



Fleet Management System

T·Systems

hackaTUM



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¹ <https://core.verisk.com/Insights/Emerging-Issues/Articles/2023/September/Week-3/Expansion-of-Robotaxis-and-Autonomous-Vehicles-in-the-US>

The future of taxis is driverless.

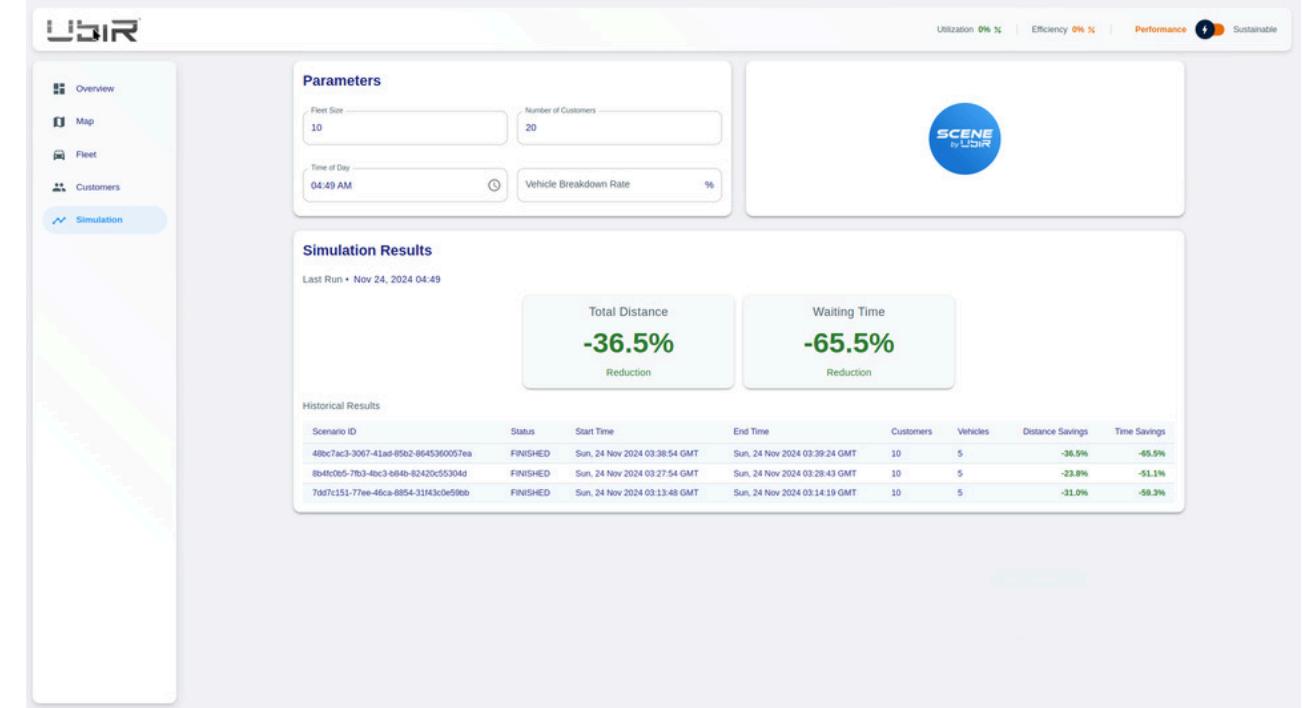
We expect a major surge in the increase of robotaxis 2030¹.

However, managing large fleets of robotaxis is not an easy task.

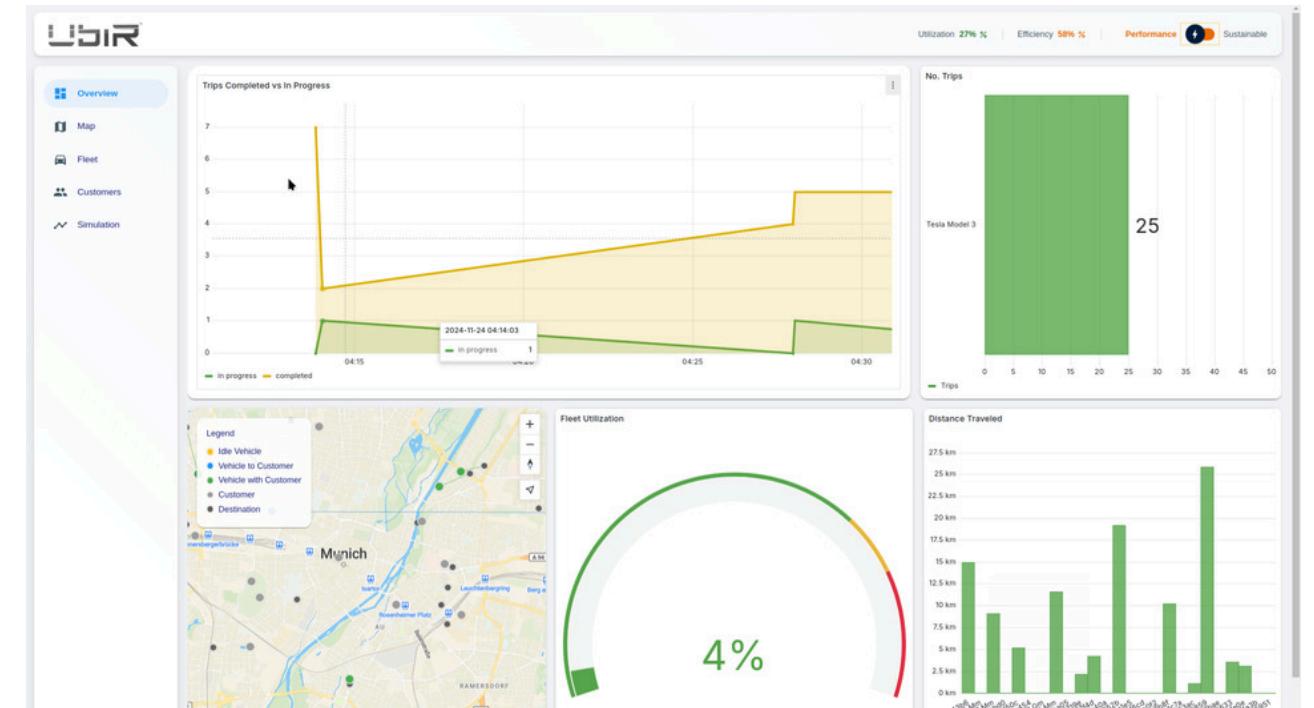
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We provide an modular end-to-end fleet monitoring system tailored to our customers' needs.



Built with open-source tools to integrate seamlessly within existing systems.



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- Real-time view of the vehicles.
- Useful statistics and metrics.
- Integrated simulation engine (SCENE).



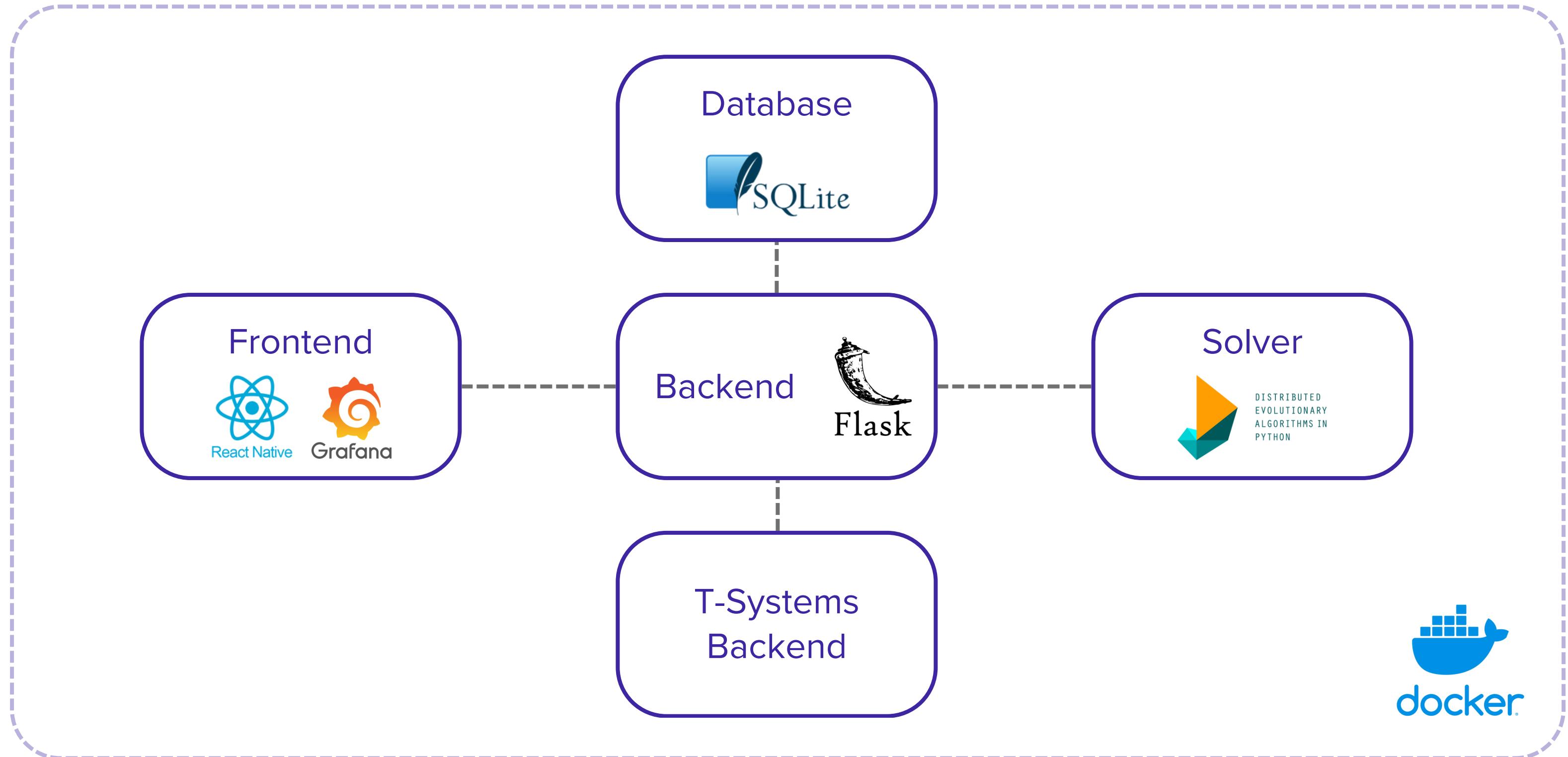
Our powerful commissioning algorithm¹ allows great reductions in:

- Customer waiting times.
- Distance traveled by the robotaxis.

This directly translates into increased customer satisfaction, reduction of costs, and a more sustainable mobility.

¹ Based on Genetic Algorithms (GA).

Architecture Overview





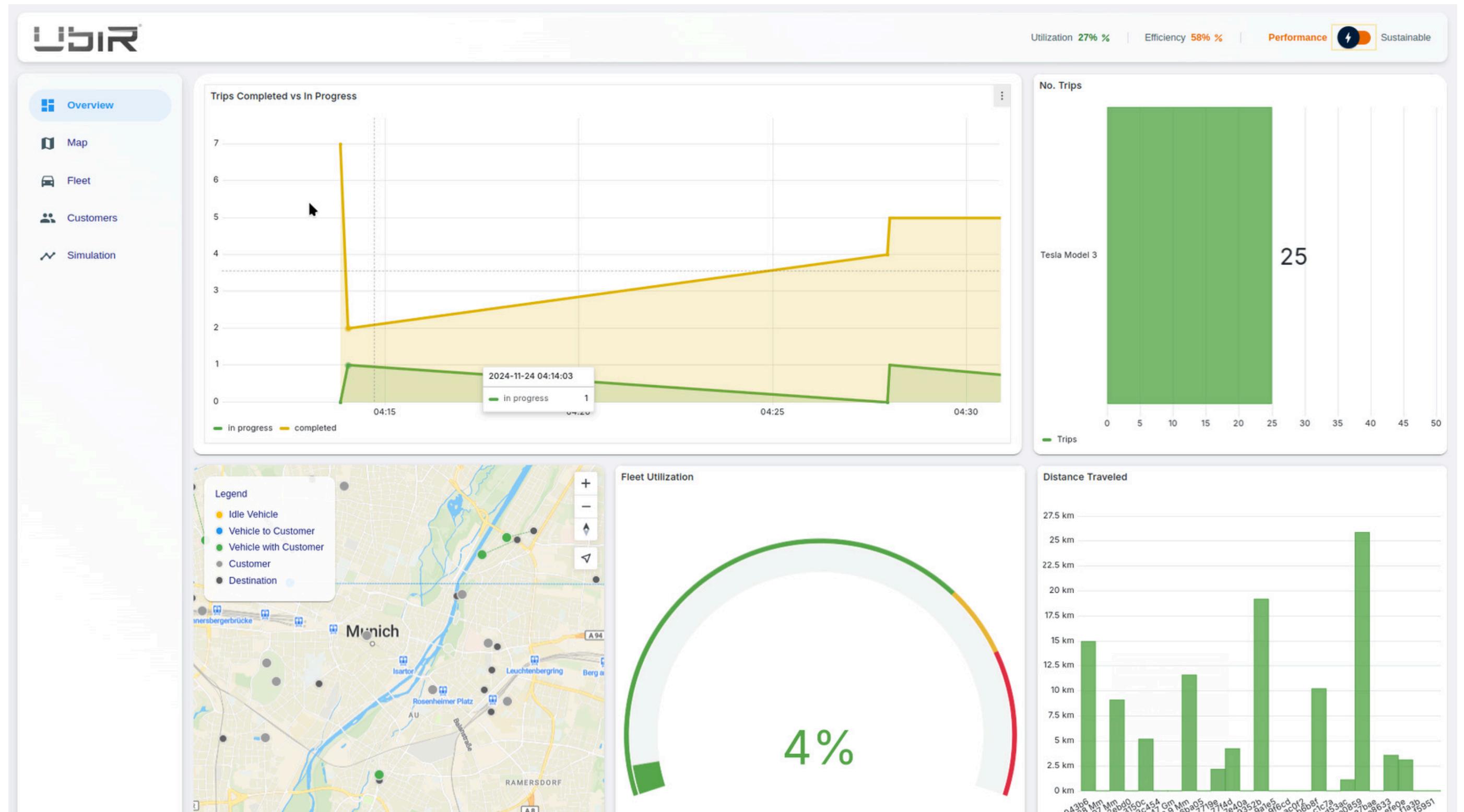
Let's see

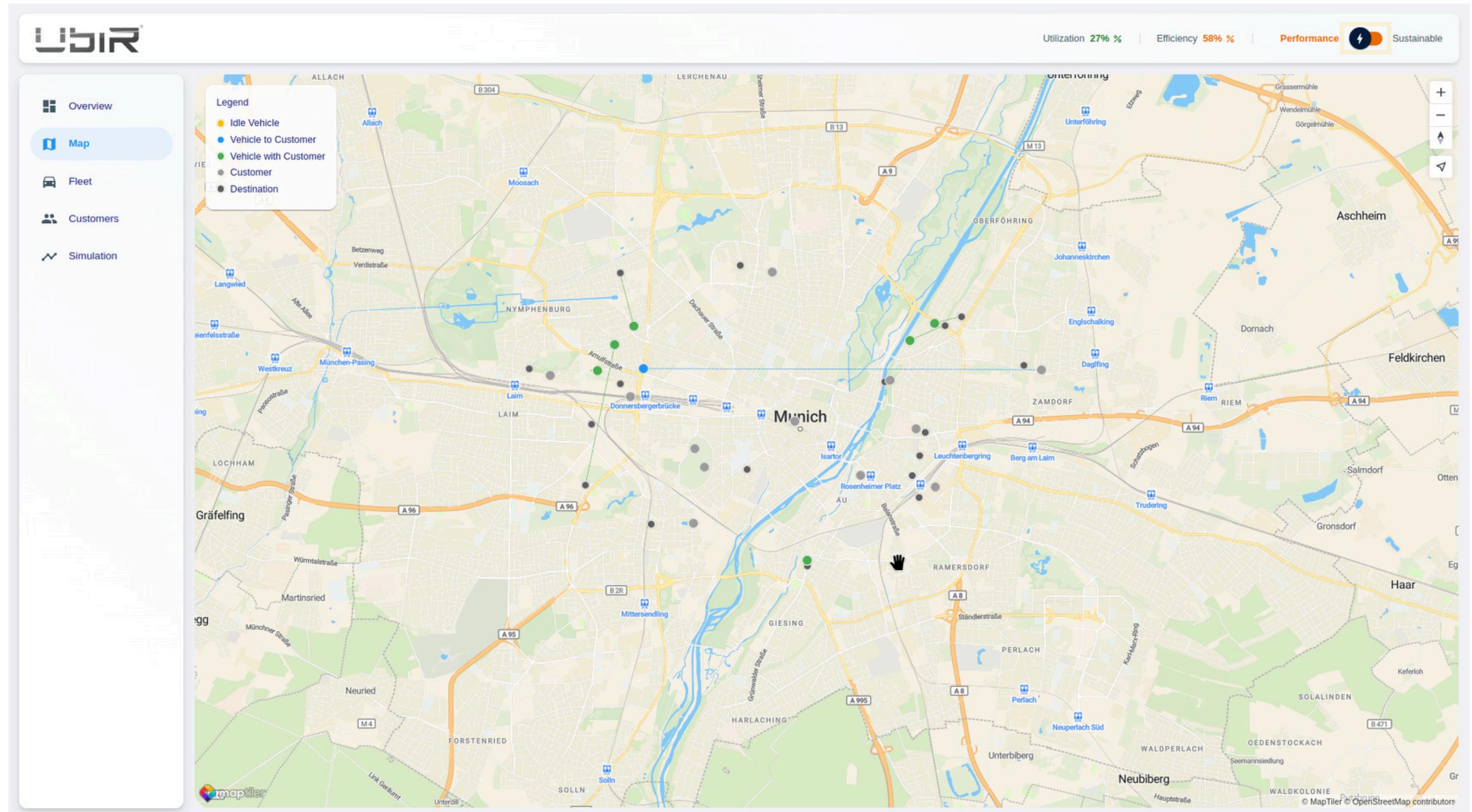


in Action!



Thank you! Questions?





The screenshot displays the UBIR Fleet Management System interface, specifically the 'Customers' section. The left sidebar includes links for Overview, Map, Fleet, Customers (selected), and Simulation. The main area shows a grid of 16 customer requests, each with a profile picture, name, status, pickup location, and destination.

Customer	Status	Pickup Location	Destination
Eve	Waiting for pickup	(48.13, 11.54)	(48.16, 11.53)
Bob	Waiting for pickup	(48.13, 11.55)	(48.13, 11.56)
Eve	Waiting for pickup	(48.14, 11.57)	(48.13, 11.60)
Bob	Waiting for pickup	(48.13, 11.63)	(48.13, 11.61)
Eve	Waiting for pickup	(48.12, 11.64)	(48.15, 11.51)
David	Waiting for pickup	(48.15, 11.53)	(48.13, 11.52)
Carol	Waiting for pickup	(48.14, 11.62)	(48.15, 11.52)
Alice	In transit	(48.15, 11.60)	(48.15, 11.60)
Bob	In transit	(48.14, 11.53)	(48.14, 11.53)
Eve	Waiting for pickup	(48.15, 11.56)	(48.14, 11.59)
Eve	In transit	(48.13, 11.55)	(48.14, 11.52)
Bob	Waiting for pickup	(48.12, 11.64)	(48.12, 11.54)
Alice	Waiting for pickup	(48.13, 11.59)	(48.15, 11.63)
Eve	In transit	(48.13, 11.62)	(48.15, 11.51)
Bob	Waiting for pickup	(48.12, 11.64)	(48.12, 11.54)
Alice	In transit	(48.16, 11.57)	(48.16, 11.56)
Carol	In transit	(48.15, 11.58)	(48.16, 11.62)
Bob	Waiting for pickup	(48.13, 11.63)	(48.13, 11.61)
David	In transit	(48.16, 11.56)	(48.16, 11.56)

UBIR

Utilization 27% | Efficiency 58% | Performance ⚡ Sustainable

- Overview
- Map
- Fleet**
- Customers
- Simulation

Tesla Model S ID: #043b64d6 Status: En route to destination Speed: 13.7 km/h Trips: 3	Ford Mustang Mac... ID: #3150c147 Status: En route to destination Speed: 12.5 km/h Trips: 2	Audi e-tron ID: #6ba0549d Status: Picking up customer Speed: 1.0 km/h Trips: 0	Audi e-tron ID: #9a1e502d Status: En route to destination Speed: 11.2 km/h Trips: 0
Nissan Leaf ID: #9f6cdcaa5 Status: Picking up customer Speed: 1.0 km/h Trips: 0	Porsche Taycan ID: #043b64d6 Status: En route to destination Speed: 13.7 km/h Trips: 3	Jaguar I-PACE ID: #043b64d6 Status: En route to destination Speed: 13.7 km/h Trips: 3	Nissan Leaf ID: #447e4e79 Status: En route to destination Speed: 9.5 km/h Trips: 0
Tesla Model Y ID: #9f6cdcaa5 Status: Picking up customer Speed: 1.0 km/h Trips: 0	Jaguar I-PACE ID: #3150c147 Status: En route to destination Speed: 12.5 km/h Trips: 2	Tesla Model 3 ID: #447e4e79 Status: En route to destination Speed: 9.5 km/h Trips: 0	Tesla Model Y ID: #e7bae8ca Status: En route to destination Speed: 11.4 km/h Trips: 0
Tesla Model S ID: #3150c147 Status: En route to destination Speed: 12.5 km/h Trips: 2	Jaguar I-PACE ID: #447e4e79 Status: En route to destination Speed: 9.5 km/h Trips: 0	Tesla Model 3 ID: #9f6cdcaa5 Status: Picking up customer Speed: 1.0 km/h Trips: 0	Audi e-tron ID: #6ba0549d Status: Picking up customer Speed: 1.0 km/h Trips: 0
Tesla Model 3 ID: #e7bae8ca Status: En route to destination	Nissan Leaf ID: #9a1e502d Status: En route to destination	Tesla Model S ID: #9f6cdcaa5 Status: Picking up customer	Porsche Taycan ID: #b6b8fe8e Status: En route to destination



Utilization 0% | Efficiency 0% | Performance Sustainable

SCENE by UBIR

Parameters

Fleet Size: 10 | Number of Customers: 20

Time of Day: 04:49 AM | Vehicle Breakdown Rate: %

Simulation Results

Last Run • Nov 24, 2024 04:49

Total Distance **-36.5%** Reduction

Waiting Time **-65.5%** Reduction

Historical Results

Scenario ID	Status	Start Time	End Time	Customers	Vehicles	Distance Savings	Time Savings
48bc7ac3-3067-41ad-85b2-8645360057ea	FINISHED	Sun, 24 Nov 2024 03:38:54 GMT	Sun, 24 Nov 2024 03:39:24 GMT	10	5	-36.5%	-65.5%
8b4fc0b5-7fb3-4bc3-b84b-82420c55304d	FINISHED	Sun, 24 Nov 2024 03:27:54 GMT	Sun, 24 Nov 2024 03:28:43 GMT	10	5	-23.8%	-51.1%
7dd7c151-77ee-46ca-8854-31f43c0e59bb	FINISHED	Sun, 24 Nov 2024 03:13:48 GMT	Sun, 24 Nov 2024 03:14:19 GMT	10	5	-31.0%	-59.3%



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