

POPPER

User Guide

Beverage Promotional Robot



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**PRODUCT
INTRODUCTION**

Product Introduction

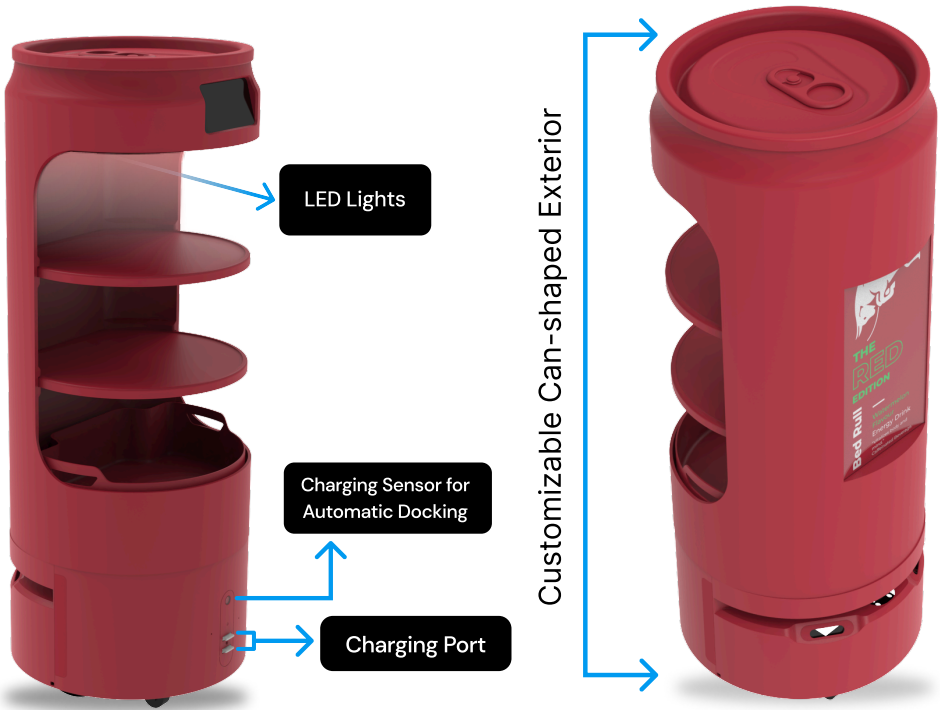
1.1 Overview of Popper

Popper is a smart, autonomous beverage promotional robot designed for high-footfall indoor and semi-indoor environments such as malls, events, airports, retail stores, restaurants, and exhibition spaces. It uses a combination of Dual SLAM navigation, AI-based mapping, and sensor fusion to move with precision through dynamic crowds, avoiding obstacles and navigating efficiently through complex venue layouts.

Popper enhances brand experiences by autonomously delivering beverages and displaying high-impact promotional content simultaneously. With its iconic can-shaped body, an 18-inch advertisement display, customizable operational modes, background music, and a central dashboard interface, Popper serves as both a functional beverage server and a mobile brand ambassador throughout the day.



Product Introduction



1.2 Applications & Use Environments

Popper is ideal for deployment in high-footfall and dynamic indoor spaces.

Primary use cases include:



Malls & Retail Stores: Beverage sampling and brand promotion while circulating through shopping floors.



Events & Exhibitions: Beverage distribution and live brand engagement at trade shows, product launches, and corporate events.



Airports & Transit Lounges: Autonomous beverage service and advertising in waiting areas and terminals.



Restaurants & Hotels: Beverage delivery and promotional display during dining experiences.



Stadiums & Amusement Parks: High-volume beverage promotion in large, open public spaces.



Corporate Spaces: Scheduled beverage rounds and internal brand campaigns.

Note: Popper is not designed for **outdoor use on uneven terrain**. It is intended for flat, indoor or sheltered environments only.

1.3 Robot Design and Highlights

Popper is engineered with brand impact, user safety, and high-volume promotional deployment in mind. Its iconic can-shaped body acts as a rolling brand mascot that captures attention effortlessly. The independent suspension system ensures smooth mobility across varied flooring, and the low noise mode keeps operations unobtrusive in public environments.

Core Features:

- **Multi-Mode Operation:** Beverage Delivery, Cruise, Celebration, Free Distribution, and Brand Promotion modes.
- **Dual SLAM Navigation:** Combines laser scanning and visual SLAM for accurate movement through crowds.
- **Autonomous Charging:** Returns to the charging dock automatically based on battery thresholds.
- **18-inch Ad Display:** High-brightness screen for promotional media, videos, and QR campaigns.
- **Low Noise Mode:** Operates quietly in public and semi-public venues.
- **Independent Suspension System:** Ensures smooth and stable movement across all venue surfaces.
- **Touch Button Interface:** Simple controls for operational staff.
- **Extended Battery Life:** 10+ hours of continuous operation.

2

**SAFETY
GUIDELINES**

2.1 General Precautions

To ensure safe and reliable operation, users must strictly follow the guidelines below

- Do not operate immediately after moving Popper from a cold to a warm environment. Allow it to adjust to room temperature to avoid condensation damage.
- Avoid using Popper in environments that are wet, dusty, oily, or have strong magnetic fields, as these may impair its sensors and internal systems.
- Ensure the floor surface is flat and solid. Popper is not suitable for carpeted, rough, soft, or sloped terrains.
- Do not use the robot outdoors or in areas with elevation changes, steps, or open ledges.
- In environments with glass doors or transparent partitions, place safety markers 22-25 cm from the ground to prevent collisions.
- Use only original accessories and parts provided by Falcon Tech to maintain safety and warranty.
- Do not disassemble, puncture, crush, bend, cut, or paint any part of Popper. Internal repairs must only be performed by authorized technicians.
- Avoid excessive pressure on the robot's touchscreen or components. Use fingers only.
- Keep Popper's path free of low-lying obstacles under 25 cm, as these may go undetected by its sensors.
- Never operate the robot near flames, heat sources, or explosive materials.
- Keep Popper out of direct sunlight for prolonged periods to prevent overheating.

2.2 Environment Requirements

For smooth and uninterrupted operations:

- Ensure the robot's workspace is at **room temperature (5°C to 40°C)** and **humidity levels of 5%–85%**.
- Avoid reflective surfaces, black walls, or glass partitions in unmapped areas.
- Maintain a **clear radius of 1.5–2 meters** around the charging dock.
- The charging area should be dry and free of any electrical hazards.

2.3 Emergency Handling

- **Emergency Stop Switch:** Located at the top rear body. Press to halt all movement immediately. Use only in emergencies.
- **Post-Emergency Recovery:**
 - 01) Release the emergency stop by rotating it clockwise.
 - 02) Manually reposition the robot if needed.
 - 03) Restart the system or reinitialize the map if the robot fails to resume tasks.

Caution: Moving the robot manually while emergency stop is pressed may result in **positioning loss**. Always recalibrate after manual relocation.

3

SPECIFICATIONS

Specifications

3.1 Technical Specifications

Specifications	Details
Operating System	Android 5.1
Dimensions (L × W × H)	500 mm × 1272 mm
Weight	48.5 kg
Beverage Compartment	1 can-shaped beverage compartment
Battery Type	Lithium-Ion
Battery Backup	10+ hours
Charging Time	4 hours
Charging Modes	Automatic Docking
Operating Temperature	5°C to 40°C
Storage Temperature	-10°C to 45°C
Ambient Humidity	5% to 85% RH
Movement Speed	Up to 5 mph (customizable)
Navigation	Dual SLAM + Obstacle Avoidance
Laser Angle & Range	270° scanning angle, up to 25 meters
Suspension	Independent Suspension System
Screens	7-inch touchscreen (1024 × 600 resolution) 18-inch Advertisement Display (1920 × 1080 resolution)
Flash Storage	8 GB

Specifications

Specifications	Details
Connectivity	Dual-band Wi-Fi (2.4GHz / 5GHz), BT4.1
Remote Access	Supports remote monitoring and OTA updates
Noise Level	Low Noise Mode throughout operation

3.2 Components Overview

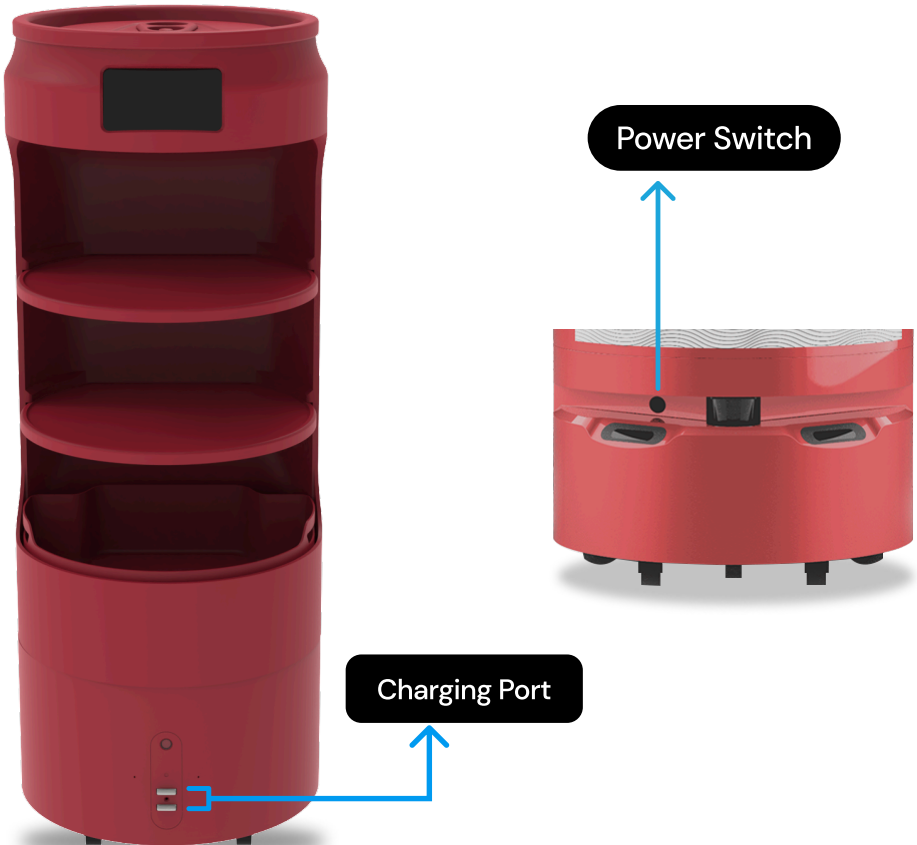
Each unit of Popper comes with the following key hardware components:

Component	Function
7-Inch Display	Robot face interface, settings, and feedback
18.5-Inch Display	Advertisement/branding panel (non-interactive)
Depth Camera	Front environment sensing
2D LiDAR	Laser navigation and obstacle detection
Touch Button	Manual delivery initiation
Speakers	Audio announcements and music playback
LED Lights	Ambient lighting and visual engagement
Emergency Stop Switch	Immediate halt of all functions
Charging Connector	For auto docking and power alignment
Independent Suspension	Smooth movement across varied flooring surfaces

Specifications

3.3 Interface & Ports

- **Power Switch** – Located on the side base
- **Emergency Stop** – Red push switch located at the top
- **Charging Port** – Rear bottom panel, aligned with docking station
- **Speakers** – Located at the mid-body section



4

GETTING STARTED

Getting Started

4.1 Unboxing and Initial Checks

Upon delivery, inspect the Popper packaging for any visible damage. Carefully unbox the robot and verify that all components are present.

Included Items:

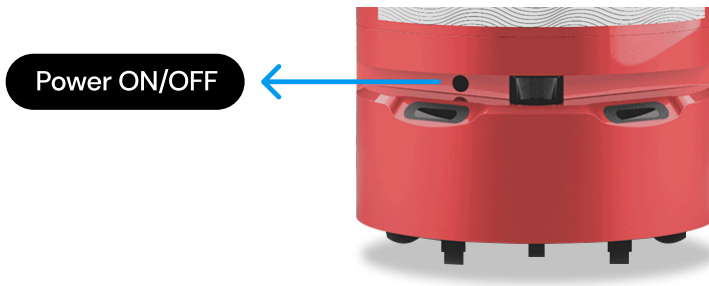
- 1 × Popper Robot (with beverage compartment installed)
- 1 × Charging Dock
- 1 × Emergency Stop Key (preinstalled)

Note: Store the original packaging in case the robot needs to be returned or transported for servicing.

4.2 Powering On / Off

To Power On:

01) Locate the main power switch on the rear bottom or side base of the robot.



02) Switch it ON to boot the system. The screen will light up and the startup chime will play.

03) Wait ~30 seconds for the system to fully load into the **main dashboard interface**.

To Power Off:

- 01) Press and hold the shutdown icon on the touchscreen.
- 02) Confirm shutdown when prompted.
- 03) Once the screen turns off, switch the **main power toggle** to OFF.

Caution: Do not manually power off while the robot is navigating or in an active operation. Always allow it to return to idle state first.

4.3 Battery Charging (Manual & Automatic)

Popper supports both **automatic docking and manual plug-in charging**.

A. Manual Charging

- Plug the charger into a **standard 220V wall socket**.
- Connect the charging cable to the **charging port** on the rear-bottom panel.
- The screen will show a **charging icon**, and LED indicators will begin to pulsate.
- Disconnect the charger once the screen indicates **100% charge**.

Charging time:

Approximately 4 hours with 7A adapter.

B. Automatic Charging (Docking Station)

- Ensure the **charging dock is placed on a flat, open surface** with at least 1.5 meters clearance on all sides.
- Plug in the dock and ensure its **alignment markers** face forward.
- During map building, define the dock's location as the **charging point**.
- Once battery drops below the threshold (configurable, e.g., 20%), Popper will **autonomously return to dock**.
- While charging, the robot will remain inactive and display a charging progress screen.

Getting Started

Important:

- 01) Keep the dock area clean and dry
- 02) Avoid placing obstacles or reflective surfaces nearby
- 03) Never move the dock after mapping unless the map is rebuilt

5

**NETWORK &
DASHBOARD SETUP**

Network and Dashboard Setup

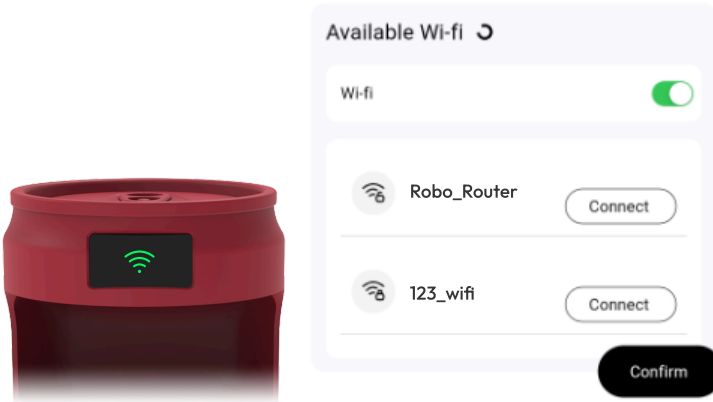
This section explains how to connect Popper to the internet, access its dashboard, and configure core system settings such as language, volume, screen brightness, and broadcast content.

5.1 Wi-Fi Configuration

To enable remote monitoring and dashboard control, Popper must be connected to a stable Wi-Fi network.

Steps to Connect:

- 01) On Popper's main touchscreen, tap **Settings** from the bottom panel.
- 02) Select **Wi-Fi Settings**.
- 03) A list of available networks will appear. Choose your desired network.
- 04) Enter the password and tap **Connect**.
- 05) Once connected, the robot will display its **IP address** on the screen.



Tip: Use a **5GHz network** for faster map syncing and dashboard access.

Network and Dashboard Setup

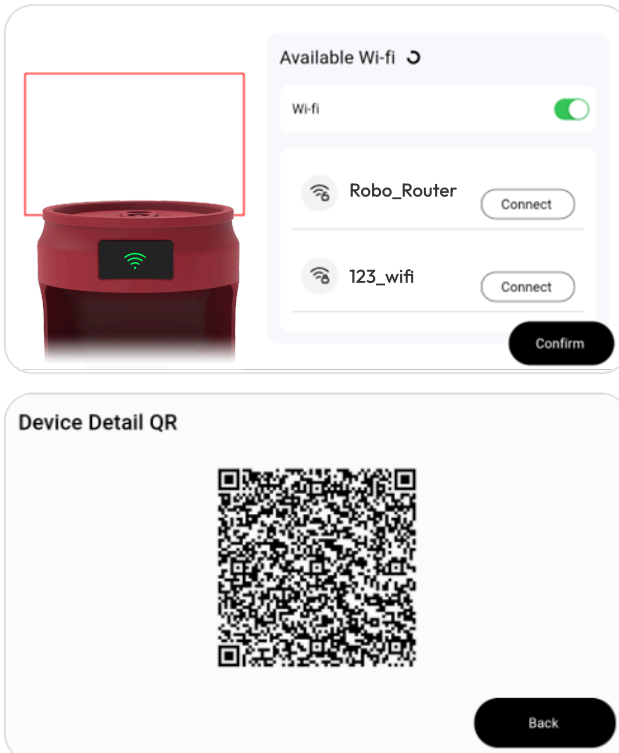
5.2 QR Code Access Panel

The QR panel is a shortcut for accessing Popper's internal control page from cell-phone. The dashboard is only accessible when both the device and robot are on the same network.

How to Use:

- 01)** Tap the screen **four times rapidly** on the Dasher homepage to bring up the QR code.
- 02)** Scan the code with your phone or tablet to be redirected to Popper's local IP panel.
- 03)** Alternatively, enter the IP manually into your browser:

The dashboard is only accessible when both device and robot are on the same network.



5.3 Logging into Dashboard

After logging in, you will see a menu bar and real-time status indicators. The main sections include:

Tab	Purpose
Home	Overview of tasks, battery, network, and alerts
Map	Start/stop mapping and save key points
Routes	Define delivery paths and return logic
Settings	Adjust robot behavior (volume, lights, logic)
Log	View historical delivery and error data
Restart/Shutdown	Soft controls for reboot or system off

5.4 Language, Voice, and System Settings

Language Settings

- 01)** Navigate to **Settings → Language**.
- 02)** Choose from available options (EN, AR, FR, Hindi, etc.).
- 03)** Restart the robot for changes to apply.

Select Language

English	<input checked="" type="radio"/>
हिन्दी	<input type="radio"/>
عربی	<input type="radio"/>

Confirm

Voice & Broadcast

- Go to Settings → Voice.
- Select the default delivery message voice tone.
- Upload a .mp3 or .wav file for custom brand greetings if needed.
- Adjust **volume slider** for public spaces or quiet mode.

Tray Lighting & Theme

- Set tray light color from **Settings → Tray Light Config**.
- Use themes to match event type (e.g., celebration, brand campaign, cruise).
- Screen brightness and LED glow can be auto-adjusted based on ambient light.

6

**MAP BUILDING
& DEPLOYMENT**

Map Building and Deployment

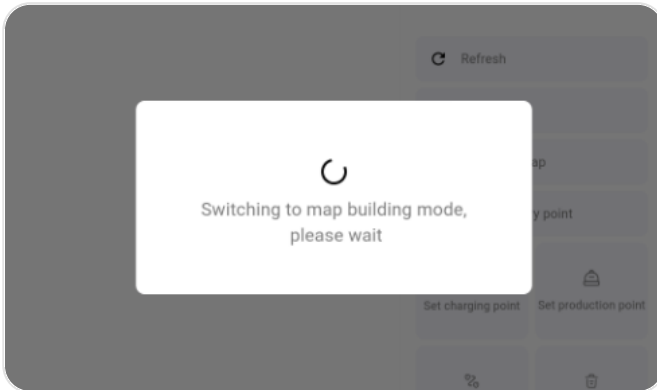
Map building is the foundational step that enables Popper to navigate independently and operate with precision. This section explains how to initiate map mode, define key operational points, and deploy the robot in a real-world venue environment.

6.1 Accessing Map Mode

From the Dashboard Interface:

- 01)** Ensure the robot is powered on, fully charged, and connected to Wi-Fi.
- 02)** Open the browser panel using the IP address displayed on Popper's screen.
- 03)** Navigate to the **"Map" tab** on the top menu.
- 04)** Click **"Start Building Map"**.

Make sure there are no obstacles or foot traffic while the mapping begins. Mapping should be done during off-hours or in an empty layout.



6.2 Map Building (No Tag & With Tag Options)

Popper supports two map building modes:

A. Map Without Tag (Standard Mode):

- 01)** Click **Start Mapping**.
- 02)** Use the **"Move"** joystick or **manual push** to guide Popper along the floor plan.

- 03) Popper scans walls, columns, and fixed objects using its LiDAR and camera sensors.
- 04) Once the route is fully captured, click **“Stop Mapping”**.
- 05) Save the map with a recognizable name (e.g., MallFloor_L1 or EventHall_A).

B. Map with Tag (Advanced Anchor Mode):

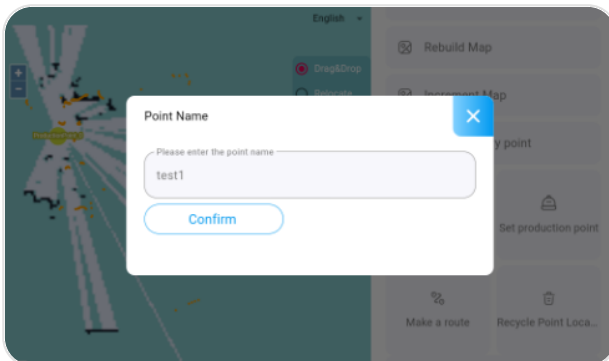
- 01) Place position tags (visual markers or AprilTags) at key turns or anchors throughout the venue.
- 02) Start mapping as above. Popper will **lock coordinates** using visual references.
- 03) This improves long-term positional accuracy, especially in symmetric spaces.

Note: Use With Tag mode in environments where walls and corridors are too similar in shape (e.g., exhibition halls, airport terminals, large retail floors).

6.3 Creating and Labeling Key Points

Once the base map is saved:

- 01) Navigate to **the “Point”** section in the Map tab.
- 02) Use the onscreen camera view to move Popper to a specific location (e.g., Stall A, Entrance Zone).
- 03) Tap Create New Point and assign it a name. Format: S1, S2, Entrance, Stage_Zone, Charging_Zone, etc.
- 04) Repeat this for all delivery points and destinations.

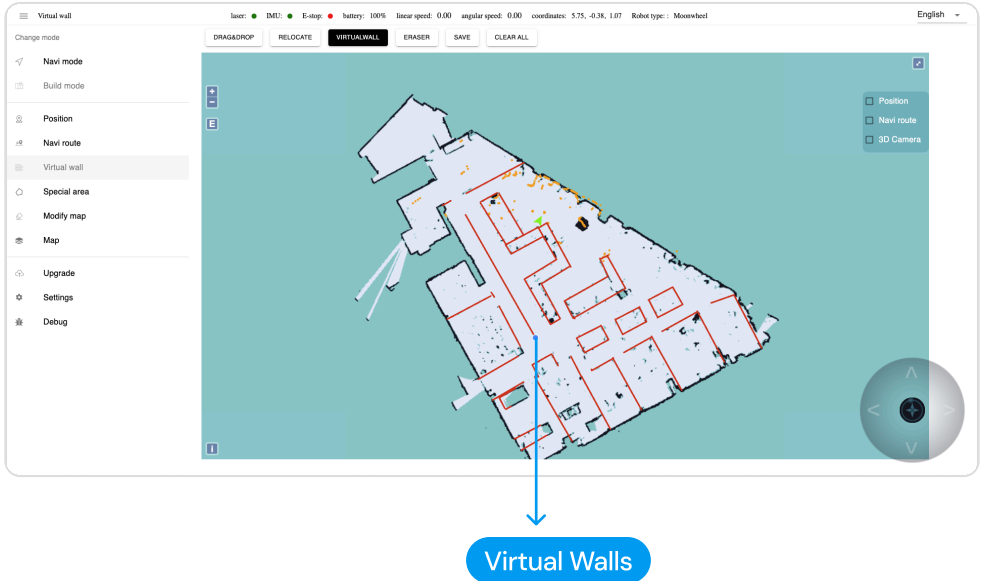


You can also:

- Mark return zones and one-way flow logic.
- Define promotional zones where Popper should pause and engage.

6.4 Virtual Walls & Special Zones

Virtual walls prevent Popper from entering undesired or restricted areas.



Use no-go zones around:

- Restroom entrances and emergency exits
- Low-height fixtures and display stands.
- Uneven flooring or ramp transitions.
- Staff-only or restricted access zones.

Steps to Add Virtual Walls:

- 01)** From the map screen, click **“Edit Map”** → **“Add Virtual Wall”**.
- 02)** Draw a line across any restricted doorway, corner, or customer-restricted zone.
- 03)** Save and test navigation to confirm proper rerouting behavior.

6.5 Saving and Applying the Map

Once key points and virtual elements are set:

- 01)** Click **“Save Map”**.
- 02)** Select **“Apply as Current Map”** when prompted.
- 03)** Popper will now use this environment data for all future operations unless a new map is created.

Tip: For large venues with multiple zones (e.g., Ground Floor vs. Level 2 vs. Event Hall), create separate maps and switch between them from the dashboard.

7

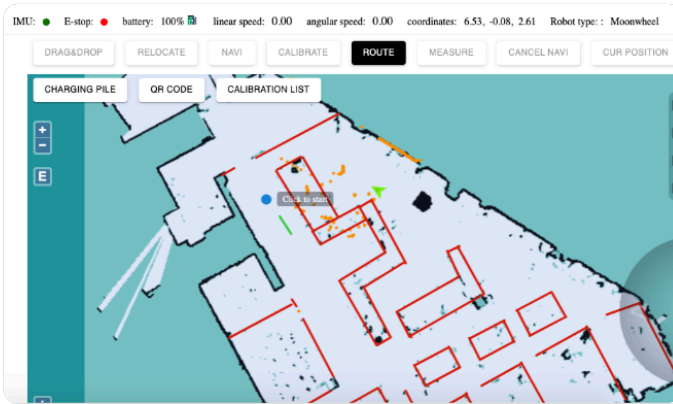
**ROUTE CREATION
& CALIBRATION**

Route Creation and Calibration

Once the environment map and operational points are saved, the next step is to create precise routes that Popper will follow during its operation. This section covers how to define forward and return routes, calibrate stop positions, and fine-tune stop distances.

7.1 Accessing Route Settings

01) From the dashboard, navigate to the **“Route”** tab.



02) Select **“Create Route”** to begin adding an operational flow.

03) Choose an existing **map file** from the dropdown (e.g., “MallFloor_L1”).

7.2 Drawing Routes (Start → Destination → Return)

Step-by-Step:

01) Click **“Add Route”** and assign a **Route Name** (e.g., PromoLoop_Morning).

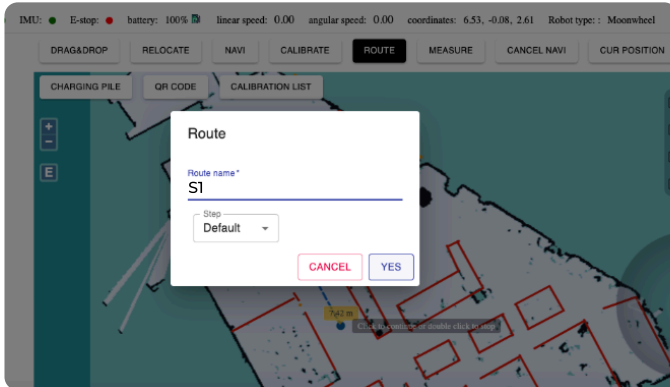
02) Select a **Start Point** (e.g., Entry_Zone).

03) Then select one or more **Promotional Points** (e.g., S1, S2, S3).

04) Select the **End Point** or **Return Point** (usually the Charging Dock or Entry_Zone).

05) Click **“Save”**.

Route Creation and Calibration



Optional Settings per Stop:

- **Wait Time:** Configure stop duration at each point (default: 6 sec).
- **Broadcast Message:** Set specific voice messages or brand announcements for each stop.
- **LED Mode:** Set the LED behavior at each stop (e.g., flash, pulse, static).

7.3 Position Calibration (Stop Distance & Tray Light Accuracy)

To ensure accurate positioning at promotional points and safe stopping distance:

Steps to Calibrate Stop Position:

- 01)** Select a **point** from the dashboard
- 02)** Click **“Adjust Stop Distance”**
- 03)** Use + / - buttons to move the robot **closer or further**.
 - a. Default = 500 mm from edge.
 - b. Adjust to 400–600 mm depending on venue clearance.
- 04)** Click **“Test Tray Light”** to verify correct tray indicator and pickup angle

Goal: Each stop should position Popper within ± 10 cm of the intended engagement point, with proper lighting and audio cue.

7.4 Setting Navigation Rules

Configure what the robot should do **after completing its route**:

Return Logic	Effect
Return to Charging Point	Ideal for breaks or low battery situations
Return to Start Zone	Enables quick redeployment during active events
Loop Next Route	Automatically begins next saved route (if queued)

Set this under: **Route Settings → Post-Delivery Behavior**

7.5 Testing and Finalizing Route

01) From the **Route Tab**, click on your saved route and press **“Test Run”**

02) Observe the following:

- a. Path tracking
- b. Obstacle handling
- c. Stop precision
- d. LED lights
- e. voice announcements

03) If satisfied, click **“Set as Default Route”**

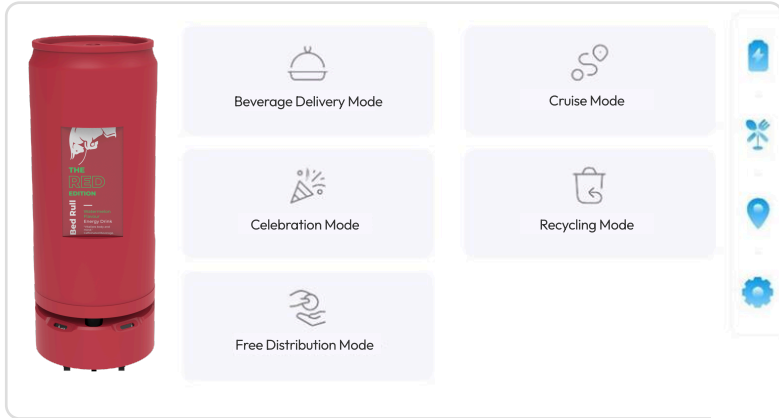
Tip: Run at least **2 full test loops** before live deployment.

8

**DELIVERY
OPERATIONS**

Beverage & Promotional Operations

Popper supports a range of intelligent operational modes tailored to specific real-world scenarios in retail, events, and hospitality. Each mode automates route behavior, broadcast settings, and LED logic based on the selected operation.



8.1 Beverage Delivery Mode

This is Popper's standard mode for structured beverage service at tables, counters, or designated pickup zones. In this mode, the robot navigates sequentially to each destination, announces the delivery, and engages with customers.

Use Case:

Targeted beverage delivery to specific zones or tables, where beverages are preloaded and dispatched in a single run.

Setup Process:

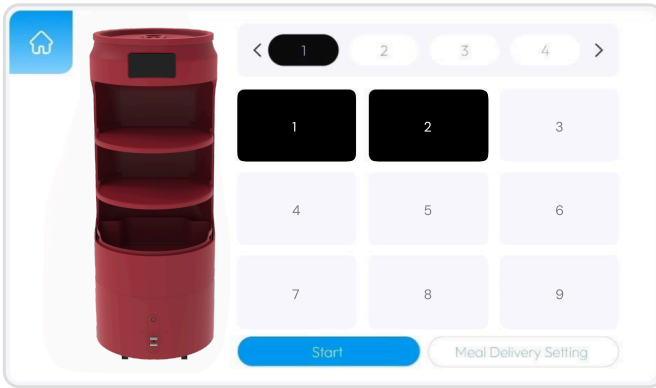
- 01) From the **dashboard panel**, go to the **Routes** tab.
- 02) Select an existing route or create a new one.
- 03) Assign delivery points: Zone A, Zone B, Zone C, etc.
- 04) Navigate to the **Beverage & Promotional Operations** tab.
- 05) Choose **"Beverage Delivery Mode"** and press **Start**.

Beverage & Promotional Operations

The robot will stop at each point, announce the delivery using preset or custom messages, and illuminate its LED lights for customer attention.

Post-Delivery Options:

- Return to start zone.
- Return to charging point
- Start next delivery loop



8.2 Cruise Mode

Cruise Mode is ideal for environments where Popper is expected to circulate continuously through fixed zones such as exhibitions, retail floors, or hotel lobbies.

Use Case:

Ad loop navigation, ambient brand presence, and passive beverage availability.

Setup Process:

- 01)** Navigate to **Delivery Operations** → **Cruise Mode**.
- 02)** Select desired points in loop (e.g., Entrance → Corridor → Lounge).
- 03)** Set cruise interval and voice broadcast logic (if any).
- 04)** Click **Activate Cruise**.

Popper will loop indefinitely until manually stopped or battery runs low.

8.3 Celebration Mode

Celebration Mode is used for birthday parties, ceremonies, product launches, or corporate welcome events. The robot delivers beverages with themed audio and LED lighting.

Use Case:

Greeting guests, themed beverage delivery, entry reveals, and event engagement.

Setup Process:

- 01)** Go to **Beverage & Promotional Operations → Celebration Mode.**
- 02)** Choose delivery point (e.g., Stage or VIP Table).
- 03)** Upload or select:
 - a. Music file (.mp3/.wav)** for the occasion
 - b. LED color theme** (e.g., rainbow, gold)
 - c. voice greeting or celebration message.**
- 04)** Start route.

Popper will play music, flash its LED lights, and deliver beverages while announcing the occasion.

8.4 Free Distribution Mode

This is Popper's unattended giveaway mode for beverage samples, promotional cans, or event freebies.

Use Case:

Mall activations, promotional campaigns, product sampling events, trade shows.

Setup Process:

- 01)** Go to **Beverage & Promotional Operations → Free Distribution Mode.**
- 02)** Choose loop points and compartment allocation.
- 03)** Enable Loop Broadcast to announce pickup instructions.

Beverage & Promotional Operations

- 04) Add QR code display on screen for lead capture if needed.
- 05) Press Start Loop.

Popper will stop at each point, flash LED lights, and play the pickup message on repeat.

8.5 Brand Promotion Mode

This mode enables Popper to act purely as a mobile advertising unit, circulating through venues with full ad display active, without necessarily distributing beverages.

Use Case:

Brand awareness campaigns, new product launches, sponsored activations in malls and airports.

Setup Process:

- 01) Go to **Beverage & Promotional Operations** → **Brand Promotion Mode**.
- 02) Select the promotional route.
- 03) Ensure the desired ad content is loaded on the 18-inch display via AdRemote.
- 04) Set voice broadcast content if desired.
- 05) Press Start.

Popper will navigate its route while continuously displaying brand content, playing audio, and engaging passers-by.

8.6 Side Panel Shortcuts

The side panel on Popper's touchscreen includes shortcut buttons for rapid operation:

Shortcut	Function
"Single Delivery"	Direct navigation to one saved point
"Return"	Immediate return to charging dock or start zone
"Pause"	Stop robot mid-route without full shutdown
"Resume"	Resume paused operation or cruise

9

**DISPLAY & AD
PANEL SETUP**

Display and Ad Panel Setup

9.1 Ad Panel Overview and Functional Scope

Popper includes an integrated ad panel system that allows businesses to display multimedia content such as videos, images, or QR-linked promotional material directly on the robot's 18-inch screen. Using the AdRemote mobile application, users can remotely pair, upload, schedule, and manage content in real time or offline.

The advertisement panel on Popper is a high-brightness digital display embedded in the body of the robot, designed to engage nearby customers during operation or idle periods.

Functionality	Description
AdRemote Pairing	Connect your smartphone to Popper to control and manage advertisements
Multimedia Support	Supports image (.jpg, .png) and video (.mp4) content in portrait orientation
Scheduling System	Schedule content by day, week, or month using the built-in calendar UI
Default Advertisement	Set a fallback video/image to display when no ad is scheduled
Online/Offline Mode	Operates via server (Ad Server) or standalone (local remote control)

Target Use Cases:

- In-mall beverage and brand promotions.
- Event and exhibition advertising.
- Retail lead capture via QR codes on screen.
- Sponsored ads during promotional rounds.

Note: All control functions require the official **AdRemote** mobile app, available for Android. Compatibility with iOS is limited.

Display and Ad Panel Setup

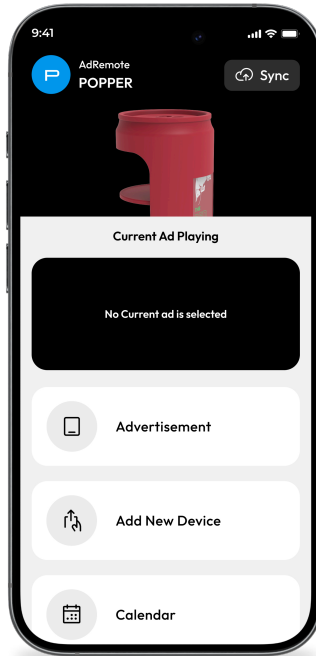


Fig. AdRemote Application

9.2 Initial Setup and Pairing with AdRemote

Before managing advertisements, you must pair your mobile device with Popper using the AdRemote application. This one-time setup enables control over ad transfer, scheduling, and panel behavior.

9.2.1 QR Code Scanning & First-Time Pairing

- 01) **Power on Popper's screen** and ensure it displays the AdRemote QR pairing code.
- 02) On your **Android device**, install and open the **AdRemote app**.
- 03) Tap **"Scan QR"** and align the scanner with the robot's QR code.
- 04) Wait for the screen to show **"Connected,"** this means the robot and remote are now linked.

Successful pairing links your phone to this unit's ad panel until reset.

9.2.2 Permissions, Access Codes & Device Compatibility

- Permissions required:
 - Camera (for QR scanning)
 - Storage (for ad file transfer)
 - Location (for device discovery, optional in some builds)
- Device requirements:
 - Android OS 7.0 or above
 - Minimum 2 GB RAM recommended

Note: If pairing is blocked by an admin lock, you will be prompted to enter a 6-digit access code. Contact your system administrator if this appears.

9.2.3 Reconnecting or Re-Pairing Devices

If the remote gets disconnected or you switch devices:

- 01)** Reopen AdRemote → Tap “Unbind Device” (if old session exists)
- 02)** On the robot screen, display the **pairing QR again**
- 03)** Scan and confirm reconnection

Tip: If the robot shows “Disconnected” or “Pairing Failed,” restart both devices and retry the scan.

9.3 Environment Setup

Popper's ad panel system supports **standalone** deployment mode. Understanding your environment is essential for stable connectivity, content delivery, and device management.

9.3.1 Standalone Deployment

This mode lets you control and schedule content **directly from your phone** without requiring internet or server registration.

Use Case:

Best for single-robot use in local promotions (e.g., store openings, trade events).

Setup Process:

- 01) Pair robot via **QR code scan**.
- 02) On AdRemote, select **"Offline Mode" or "Local Control"**.
- 03) Transfer and schedule ads as needed.

9.4 File Transfer and Content Management

Once the robot is paired, users can begin transferring ad content to the display panel. This includes uploading images, videos, and setting playback behavior.

9.4.1 Sending Image/Video Ads via Remote

To push content from your phone to the robot:

- 01) Open the **AdRemote app**.
- 02) Tap **"Send Advertisement"**.
- 03) Select content from your device:
 - a. Supported formats:
 - **Images:** .jpg, .png (portrait ratio recommended)
 - **Videos:** .mp4 (max 1920x1080 resolution; ≤100MB)

Display and Ad Panel Setup

04) Tap **“Upload”** to transfer it to popper.

05) Once sent, you'll see the media listed under **“Ad Content”** on the robot's screen.

Tip: Videos will autoplay in loop unless scheduled otherwise.

9.4.2 Editing, Replacing, or Deleting Ads

To manage existing content:

- **Edit or Replace:**

- Navigate to the **Ad Content** tab in AdRemote.
- Long-press on the ad you want to replace.
- Select **“Replace File”** and upload the new media.

- **Delete:**

- Select the ad.
- Tap the trash bin icon to remove it from the robot.

Note: Deleted ads cannot be recovered unless re-uploaded manually. The robot will default to its Default Ad if no ad is actively scheduled.

9.5 Setting the Default Advertisement

The **default advertisement** is the media file that plays continuously when no scheduled ad is active. Setting it correctly ensures there is always promotional content running on Popper, even during idle periods.

9.5.1 Understanding Default vs. Initial Default

Term	Meaning
Initial Default	The ad that plays when the robot is first powered on and no pairing has been completed yet. Factory-set and can only be changed via system access.
Default Ad	The fallback ad that plays when no schedule is active or after scheduled playback ends. Can be changed at any time by the operator.

9.5.2 Steps to Change the Default Display

To set a new default ad:

- 01)** Open the **AdRemote app**.
- 02)** Go to the **Ad Content** section.
- 03)** Long-press on the media you want to set as default.
- 04)** Tap **"Set as Default"**.
- 05)** Confirm when prompted.

Popper will now automatically play this content when no scheduled ads are running. Only one default ad is allowed at a time.

9.6 Scheduling Advertisements

Popper allows operators to schedule ads for specific dates, times, and durations using the calendar interface in the AdRemote app. This is ideal for running limited-time campaigns, alternating brand offers, or syncing ads with peak footfall hours.

9.6.1 Accessing Calendar Views (Daily/Weekly)

- 01) Open the **AdRemote** app.
- 02) Tap the **“Schedule”** icon in the main menu.
- 03) Choose your view:
 - a. **Daily View:** See hourly time slots for one day.
 - b. **Weekly View:** View and adjust ads for each day of the week.

Note: Long-press on a time slot to view or edit existing ad blocks.

9.6.2 Creating and Saving Ad Schedules

To schedule an ad:

- 01) Tap on an empty time slot in the **calendar**.
- 02) Select the **ad file** you want to play.
- 03) Set:
 - a. **Start time**
 - b. **End time**
 - c. **Days of the week** (optional recurrence)
- 04) Tap **“Save”**.

Popper will automatically switch ads based on the scheduled times. You can create multiple scheduled ads in one day and the robot will seamlessly switch between them as per the defined schedule.

9.7 Troubleshooting and Version Updates

9.7.1 Connectivity Issues

Problem: Robot not pairing with AdRemote / “Device Not Found”

Checklist:

- Ensure both robot and mobile devices are powered on.
- Robot’s screen must display the **pairing QR code**.
- Confirm Wi-Fi is stable (for server mode).
- Restart both devices and retry scanning the QR.

9.7.2 AdRemote Version Mismatch

Problem: “Incompatible version” message during pairing or file upload.

Checklist:

- Open **Google Play Store**.
- Search for **AdRemote** and install the **latest version**.
- Unpair and re-pair with the robot.
- Reopen the app and retry upload or scheduling.

Tips: Use Offline Mode in AdRemote if no Wi-Fi is available.

9.7.3 Restoring Panel Connection

If connection drops mid-operation or after reboot:

- 01)** Open **AdRemote** and tap **“Reconnect to Last Device”** (if visible).
- 02)** If unavailable, **scan the pairing QR** again.

Note: If the panel still does not respond, power cycle the robot and try reconnecting again.

10
MAINTENANCE &
TROUBLESHOOTING

Maintenance & Troubleshooting

To ensure Popper performs reliably and safely in live environments, operators must follow routine maintenance practices and know how to respond to common technical issues. This section outlines actionable checks, error handling, and system-level recovery methods.

10.1 Daily Maintenance Checklist

Perform the following checks at the **start and end of each operational day**:

Functionality	Description
Battery Level Check	Ensure Popper is charged to at least 60% before peak hours. Auto-dock if battery is below 20%.
Screen Inspection	Confirm the ad panel is on, responsive, and showing the correct content.
LiDAR & Sensor Clean-Up	Wipe front and side LiDAR sensors gently with a microfiber cloth. Dust may affect navigation
Caster Wheel Check	Rotate the wheels to check for any hair, dirt, or debris that may cause misalignment.
Network Reconnection	If using server mode, verify that the robot is connected to Wi-Fi and DMS.
Error Code Display	Ensure no error codes are flashing on the controller panel.
Compartment Sanitation	Clean the beverage compartment using a food-safe surface disinfectant before each session.
Suspension Check	Verify the independent suspension system moves freely and shows no signs of damage.

Note: Log these checks in a maintenance sheet if used in multi-shift environments.

10.2 Common Errors and Solutions

Popper includes built-in error prompts on its controller panel and screen. Below are the most frequently encountered errors and how to resolve them.

Error: "Navigation Failure"

Cause:

- Route point not reachable
- Reboot Popper and retry the route.
- If error persists, recalibrate the affected point.

Solution:

- Clear obstacles from the route
 - Reboot Popper and retry the route
 - If error persists, recalibrate the affected point
-

Error: "Charging Failed"

Cause:

- Charging station misaligned
- Charging port or base pin not contacting

Solution:

- Manually push Popper 5–10 cm forward/backward on the dock
 - Check for dust or dirt on metal contacts
 - Restart charging module from the controller panel
-

Error: "Motor Overload / Stall Detected"

Cause:

- Compartment overloaded
 - wheel obstruction on uneven surface.
-

Solution:

- Reduce load in the beverage compartment
 - Move Popper to an even surface
 - Restart and monitor for repeated alerts
-

Error: “Panel Not Connected” (Ad Display)

Cause:

- Disconnection from AdRemote
- Wi-Fi failure in server mode

Solution:

- Reconnect using pairing QR code
 - For server deployments, verify Wi-Fi and server login
 - If still offline, restart panel manually
-

Error: “Sensor Blocked”

Cause:

- LiDAR or obstacle sensor dirty or obstructed

Solution:

- Clean sensors gently with microfiber cloth
 - Avoid direct light/glare on sensors
 - Restart if issue persists
-

10.3 Repositioning and Recalibration

If Popper loses orientation, drifts off-route, or fails to return to a known point, follow this guide to **reposition and recalibrate** the system safely.

When to Recalibrate:

- After a major collision or physical relocation
- When Popper fails to align with route points or charging dock.
- If “Position Lost” or “Unable to Navigate” errors appear frequently

Step-by-Step: Repositioning Popper

01) Power OFF Popper.

Hold the power button until the screen turns off and the lights dim.

02) Physically Move Robot to a Known Position.

Place it in front of a mapped reference point (like a dock or labeled stop).

03) Power ON and Observe Screen.

Wait for the system to boot and check if the map re-aligns automatically.

If the system recognizes its position, you're done. If not, proceed to recalibration.

- Tips:**
- Use tag-based recalibration over manual if available
 - it is faster and more precise. Always save progress before restarting map mode.
 - Avoid recalibrating near reflective floors or heavy glass.

10.4 System Updates and Recovery

To ensure stability, compatibility, and access to new features, Popper's software must be kept up to date. This section explains how to perform updates, recover the system in case of failure, and reset core modules.

10.4.1 System Update (OTA)

OTA = Over-the-Air Update (no cable needed). Updates may include performance enhancements, bug fixes, or new operation modes.

Steps:

- 01) Connect Popper to a **stable Wi-Fi network**.
- 02) Navigate to the **Dashboard Panel → Settings → System**.
- 03) Tap **“Check for Updates”**.
- 04) If an update is available, tap **“Download & Install”**.
- 05) Wait for reboot. Do **not power off** during the process.

Updates may include performance enhancements, bug fixes, or new operation modes.

10.4.2 Recovery from System Failure

If the panel is stuck, unresponsive, or looping:

- 01) **Hard Reset:**
Hold the power button for 10+ seconds until shutdown, then power on again.
- 02) **Safe Boot Mode (Advanced):**
From the controller panel, hold **“Power + Back”** buttons simultaneously for **15 seconds** to enter Safe Boot.
- 03) **Restore Last Known Stable Version:**
In Safe Boot Mode, select **“Rollback System”** to restore the previous version (requires last version backup to be enabled).

10.4.3 Factory Reset (Use with Caution)

Caution: Only use this when instructed by the Falcon Tech support team. Factory reset will erase all maps, routes, schedules, dashboard settings, and ad panel content and pairings.

How to Reset:

- From Dashboard → Admin Settings
- Tap **“Factory Reset”**
- Confirm with password and wait for reboot

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