knot

**scooter and bike stations – V6
Q2 2023**

DOCK AND ROLL

About KNOT

We believe that micro-mobility is the keystone of tomorrow's transportation. We also believe that the only way to make it truly green, accessible, and economically efficient is to provide the universal infrastructure for charging and locking.

Since 2016 KNOT supplies its docking stations around the world and operates shared scooter and bike networks with proprietary docking infrastructure. Leader on the docking infrastructure market, with more than 200 stations deployed in 10 countries.

KNOT is not just another scooter sharing company and not just a docking station producer. We are changing the way micro-mobility integrates into the city landscape to make the transportation revolution possible.

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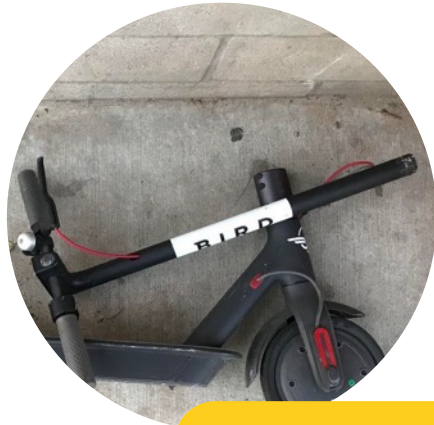
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Scooter and bike sharing programs are booming, but due to…

Mess on the streets

Vandalism

High operational costs

Environmental issues

- Free floating sharing programs **are chased away from many cities** (Barcelona, Buenos-Aires, Strasbourg, San Paolo, Nantes…)
- **Extreme operational costs** limit the operational profitability and availability of the networks
- Sharing programs have **an important environmental impact** due to higher number of batteries and more frequent operational actions

Go docking!

Prevent the uncontrolled sidewalk occupancy

○ **Docking stations helps to park and lock scooters and bikes**

○ Installation of stations in partnership with city authorities

○ Installing docking stations close to strategic hubs guarantee **the service accessibility for key trips**

○ Service is co-developed together with city transport operators with integration to other transportation services **(no need to install a new app)**

Reduce operational costs // control the power supply

○ Scooters and bikes are locked AND charged on the station – there is no need to collect and swap batteries

○ **No more diesel generators and uncontrolled energy sources to charge.** You can use renewable energy sources

○ Station automatically locks scooters and bikes that are not charged enough to increase the battery life

○ Increase network availability and therefore economical KPIs

○ Charging costs per vehicle - less than 0,05 cents against 3 - 6 € in average for the free-floating services
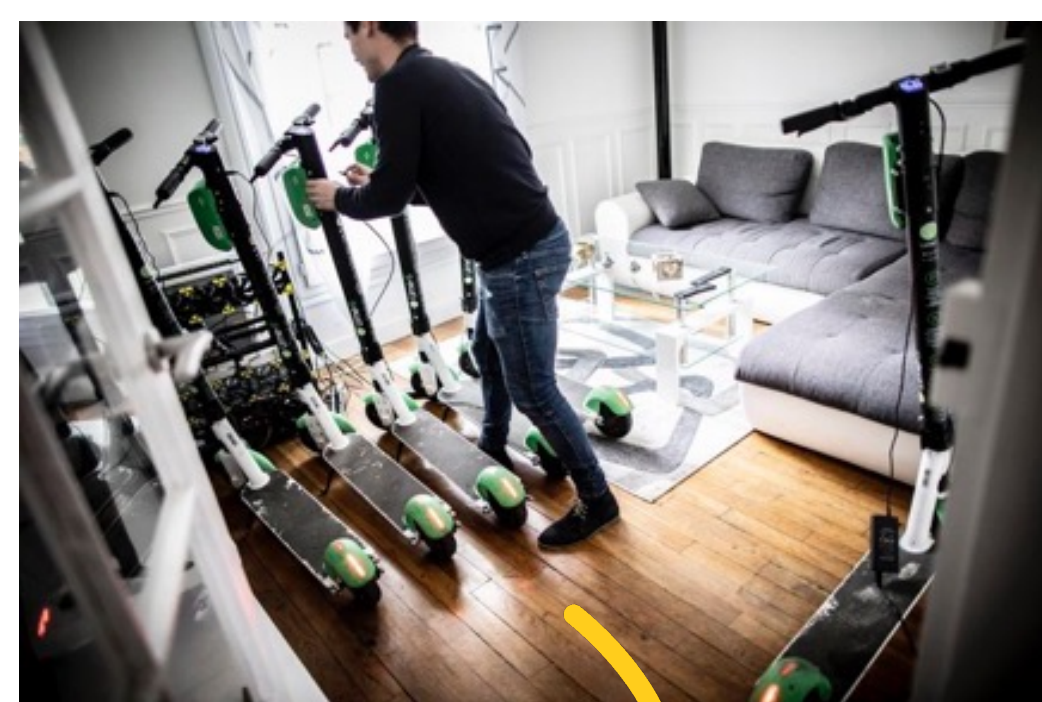
Reduce the vandalism impact

○ Scooters and bikes are always secured on their spots – foldable or non-foldable models are available

○ Locker resist the force up to 4 tons of direct impact

○ 18 month of operation at Saint-Denis (Paris), total vandalism impact is less than 7% of overall scooter value

○ Scooter stations in Strasbourg - 0 vandalism - related maintenance operations in last 8 month

Increase the network availability

○ By the end of the day in heavily used free-floating networks 50-90% of vehicles are no longer available for the rental because they ran out of battery

○ With docks scooters and bikes are recharged all day long, every day – means operators can increase availability of the network and get the most of it!
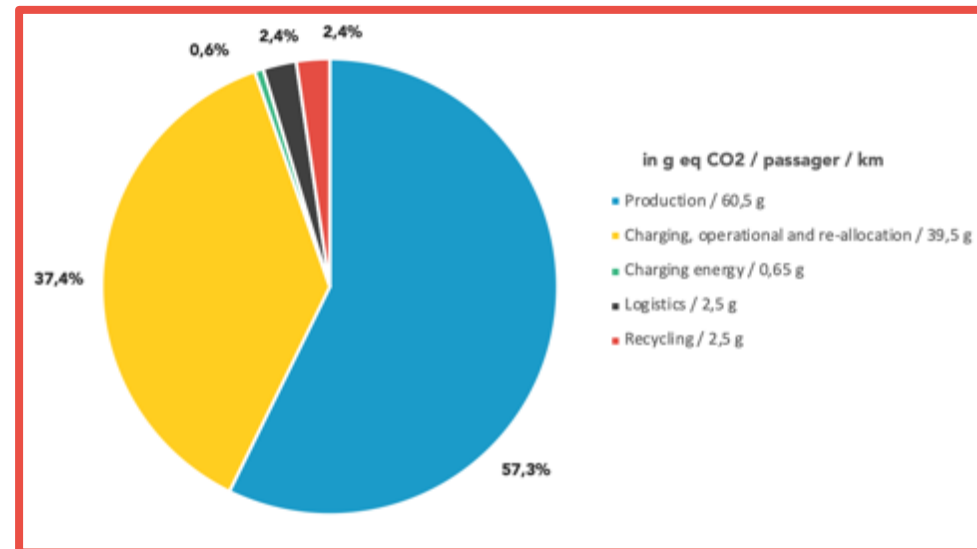
→ Station increases vehicle availability and therefore economical KPIs of the network
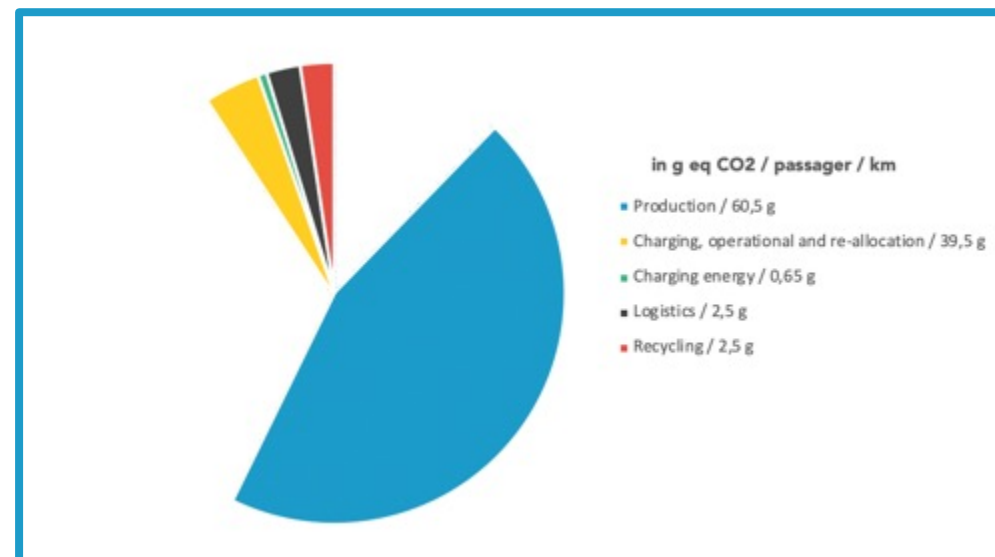
Finally environmentally friendly

FREE FLOATING SERVICES

in g eq CO2 / passager / km
- Production / 60,5 g
- Charging, operational and re-allocation / 39,5 g
- Charging energy / 0,65 g
- Logistics / 2,5 g
- Recycling / 2,5 g

- **Vandalism impact is lower and therefore vehicle lifespan is much longer** (36+ months with station-based services compare to 6-12 months with no station)

- No daily collection / battery swaps means no related environmental impact

- Station lifespan is 3 to 5 years

- Environment and money friendly

STATION BASED

in g eq CO2 / passager / km
- Production / 60,5 g
- Charging, operational and re-allocation / 39,5 g
- Charging energy / 0,65 g
- Logistics / 2,5 g
- Recycling / 2,5 g

KNOT technology

1/3 Docking station

o   Universal docking and charging station for scooter and bike sharing

o   Models already compatible:

  ✓ Scooters: OKAI ES400A, OKAI ES400B, Ninebot MAX 2.2, 2.3, MAX Plus X, ES4, Reby,…
  ✓ Bikes: OKAI EB100, Arcade MOKA, Segway A200

o   **Any other model can be added upon request**

o   KNOT IP: we design and test our stations internally - electronics, mechanics, and software

o   **EU production** with a capacity of 100+ stations per month

o   **Easy installation**: 220V connection and fast fixation to the ground with chemical selling

o   Seamless unlock process for the user: using the RFID card or an application

o   Color personalization options available

o   **Modular stations : from 1 to 24 in a row. One- or double-sided stations.**
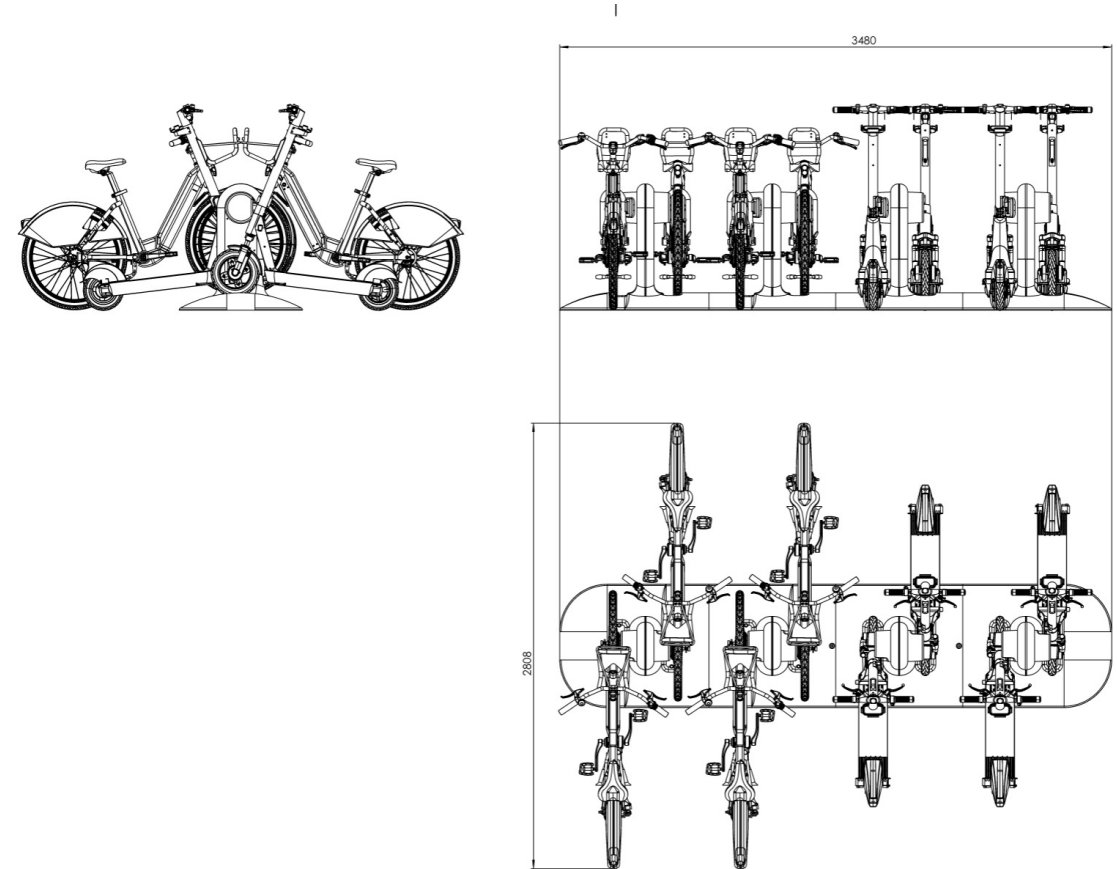
Station V6 - 4 // 4 spots
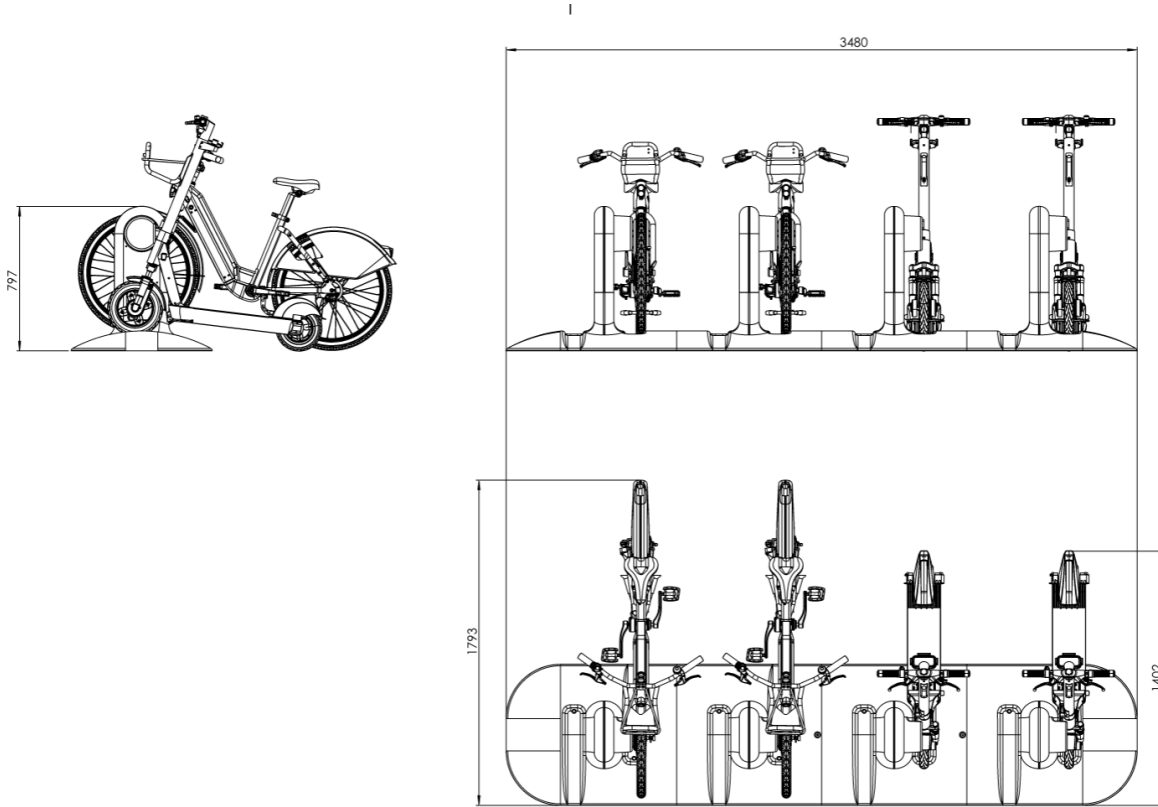
MEASURES
length 3480 mm *
height 797 mm *
width 820 mm (with scooters 1402 mm, with bike 1793 mm)

Station N5-8 // 8 spots

MEASURES
length 3480 mm *
height 797 mm *
width 820 mm (with 2 scooters 1924 mm, with 2 bikes 2808 mm)

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Technical characteristics V6

|			
MAIN STRUCTURE	1	Locking mechanism cover	Aluminium
	2	Coverage	Aluminium, anti-vandal treatment, access with the specific key for the operators
	3	Poles	Aluminium
	4	Base plate	Fiber concrete
SEALING	5	Seals on locking / charging blocks	IP54
	6	Caoutchouc cable paths	
LOCKING MECHANISM	7	Security locks	Galvanized steel, approved up to 4 tons effort applied
	8	Light indicators for lock / unlock	4-LED cards * 2 on each slot, ambiance lightning on the down part of the station
	9	Audio signal for lock / unlock	Loudspeaker with heat and IP 54 resistance
ENERGY SUPPLY	10	Scooter / bike chargers	System adaptable through firmware with fast charging available. No charging is sent without locking and identification
	11	Nominal voltage	220 - 230V AC
	12	Nominal power	100mA
	13	Power max	5A
	14	Nominal consumption	<1W
	15	Consumption max	650W
	16	Required connection	10A or 16A up to 40 slots
ELECTRONICS	17	Main board (1)	PCB resin for protection
	18	Telecommunication module (1)	Quad-band GSM/3G/4G/5G/LTE-M low consumption
	19	RFID / NFC reader	Optional, supported protocol : ISO 14443A, ISO 14443B MIFARE, ISO 14443B DESFire
	20	Firmware	Remote update - OTAs
	21	PCBs satellites (8)	PCB resin for protection
	22	Cable beams	Plastic + copper
	23	Energy supply cable	230 V AC

2/3 App or API

o   Users access to the service through the app (KNOT app or white label)

o   To provide accessible and open infrastructure, an API is available to integrate with other services. It means users can unlock a scooter from our station using any sharing app or MAAS app (we are connected already with ATOM, Fleetster, Instant Systems…)

o   Integration takes 4 to 20 days depending on the level of control the operator wants to get over our station

o   **Find access to our API documentation here**
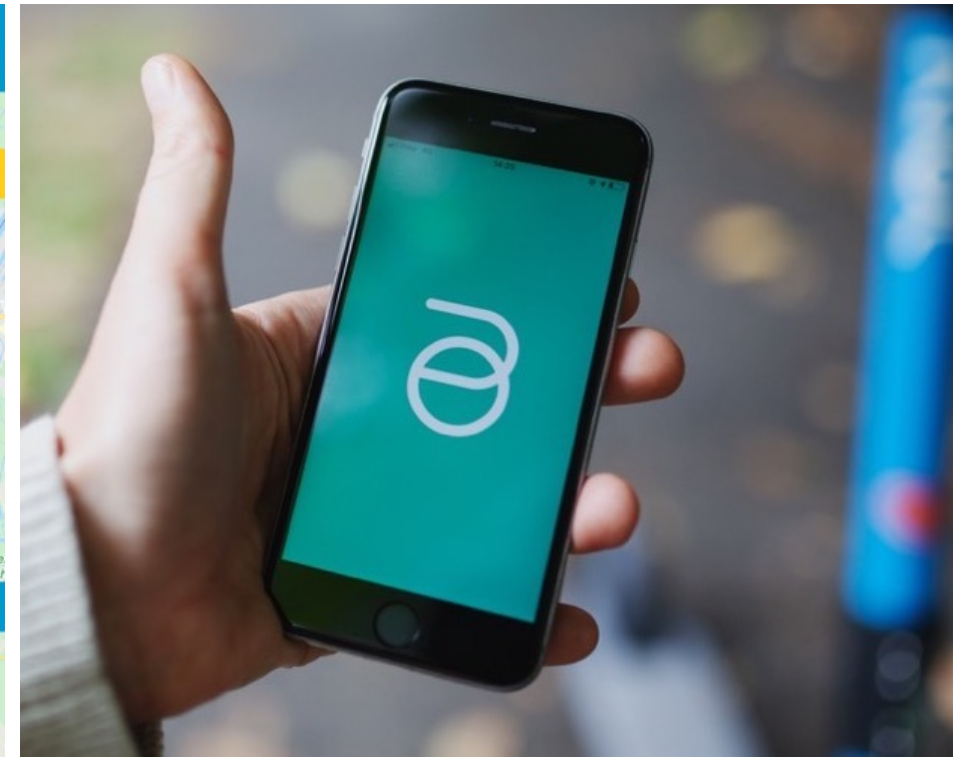
3/3 Dashboard to operate

o   Access to the operations through a tailor-made dashboard connected to the full range of KNOT hardware for the operators using KNOT application or integrated via MAAS API

o   The operator can track vehicles, manage stock, plan maintenance interventions, customer support, set up pricing…

o   Open and customizable
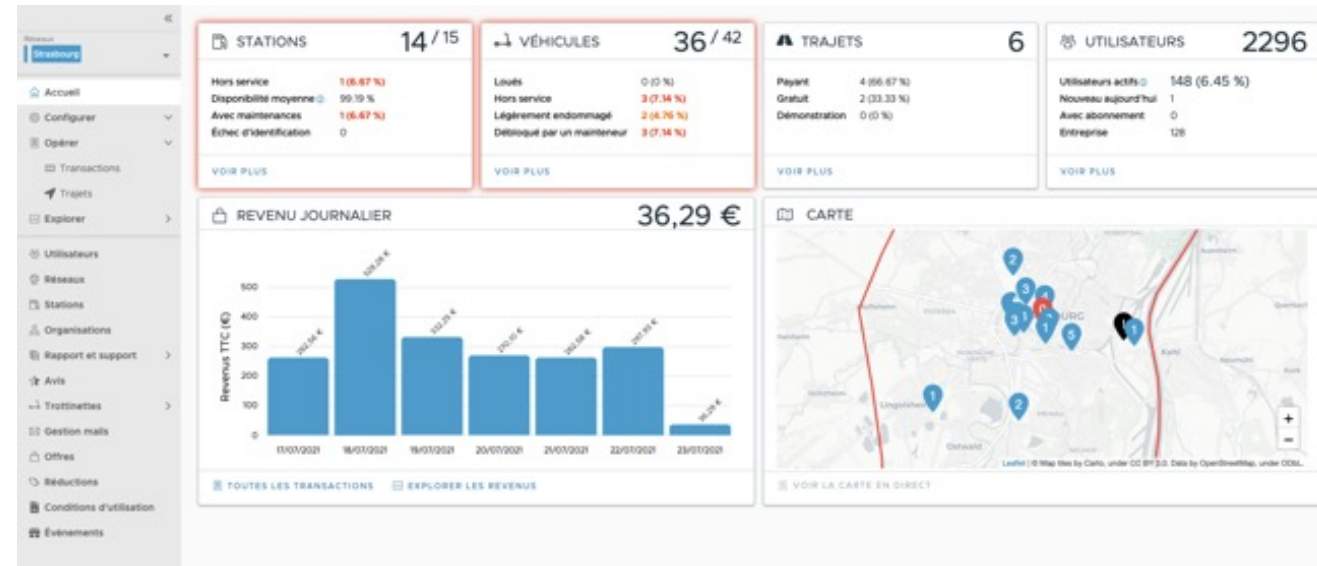
Up and running all around Europe

+600 stations installed

10 countries

19 networks: business and public sharing

+90k Trips for our own networks

+ **Tashkent**
+ **Vancouver**
+ **Maldives**

Few references – V5 station
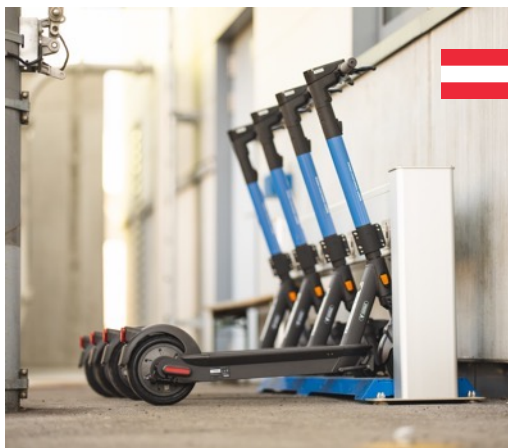
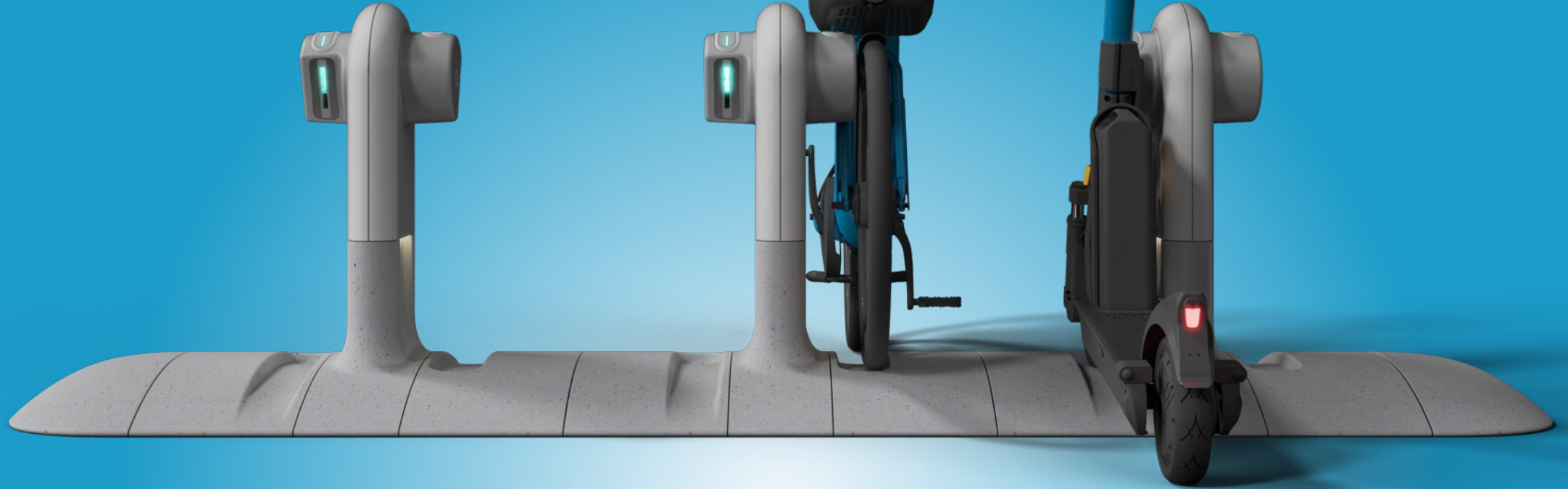## Nantes

Strasbourg

Dilsen

Saint-Denis

Wien

Madrid

CHARGE UP
AND JAM OUT

- From 799 € per vehicle slot on a station
- From 89 € per vehicle connector
- BOV (= bring your own vehicle) or order vehicles through KNOT

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