

NextETRUCK Use Case 2

IRIZAR - Barcelona

Iñigo Larman

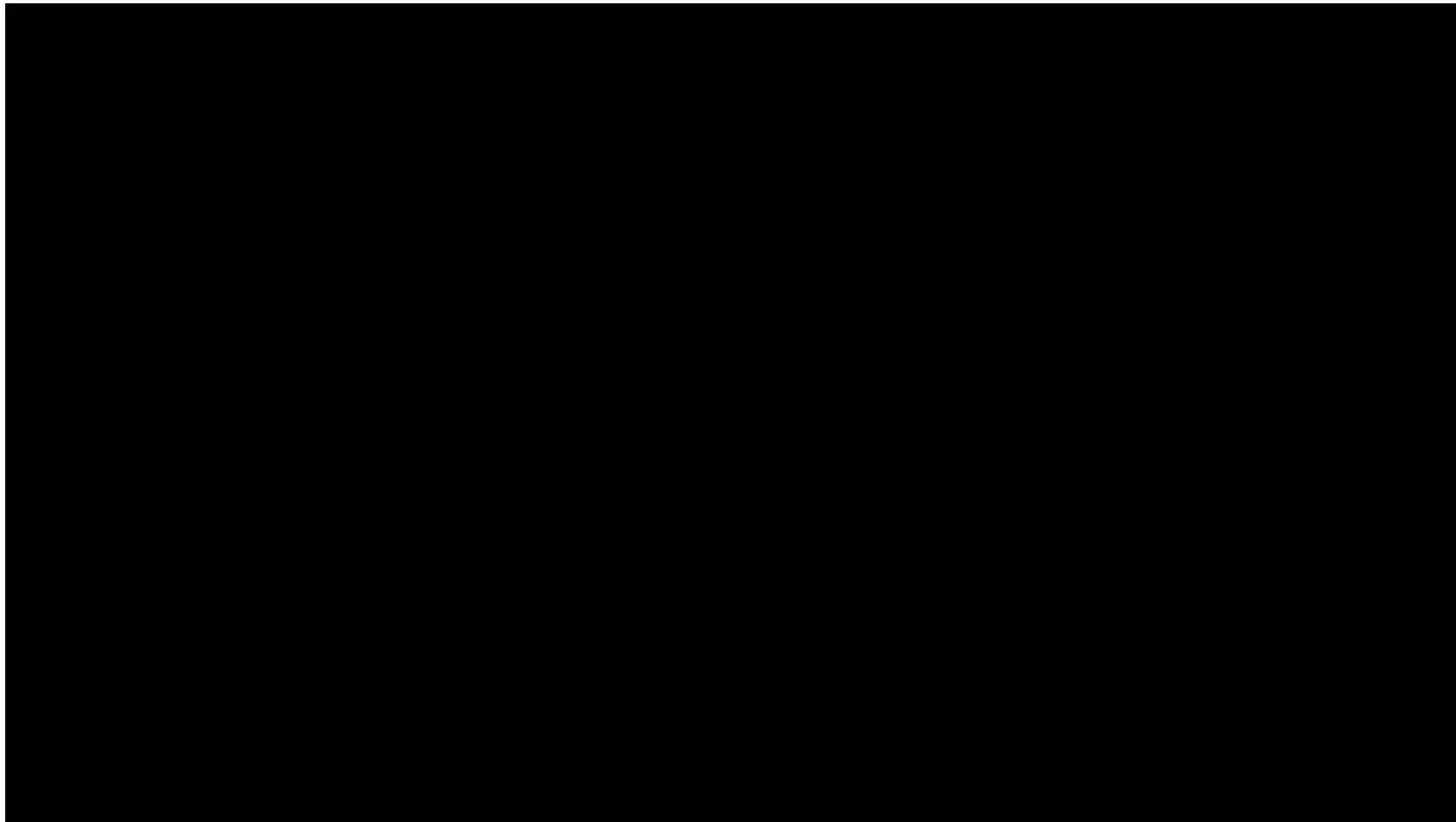


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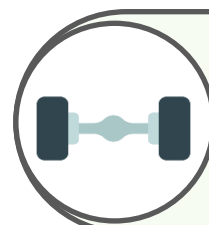
Irizar







Truck Features



Drivetrain: 4x2



100 % electric



Category: N3



Tipper open box



GVWR: 20 ton





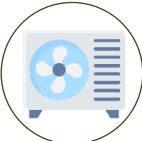
New GEN3 NMC Batteries

Model	Baseline	Demo	Change
 Technology	NMC 2.0	NMC 3.0	↑
 Total energy	170 kWh	307 kWh	↑ 80 %
 Energy density	121 Wh/kg	196 Wh/kg	↑ 62 %
 Nº UBP	4	3	↓ -1
 Total weight	1400 kg	1575 kg	↑ +175 kg

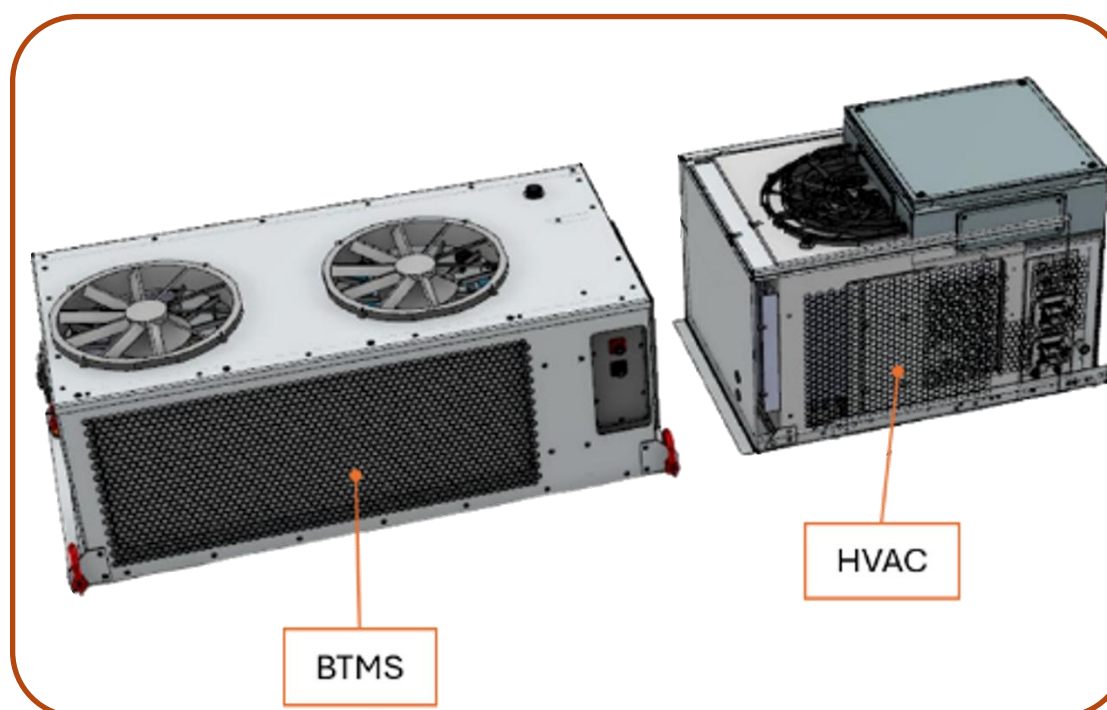




New HVAC-BTMS

Model	Baseline	Demo	Change
 N° units	2	1	↓ -1
 N° compressors	2	1	↓ -1
 Total weight	190 kg	80 kg	↓ -58%

Baseline



Demo





Digital Twin for BTMS Control

1 SMART TRUCK & IoT SENSORS



Temperature
Sensors



Battery
Sensors



IoT
Connectivity



Pressure
Sensors



Current & Voltage
Sensors

2 CLOUD & AI PLATFORM



REAL-TIME
DATA



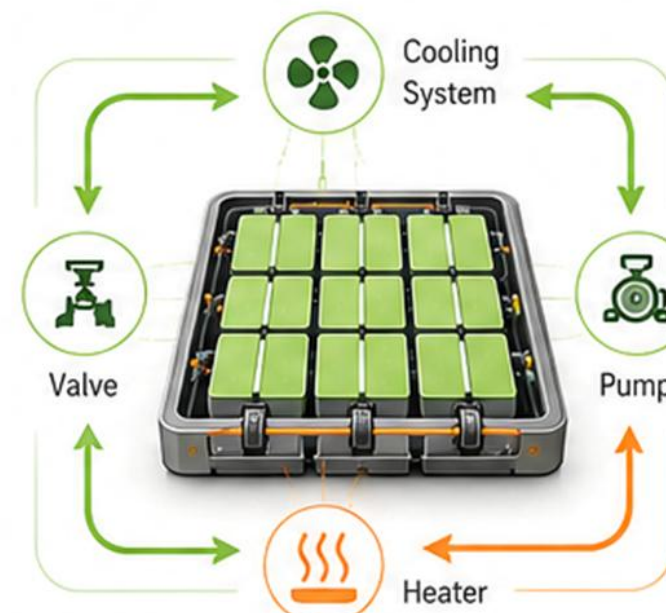
AI MODELS

- ✓ Predictive Analytics
- ✓ Anomaly Detection
- ✓ Thermal Prediction
- ✓ Optimal Control

INSIGHTS &
CONTROL

3 BTMS CONTROL & OPTIMIZATION

AI-DRIVEN BTMS



OUTCOMES



Battery Safety
& Reliability



Extended
Battery Life



Optimal
Performance



Energy
Efficiency



Real-Time
Monitoring



Early Fault
Detection



Data-Driven
Decisions



Remote Updates
& Diagnostics



Continuous Learning
& Improvement



IoT Based Smart Navigation





New Electric Charger

	Model	Baseline	Demo
	Power	50 kW	180 kW
	Cloud connection	No	Yes
	Manufacturer	Jema	Jema
	Model	ECI 50	SIGMA 180

Baseline: ECI 50



Demo: SIGMA180





Operation in Barcelona

 Distance: 60-110 km

 Shift: Night

 Waste: Bulky

 Duration: 6 months

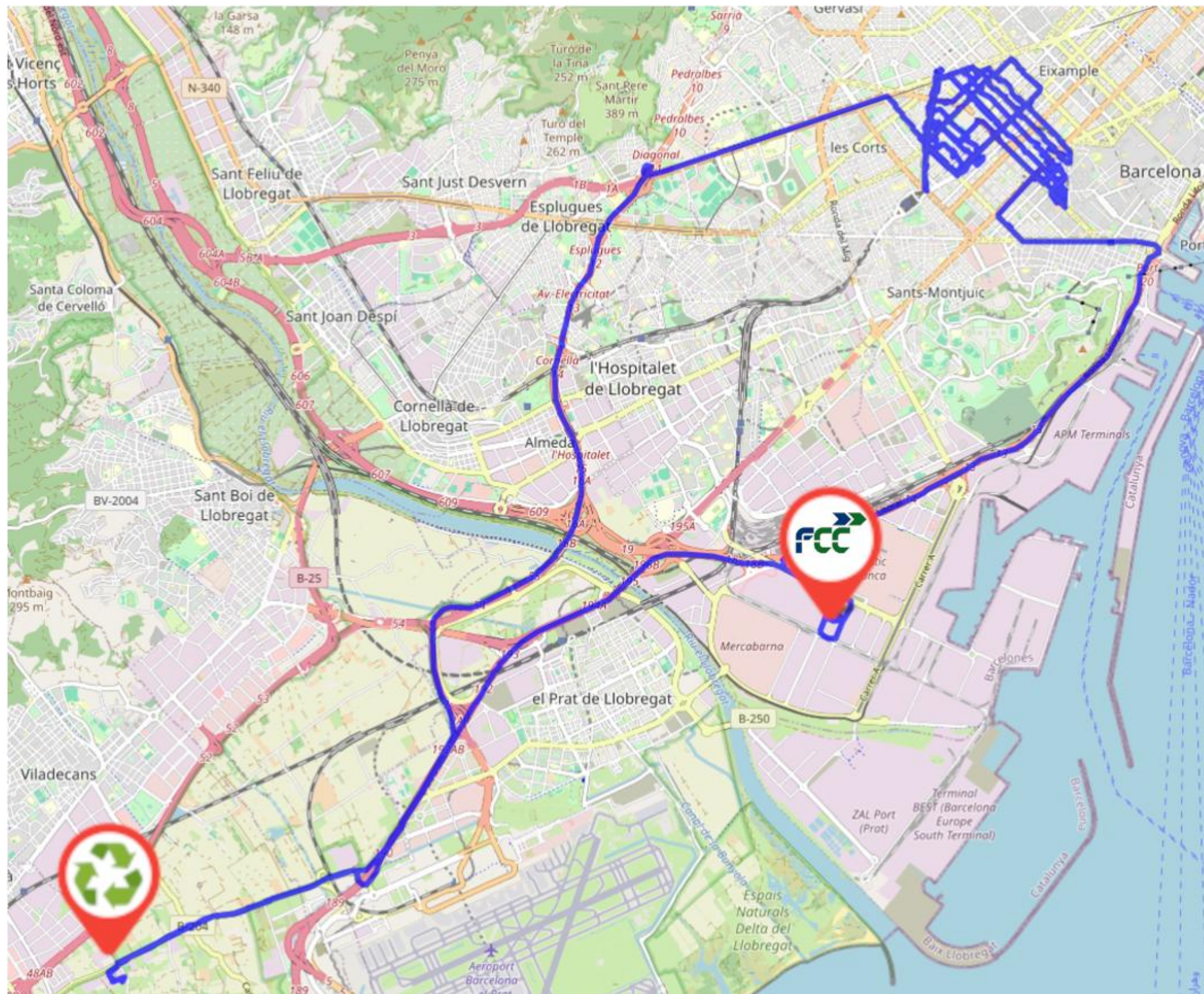
 Cloud data logging



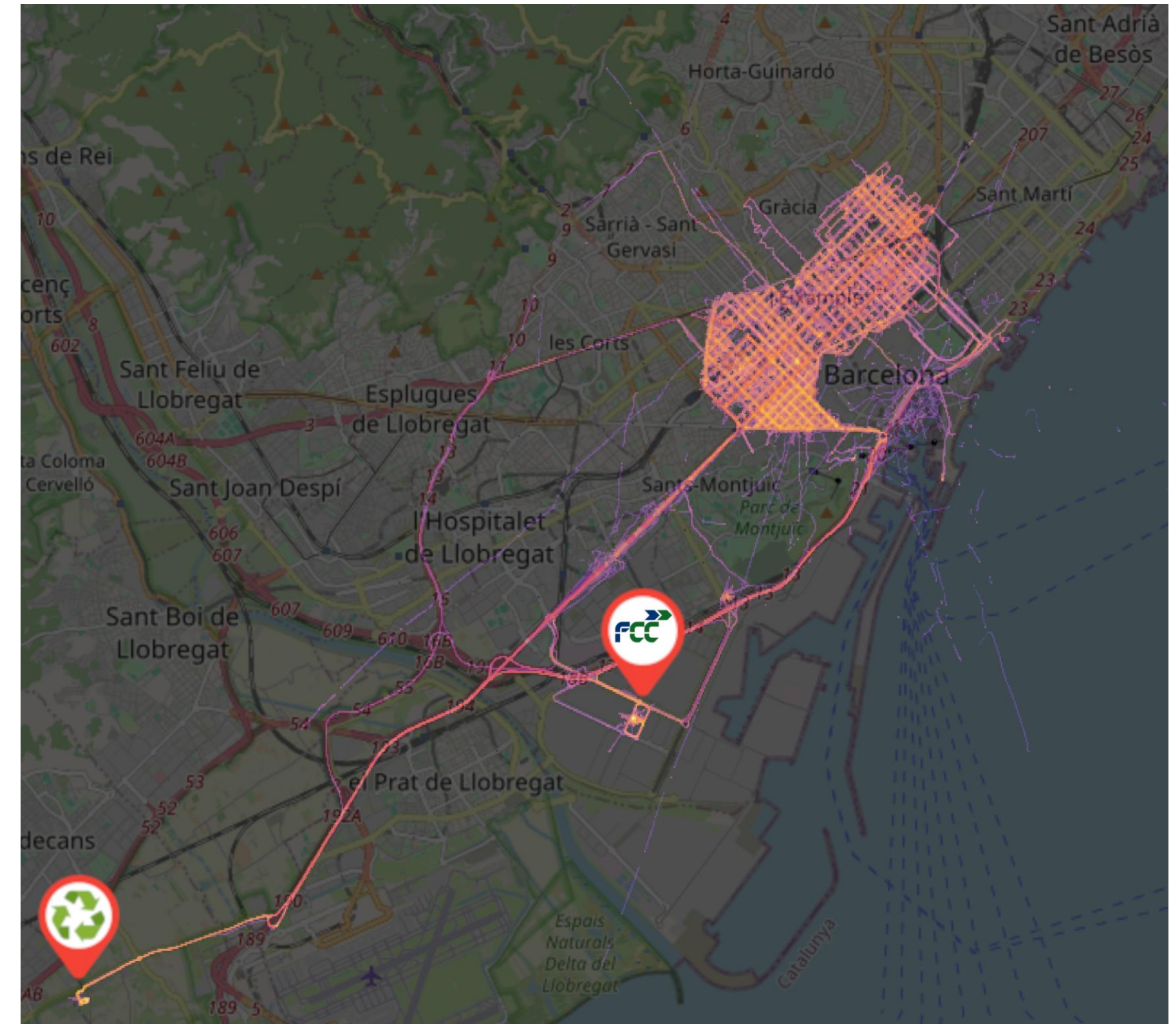


6-Month Operation Results

One day GPS route



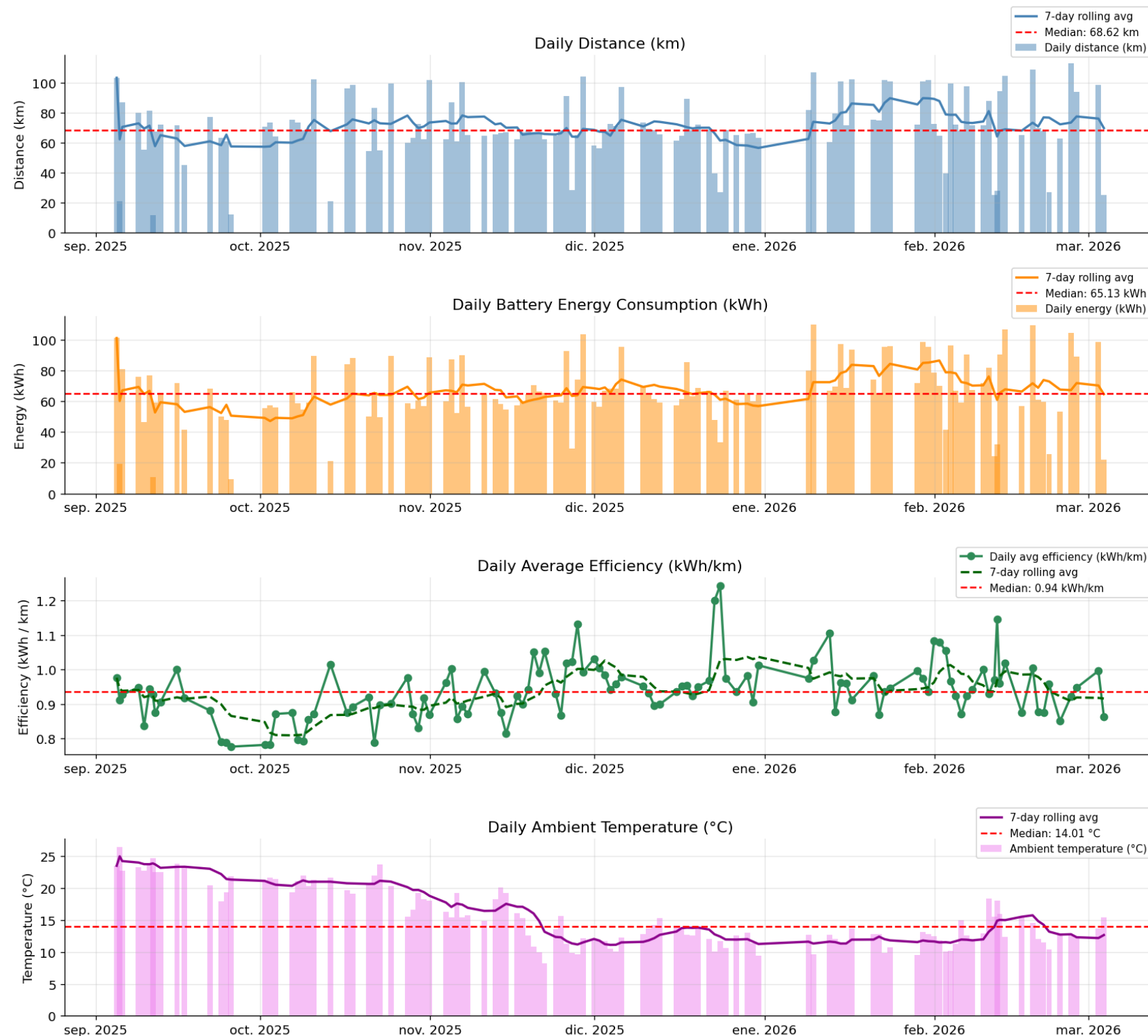
6-month GPS heatmap





6-Month Operation Results

Operational Metrics Evolution



Conclusions



Distance variation: 60 – 110 km



Energy consumption correlated with distance

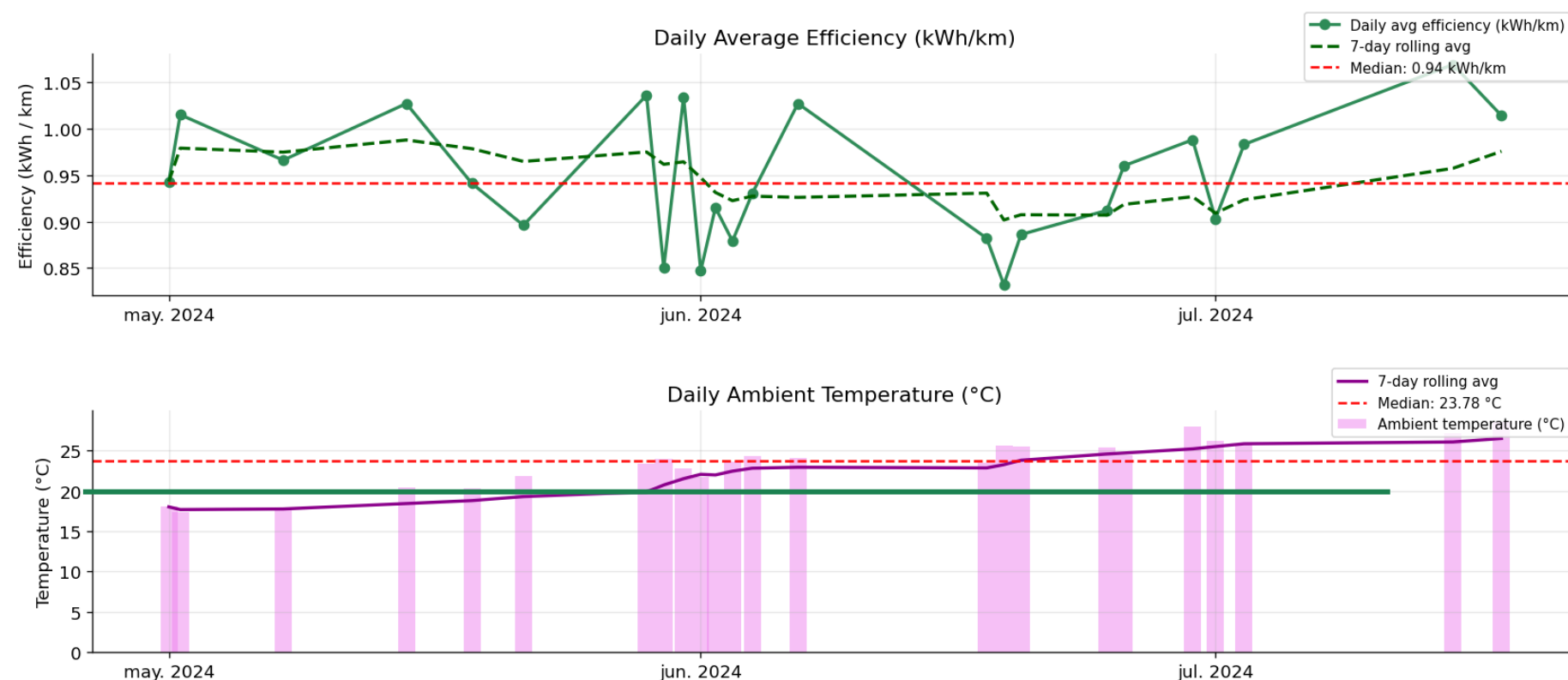


Efficiency highly dependent on ambient temperature

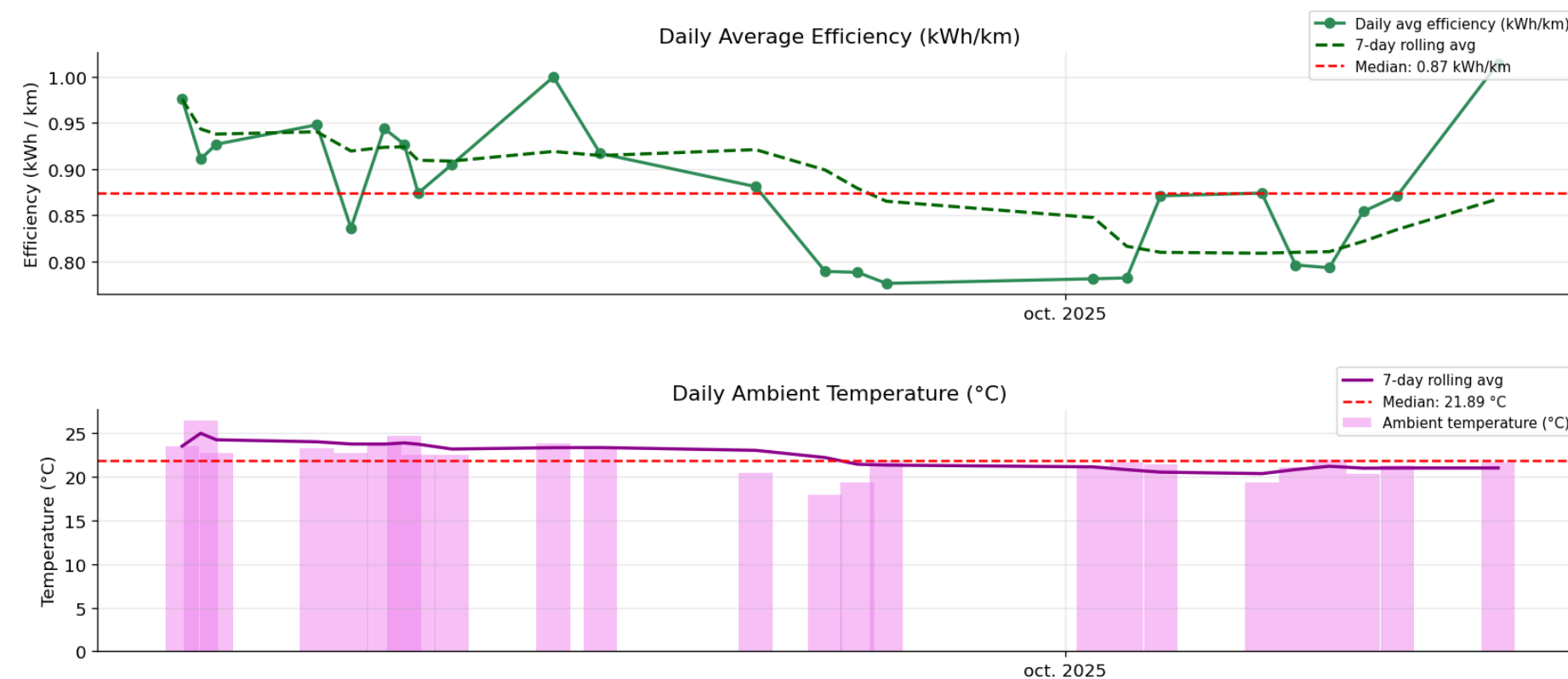


6-Month Operation Results

Baseline Efficiency



Demo Efficiency



Conclusions



Comparison: Similar ambient temperature period 22-24°C



Baseline efficiency: 0.94 kWh/km



Demo efficiency: 0.87 kWh/km



Efficiency improvement: **7.5 %**

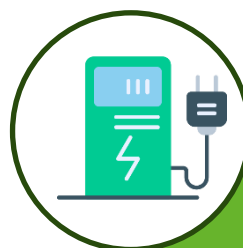


Service Improvements



VEHICLE

Feature		Baseline	Demo	Change
	Consumption	0.94 kWh/km	0.87 kWh/km	↓ -7.5 %
	Range	180 km	350 km	↑ +95 %



CHARGER

Model	Time charge SOC 0 – 80 %	Change
Baseline	5 h	-
Demo	1:20 h	↓ - 73 %



Lower consumption

-7.5 %



More range

+95 %





Connect with us

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