OTSAW

# Camello

Autonomous Last-Mile
Delivery Robot

www.otsaw.com

## Introducing Camello

Camello is an autonomous mobile robot (AMR) from OTSAW that enables last-mile delivery service. Last mile delivery is the final process of the whole supply chain journey – the step which the package is delivered to the buyer's doorstep.

At OTSAW, we look at reinventing last mile delivery using technology and robotics to increase customer satisfaction and market demand in the e-commerce industry.
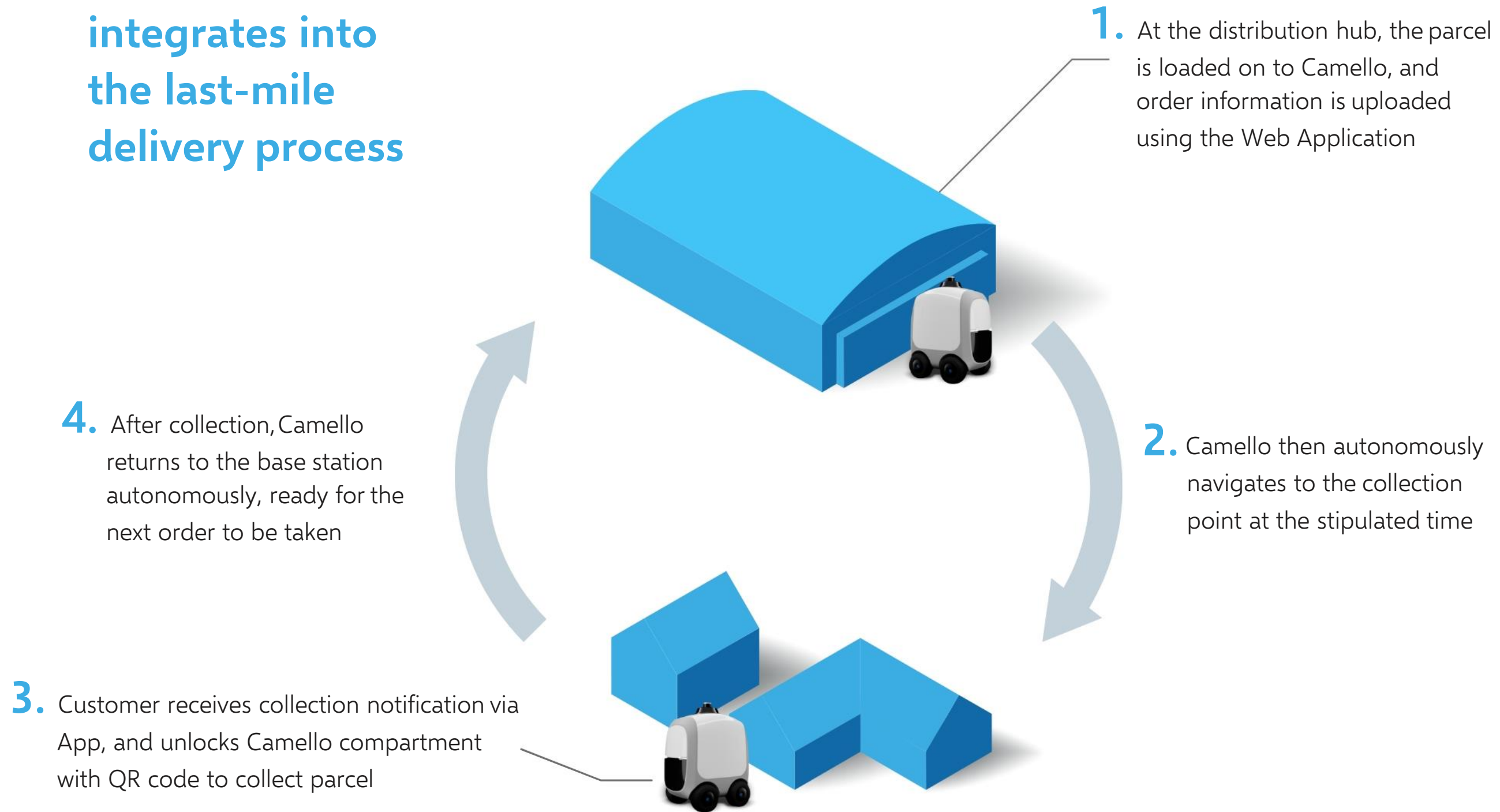
Last-Mile Delivery | Improve Supply Chain Logistics | Improve Customer Experience

# How Camello integrates into the last-mile delivery process

**1.** At the distribution hub, the parcel is loaded on to Camello, and order information is uploaded using the Web Application

**2.** Camello then autonomously navigates to the collection point at the stipulated time

**3.** Customer receives collection notification via App, and unlocks Camello compartment with QR code to collect parcel

**4.** After collection, Camello returns to the base station autonomously, ready for the next order to be taken

# Camello Key Features
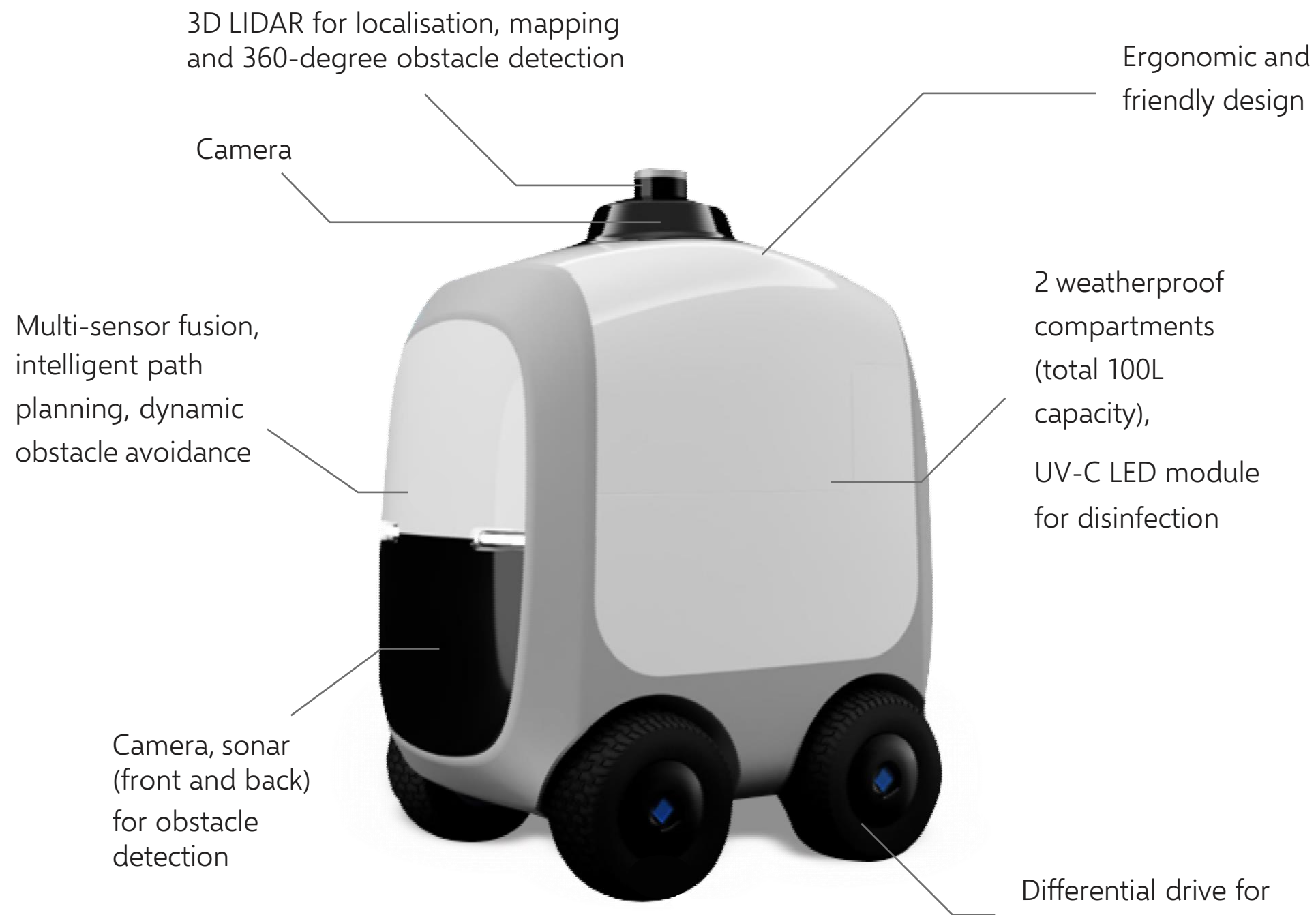






## Navigational Capabilities

- Equipped with navigation capabilities with multi-sensor fusion, intelligent path planning and dynamic obstacle avoidance
- Sensors include 3D Lidar, camera and sonar sensor, which allows the AMR to visualize the surroundings by gathering data
- Global Positioning System (GPS) and Inertial Measurement Unit (IMU) allow Camello to continuously monitor position throughout its journey

## Supply Chain Efficiency

- By reducing load factor, dwell times at loading/ unloading points number of delivery requirements to individual customers, Camello aims to close the efficiency gap in the chain of last mile logistics
- With proper scheduling to charge the robot, the robot will tirelessly work round the clock
- Deliverymen can then operate these robots remotely in the dispatch hub, with his/her main role to load the parcel onto the goods

## Safety Features

- Real-time obstacle detection with the 3D LIDAR sensors. With this feature, the AMR does intelligent path planning and will manoeuvre in a manner to avoid obstacles (humans/objects)
- Ultrasonic sensors as a secondary obstacle detection method to stop all motor functions in the event an obstacle is detected within stipulated range (typically 0.5 – 1m in front of the robot)
- Real-time camera video feed will also be processed for obstacle detection

3D LIDAR for localisation, mapping and 360-degree obstacle detection

Camera

Ergonomic and friendly design

Multi-sensor fusion, intelligent path planning, dynamic obstacle avoidance

2 weatherproof compartments (total 100L capacity),

UV-C LED module for disinfection

Camera, sonar (front and back) for obstacle detection

Differential drive for

## Camello Specifications

### Compartments

- Type 1: 1 compartment (659.3 x 514.5 x 300.5mm = 100L approx.)
- Type 2: 2 compartments
  440.5 x 412.4 x 300.5mm = 54L approx.
  514.5 x 241 x 300.5mm = 36L approx.

### Navigation

- Maximum Load: 20kg
- Maximum Speed: 5km/hr
- Battery: Lithium battery 24V 60Ah
- Charge time: 3-6 hour full charge

### Dimensions

- Length: 96cm
- Width: 70cm
- Height: 130 cm
- Weight: 105 kg

# Robot as a Service (RaaS)

At OTSAW we offer our last-mile delivery services on a subscription base to help you reduce time to benefit and be more flexible. RaaS allows you to enjoy a state-of-the-art quality service and a seamless customer experience from setup to deployment and operations.

Your contract includes setup, training, maintenance, and software updates to make sure your OTSAW Camello is always at top performance at all times.

Lower
upfront cost

Full support &
maintenance

Free updates
& upgrades

# Responsible
# Innovations

**OTSAW**

## TRANS**CAR**
Automated Guided
Vehicle for Material
Transport

## T-REx
Multi-use Portable
UV-C LED
Disinfection

## ORx
Autonomous
UV-C LED
Disinfection

## Camello
Autonomous
Last-Mile Delivery

## OR3
Autonomous
Outdoor Security

# Camello

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