. The second type is to create two balls. The first ball sets as a forehand push, and the second ball sets as a backhand attack with the number of repetition set to 2 (Figure 4-17)

Figure 4-17

4.7.11 Ball Test and Combo Test

After setting the parameters for each ball, users can click "Ball Test". If the test result does not meet the requirements, users can adjust the parameters accordingly. Once the custom drill is set, users can click "Combo Test" to try out the custom drill. If the test result does not meet the requirements, users can adjust the parameters of each ball. If the drill meets the requirements, users can fill in a title for the custom drill at the top of the page and click "Save" at the bottom to save it (Figure 4-18).

Figure 4-18

4.7.12 Serve Settings

On the Drill Prep Page, users can set the training duration and serve type.

During the serve, users can view the target training duration and the accumulative training time. They can also pause, start, or stop the training.

If users need to modify the parameters of a ball, they can click the Edit Combo button to enter the parameter editing page. The editing process is the same as when creating a new drill. After completing the modifications and confirming them, click the Save button to save the changes (Figure 4-19).

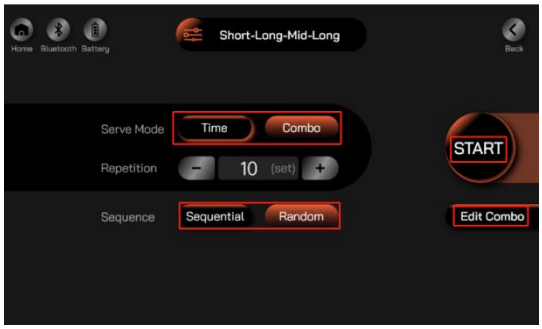


Figure 4-19

4.8 Pong Smart Drills

4.8.1 Page Introduction

The Pong Smart Drills are divided into beginner program, intermediate program, and advanced program. Upon entering the Pong Smart page, the upper middle section

displays the distance of the first four balls on the table. The Pong Smart function is exclusively available for use at Position 1 (Figure 4-20).

Figure 4-20

4.8.2 Add/Delete Ball

Click the "+" button to add a new ball. A drill can contain up to 10 balls. To delete a ball, press the ball and click the Delete button on the right to remove it (Figure 4-21).

Figure 4-21

4.8.3 Random Zone

Click the Random Zone button to divide the table into a 9-grid layout or into near, middle, and far zones. Then, select the landing zone for the ball on the table. If the user selects a zone from the near-middle-far options, the ball's drop point will be randomly within that zone (Figure 4-22)

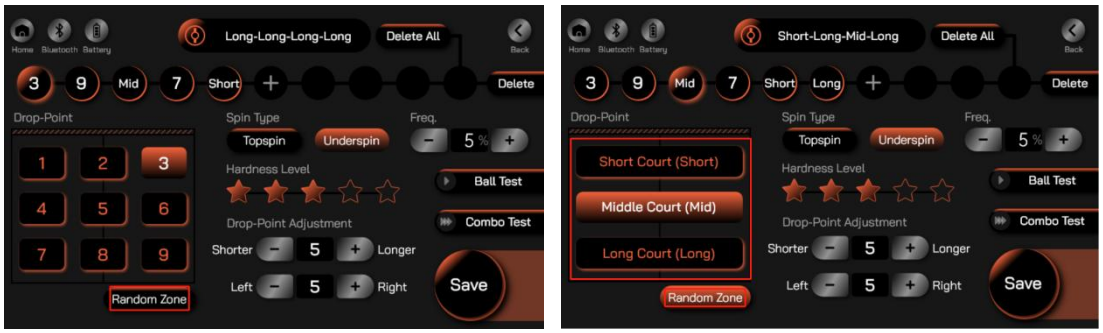


Figure 4-22

4.8.4 Spin Type and Hardness Level

In the middle section below, users can set the spin type of the ball as topspin or underspin. Below the spin type, there is a hardness level selection where users can set different hardness levels based on their training needs (Figure 4-23).

Figure 4-23

4.8.5 Drop-Point Adjustment

This feature allows users to fine-tune the drop point of the ball by adjusting it shorter, longer, left, or right (Figure 4-24).

Figure 4-24

4.8.6 Frequency

The frequency parameter adjusts the number of serves per minute (30-90 balls/minute). A higher frequency parameter increases the number of serves. If the frequency level is divided into 100 levels, each increment of 10 increases the serve count by approximately 6 balls per minute. To increase the time interval between serves for recovery, reduce the frequency parameter of the first ball. Similarly, for specific drills requiring varied serve rhythms, adjust the frequency of each ball

accordingly (Figure 4-25).

Figure 4-25

4.8.7 Ball Test/Combo Test

After setting the parameters for each ball, users can click "Ball Test". If the test result does not meet the requirements, users can adjust the parameters accordingly. Once the custom drill is set, users can click "Combo Test" to try out the custom drill. If the test result does not meet the requirements, users can adjust the parameters of each ball. If the drill meets the requirements, users can fill in a title for the custom drill at the top of the page and click "Save" at the bottom to save it (Figure 4-26).

Figure 4-26

4.8.8 Serve Settings

On the Drill Prep Page, users can set the training duration and serve type.

During the serve, users can view the target training duration and the accumulative training time. They can also pause, continue, or stop the training.

If users need to modify the parameters of a ball, they can click the Edit Combo button to enter the parameter editing page. The editing process is the same as when creating a new drill. After completing the modifications and confirming them, click the Save button to save the changes (Figure 4-27).

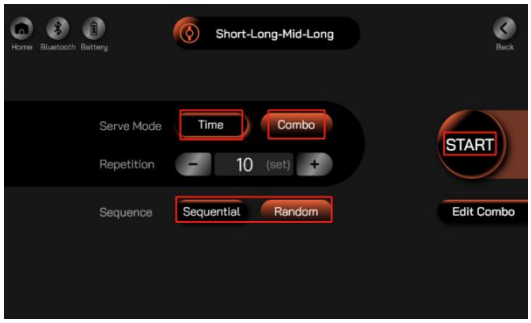


Figure 4-27

4.9 APP Sync

4.9.1 Custom Synchronization

Ensure both the APP and E-PAD are connected to the robot. In the APP Sync interface, go to the custom drill section, open the drill you wish to synchronize, and click the Synchronize Drill button in the top right corner. Wait for the APP to prompt that synchronization is successful. Then, open the E-PAD, where the screen will display a message: "Updated. Click to confirm the update." Click the Confirm button to synchronize the custom drill from the APP to the E-PAD. Currently, a maximum of 20 custom drills can be synchronized to the E-PAD S (Figure 4-28).

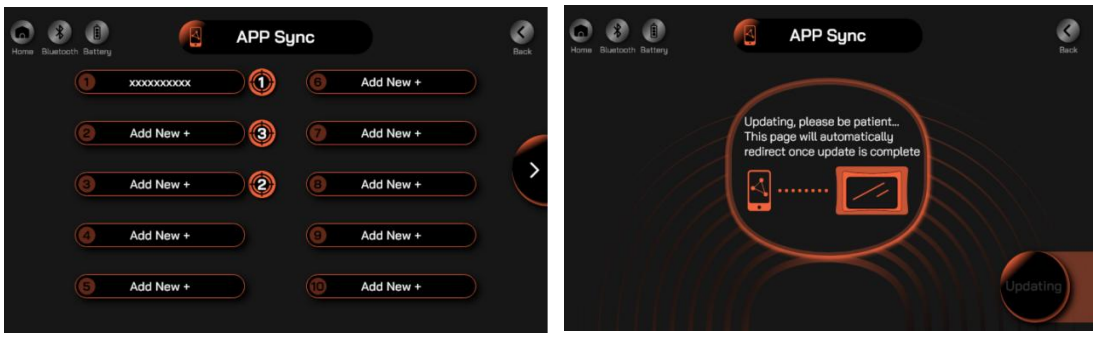


Figure 4-28

4.9.2 Serve Settings

Select the custom drill to enter the Start interface, where users can set the serve mode and other parameters. After setting, click the START button to begin serving (Figure 4-29).

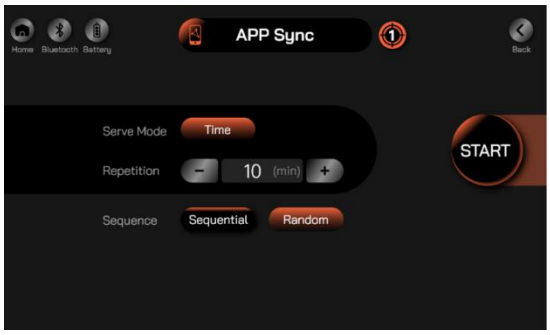


Figure 4-29

4.9.3 Delete Synchronized Drills

First, ensure both the APP and E-PAD S are properly connected to the robot. In the Synchronized Drills List on the APP, click the Manage button and delete the drills that no longer need to be synchronized. Return to the E-PAD S interface, click the Confirm button, and wait for the synchronization to complete, which will finalize the deletion of the synchronized drill.

V. Troubleshooting

5.1 Robot

Function Module	Problem Description	Troubleshooting Method
Ball Squeeze Module	2001/2002	1. Check if there is a ball stuck in the upper and lower ball-squeezing rollers at the outlet. 2. Open the head cover, inspect the upper and lower ball-squeezing rollers and their motor screws for looseness. Tighten them if loose. A detached ball-squeezing roller may cause Error 2001/2002. 3. During initialization, check if the motor rotates normally. Try swapping the upper and lower ball-squeezing motor cables to observe the initialization after swapping. 4. Inspect the ball-squeezing motor shaft for hair or debris entanglement. 5. Check the ball-squeezing motor encoder for dirt, and ensure the

		photoelectric sensor is not obstructed by foreign objects.
	Loud Noise from Ball Squeezing Rollers	1. Open the head cover, inspect the upper and lower ball-squeezing rollers and their motor screws for looseness, and tighten them if necessary. 2. Check the ball-squeezing motor shaft for hair or debris entanglement.
	Unstable drop point	1. Check if there are burrs on the edge of the outlet pipe 1 and remove them if present. 2. Inspect the upper and lower ball-squeezing rollers and their motor screws for looseness, and tighten them if necessary. 3. Assess if the ball-squeezing rollers are excessively worn.
Pitch Module	2004	1. Check if the pitch joint sensor terminal is disconnected. 2. Inspect if the pitch joint sensor flap is abnormal. 3. Verify if the pitch joint sensor signal is abnormal. 4. Check if the pitch joint motor is powered. 5. Determine if the motor is at its limit position, preventing self-initialization. If so, manually adjust the pitch motor position and then initialize it.
	Serve Hits Net/Fails to Clear Net	1. Check if there are burrs on the edge of the outlet pipe 1 and remove them if present. 2. Inspect the upper and lower ball-squeezing rollers and their motor screws for looseness, and tighten them if necessary. 3. Check if the built-in ball adjustment parameters in the APP and E-PAD are reasonable. If not, reset them to default values. 4. Assess the wear level of the ball-squeezing rollers. 5. Verify if the power adapter is an official standard one.

Left-Right Module	2005	1. In the powered-off state, rotate the robot left and right. If it only rotates slightly or not at all, foreign objects may be stuck in outlet pipes 4 and 5. Open the cover and remove the objects. 2. In the powered-on state, rotate the left-right motor to confirm if it is enabled. If not, check if the motor terminal is disconnected. 3. Inspect if the left-right joint sensor terminal is disconnected. 4. Check if the left-right joint sensor flap is abnormal. 5. Verify if the left-right joint sensor signal is abnormal.
Side Spin Module	2003	1. In the powered-off state, rotate the robot's side spin joint. If it only rotates slightly or not at all, a foreign object may be stuck in outlet pipe 1. Open the cover and remove it. 2. In the powered-on state, rotate the side spin motor to confirm if it is enabled. If not, check if the motor terminal is disconnected. 3. Inspect if the side spin joint sensor terminal is disconnected. 4. Check if the side spin joint sensor flap is abnormal. 5. Verify if the side spin joint sensor signal is abnormal.
Ball Feeding Module	Robot LED Lights Do Not Turn On, Robot Doesn't Work	1. Check if the indicator light on the power adapter is functioning. 2. Verify if the power adapter cable is securely connected. 3. Open the ball collection frame 3 and check if the bottom cable is properly connected. Open the robot cover and inspect if the mainboard-side power cable is securely connected. 4. Check if the 24V input terminal on the drive board is loose.
	Ball Stuck/Insufficient Table Tennis Balls	1. Check if there are insufficient table tennis balls in the ball frame 2. If so, add more balls. 2. Determine if the stuck ball is in the side of the ball frame 2 or the ball feeding channel. If in the side, clean the ball frame with cleaning agent. If in the channel, insert a ball from the outlet to push out the stuck ball or foreign object.

		3. If the robot's paddle vibrates, consider the gearbox to be severely worn.

5.2 E-PAD S

Main board	Cannot Charge	1. Check if the TYPE-C cable is securely plugged in. 2. Inspect if the lithium battery terminal is disconnected.
Screen	Black Screen	Check if the battery is excessively discharged, preventing startup. Charge it for an extended period before use.
	Screen Glitches/Flickering	1. Inspect if the screen cable is loose. 2. Check if the screen is damaged.
Battery	Rapid Battery Drain	1. Ensure the battery is fully charged before use. 2. Check if the lithium battery is swollen.

Warranty Period

Name	Warranty Period
Robot	1 Year
E-PAD	1 Year
Power Adapter	1 Year
Other Accessories	1 Year
Core Components	3 Years

5.3 Maintenance and Care

5.3.1 Clean the Robot

Clean the Ball Frame

Users should clean the ball frame regularly based on usage frequency to remove dust

and foreign objects, preventing frequent ball jams. Cleaning method: Wring out a wet cloth and wipe the inner walls of the ball frame to keep it clean (Figure 5-1).

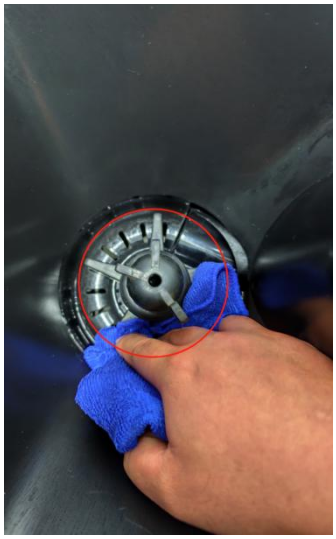


Figure 5-1

Clean the Ball-Squeezing Rollers

Users should clean the ball-squeezing rollers regularly to prevent irregularities that cause unstable drop points. Cleaning method: Turn the orange ring at the outlet counterclockwise to remove it, take off the head cover 1, and use a wrung-out wet cloth to clean the dust or foreign objects on the upper and lower ball-squeezing rollers (Figure 5-2).

Figure 5-2

Cleaning the Outlet Pipe

Users should inspect and clean foreign objects at the outlet regularly based on usage frequency (Figure 5-3).

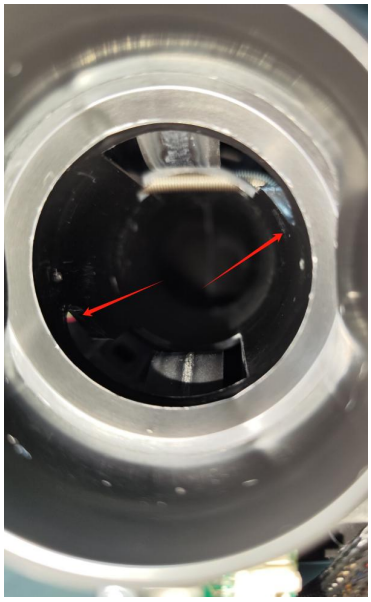


Figure 5-3

5.3.2 Check Robot Fixed Screws

Check Ball-Squeezing Motor Screws

Users should check and tighten the ball-squeezing motor screws regularly. Operation method: Turn the orange ring at the outlet counterclockwise to remove it, take off the head cover 1, unscrew the ball-squeezing roller screws with a Phillips screwdriver, and check if the two fixed screws on the ball-squeezing motor are loose. If loose, tighten them with a 1.5mm hex key (Figure 5-4).

Figure 5-4

Check Ball-Squeezing Roller Screws

Users should check and tighten the ball-squeezing roller screws regularly. Operation method: Turn the orange ring at the outlet counterclockwise to remove it, take off the head cover 1, and tighten the ball-squeezing roller screws with a Phillips screwdriver (Figure 5-5).

Figure 5-5

We guarantee that this product is free from material and workmanship defects within one year from the date of purchase for retail buyers. If any defects occur during the warranty period, you will receive a replacement part and instructions for replacement.

If you need to return the product, please adhere to the following requirements:

Provide the invoice, receipt, or other valid proof of purchase.

Ensure all accessories are complete and not missing.

Ensure the packaging is secure to prevent damage during transit.

After-Sales Contact

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