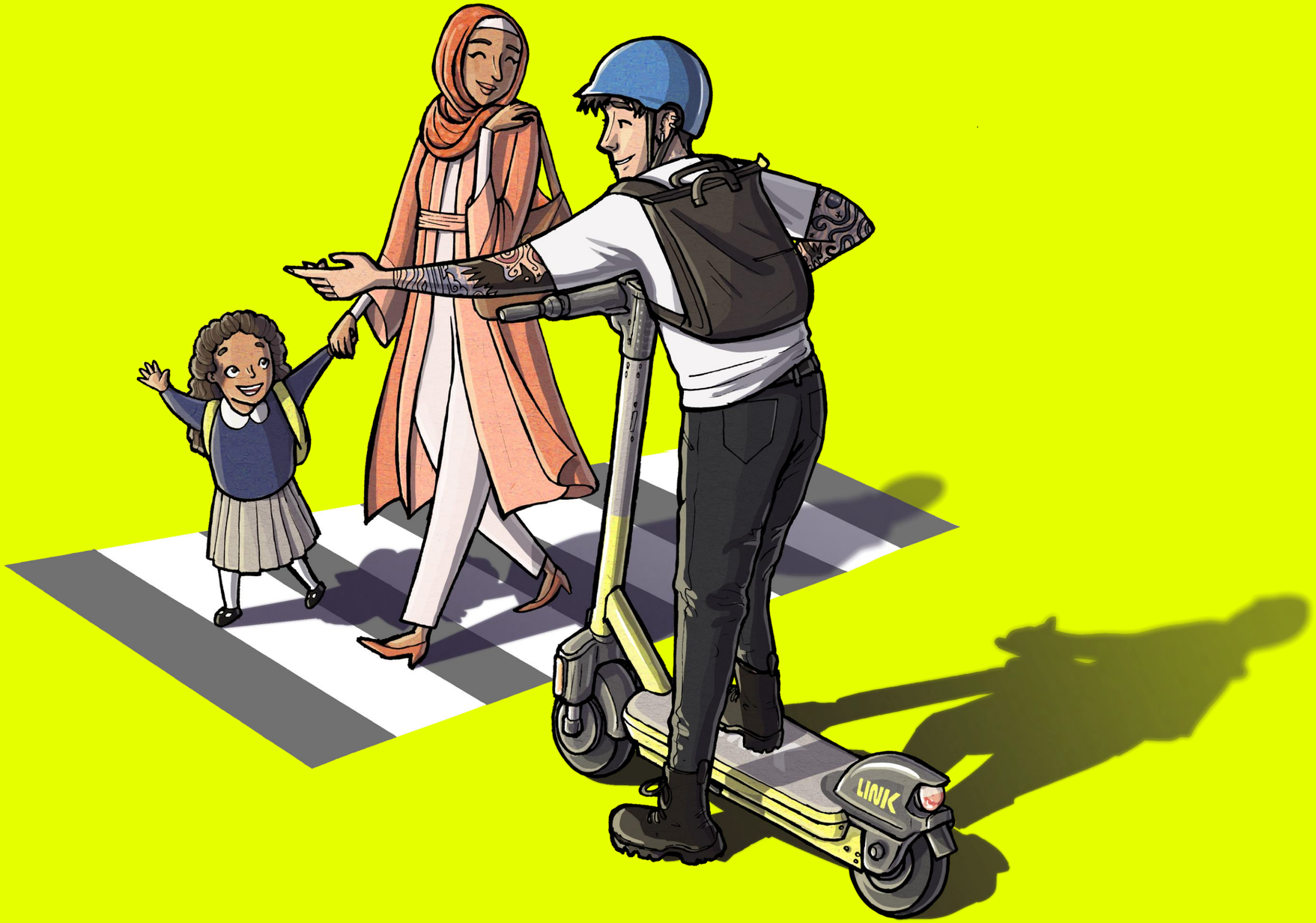

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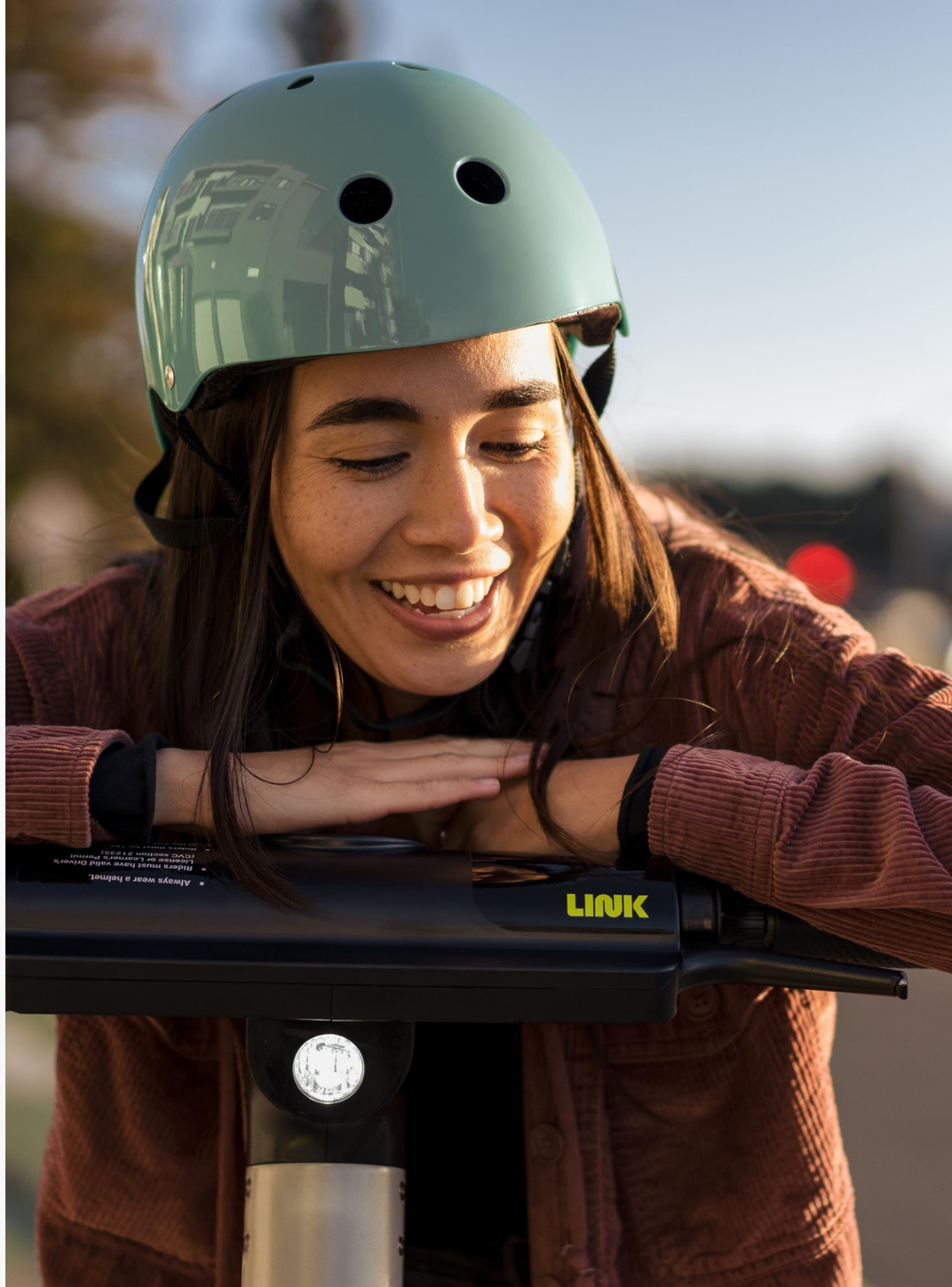
Superpedestrian

How AI is driving rider and pedestrian safety in shared micromobility

Agenda

- About Superpedestrian
- Why introduce AI?
- How we use AI to boost vehicle safety
- Innovations in geofencing
- Changing rider behaviour



Jean Andrews

Policy Director (Ireland & UK)
Superpedestrian

Thank you to our hosts

About us

Superpedestrian is a world-leader in transportation robotics and human-scale mobility

- Shared mobility services in 50 cities and 8 countries
- We hold 40 patents in AI and electrified vehicle technologies
- We are a totally carbon neutral business

Our history

From MIT to micromobility in 50 cities across eight countries.

2004 The SENSEable City Lab at MIT is co-founded by scientist Assaf Biderman.

2013 Superpedestrian is created by Assaf to revolutionise human-scale mobility. Vehicle Intelligence (VI), our core technology, is born.

2017 Copenhagen Wheel, which transforms bicycles into hybrid vehicles, enters full production. It is powered by VI.

2018 The LINK journey begins as our team embarks on a $75m development project.

2020 LINK debuts after six months of real-world road testing. It is also powered by VI.

2021 Pedestrian Defense launches.

About us

Where we're located

- We are headquartered in Cambridge, MA
- Located at our HQ are our control centre and test labs, where we develop our vehicles and monitor live data from our global fleets
- Today, 60% of our operations are based in Europe

Why introduce AI?

Artificial intelligence can help us tackle micromobility's biggest challenges:

- Short vehicle life
- Frequent component failures
- Footpath riding and other unsafe behaviours

How we use AI to boost vehicle safety

- Vehicle Intelligence
- Onboard geofencing
- Pedestrian Defense

How VI works

Powered by AI running on 5 microprocessors + **73** sensors. VI instantly removes the scooter from service if a fault is detected

1000 vehicle health checks every second, every ride

140

Safety-critical conditions monitored on every ride

Live status monitored by local operations and our central control centre

Autonomously adjusts powertrain performance in real-time to prevent component failure

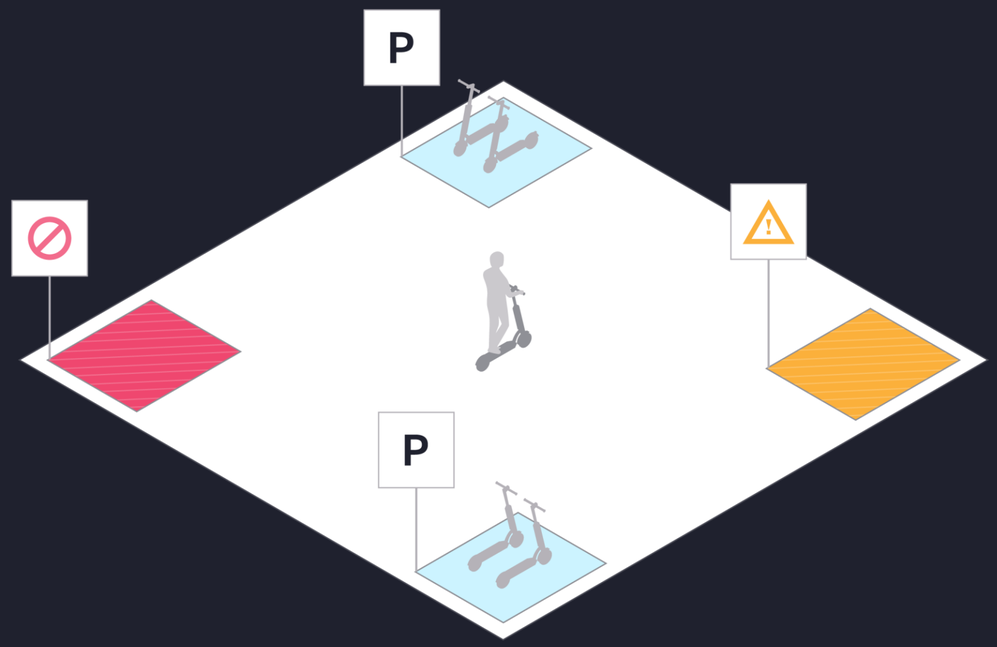
5ns

System response to issues such as water ingress or aggressive riding

What is geofencing?

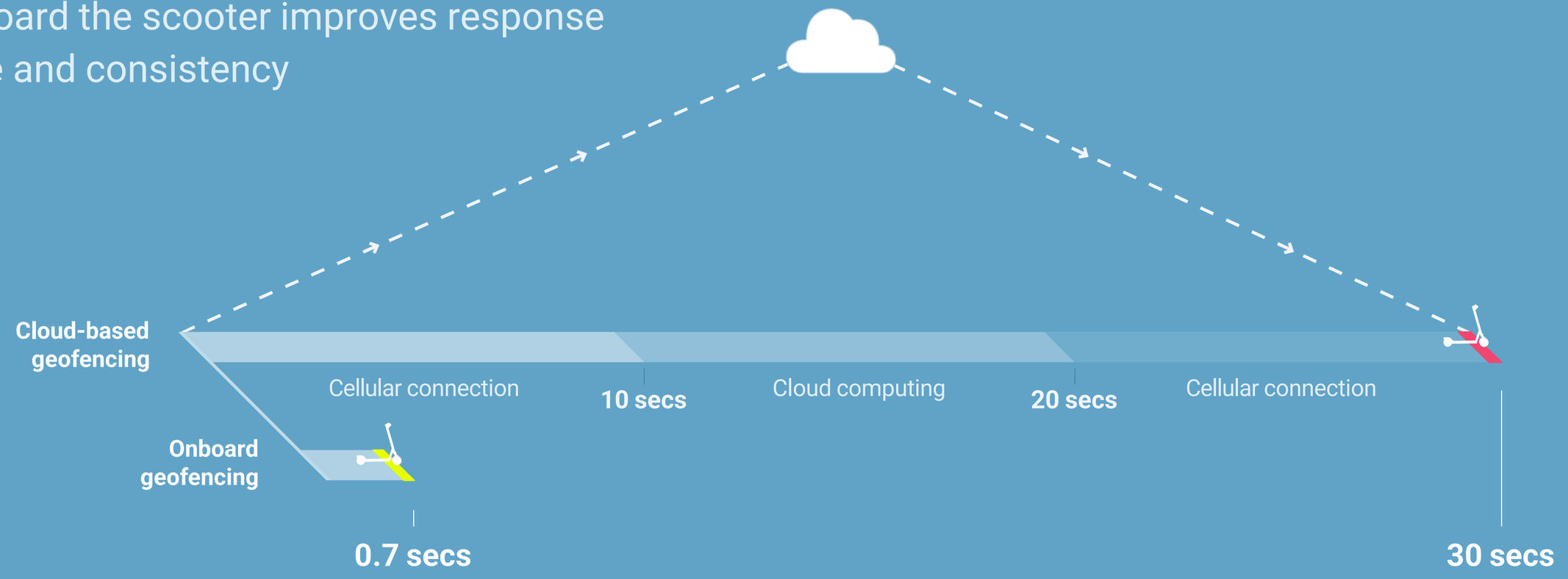
A safety-critical technology that uses virtual boundaries to mark out specific geographic areas and vehicle behaviours.

- Allows us to create service areas, go-slow zones, no-ride zones and parking areas
- Can be updated easily and quickly over-the-air
- A proven technology that can be more effective with improved positioning and response



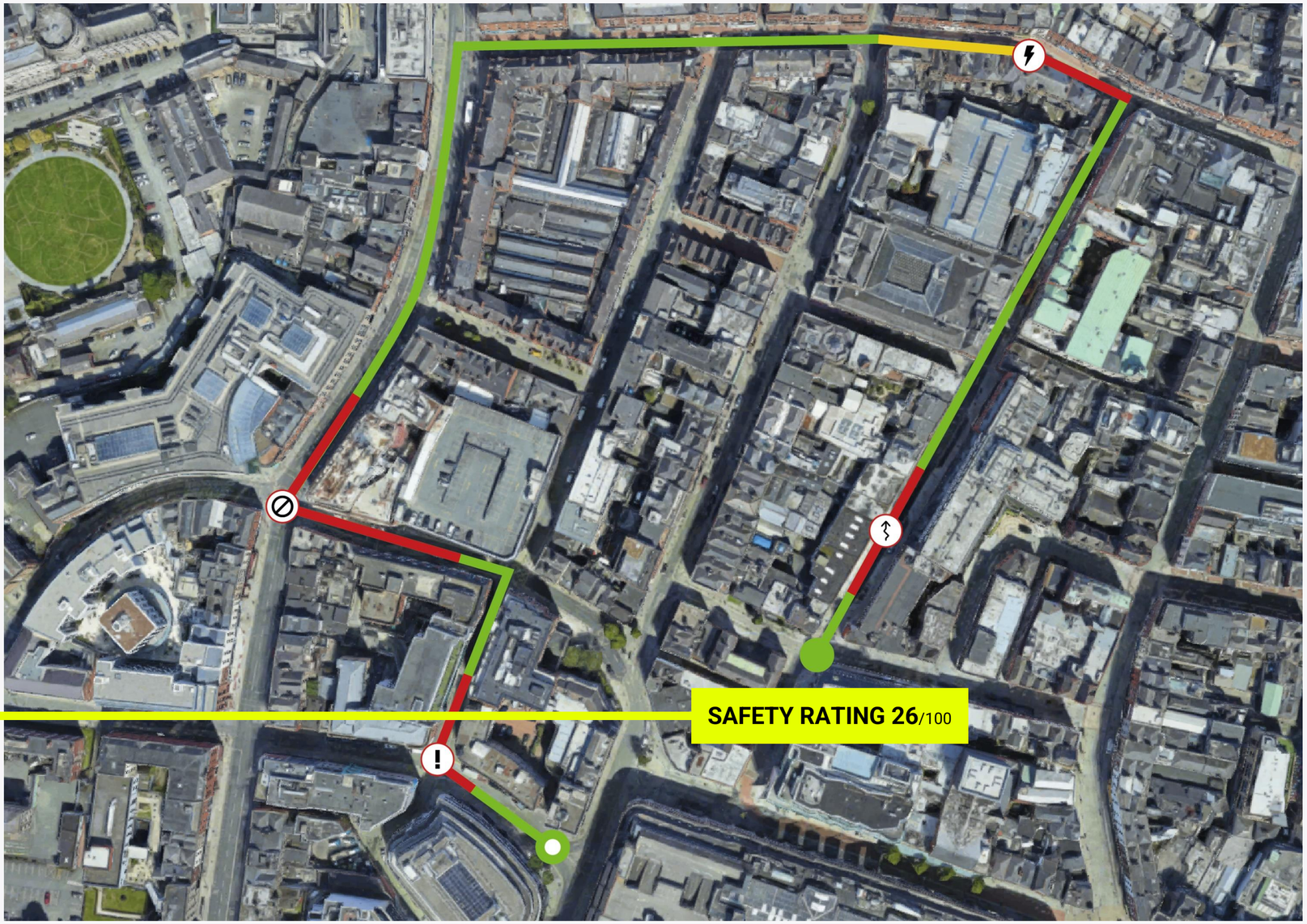
Innovations in geofencing

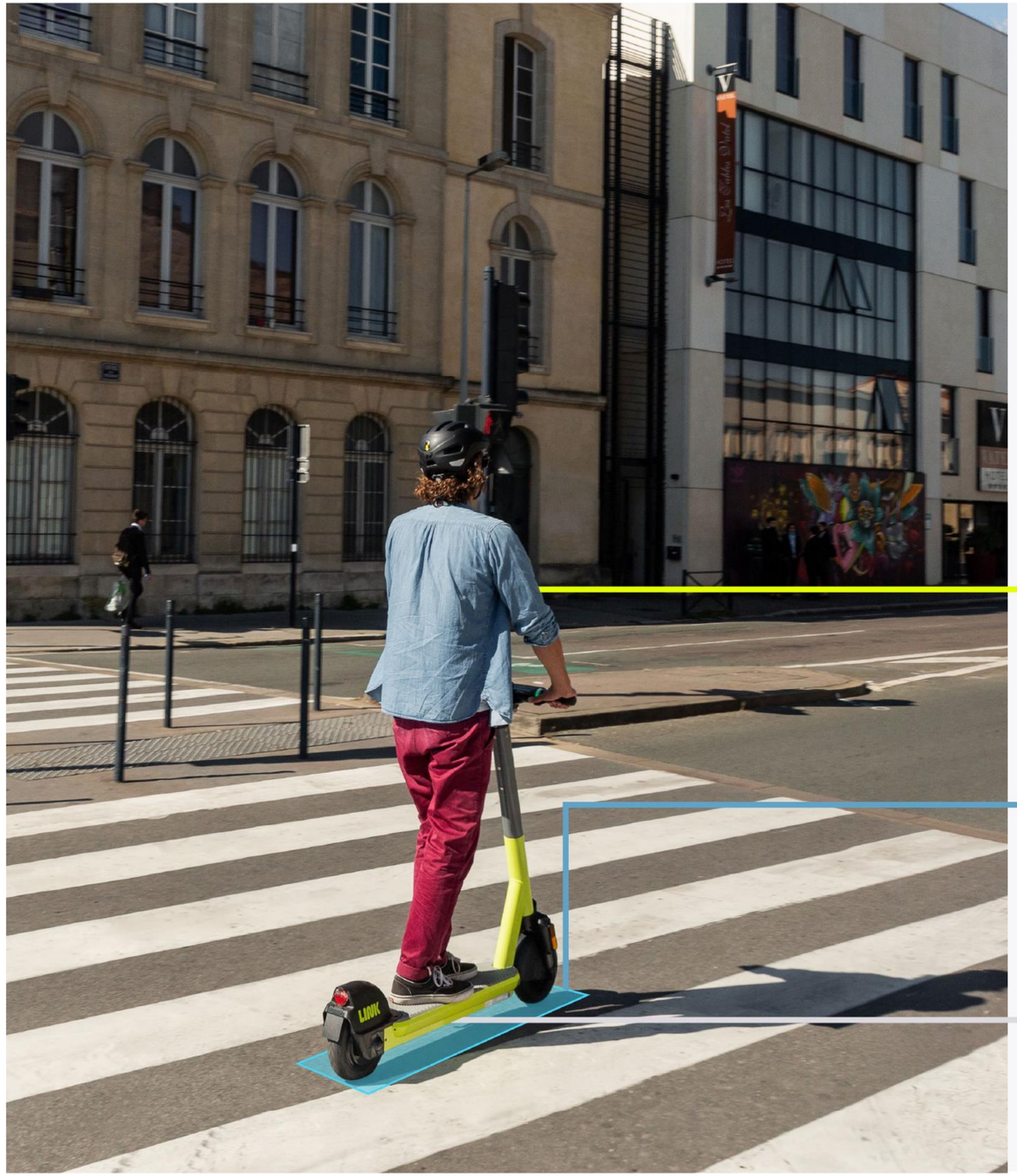
Storing city maps and geofence commands onboard the scooter improves response time and consistency



Changing behaviour

- Road riding
- Sidewalk riding
- Riding against traffic
- Hard braking
- Aggressive swerving
- Crashes
- Stop sign violation
- Hard acceleration





How it works

The three layers of systems that make Pedestrian Defense work

AI and aggregated data

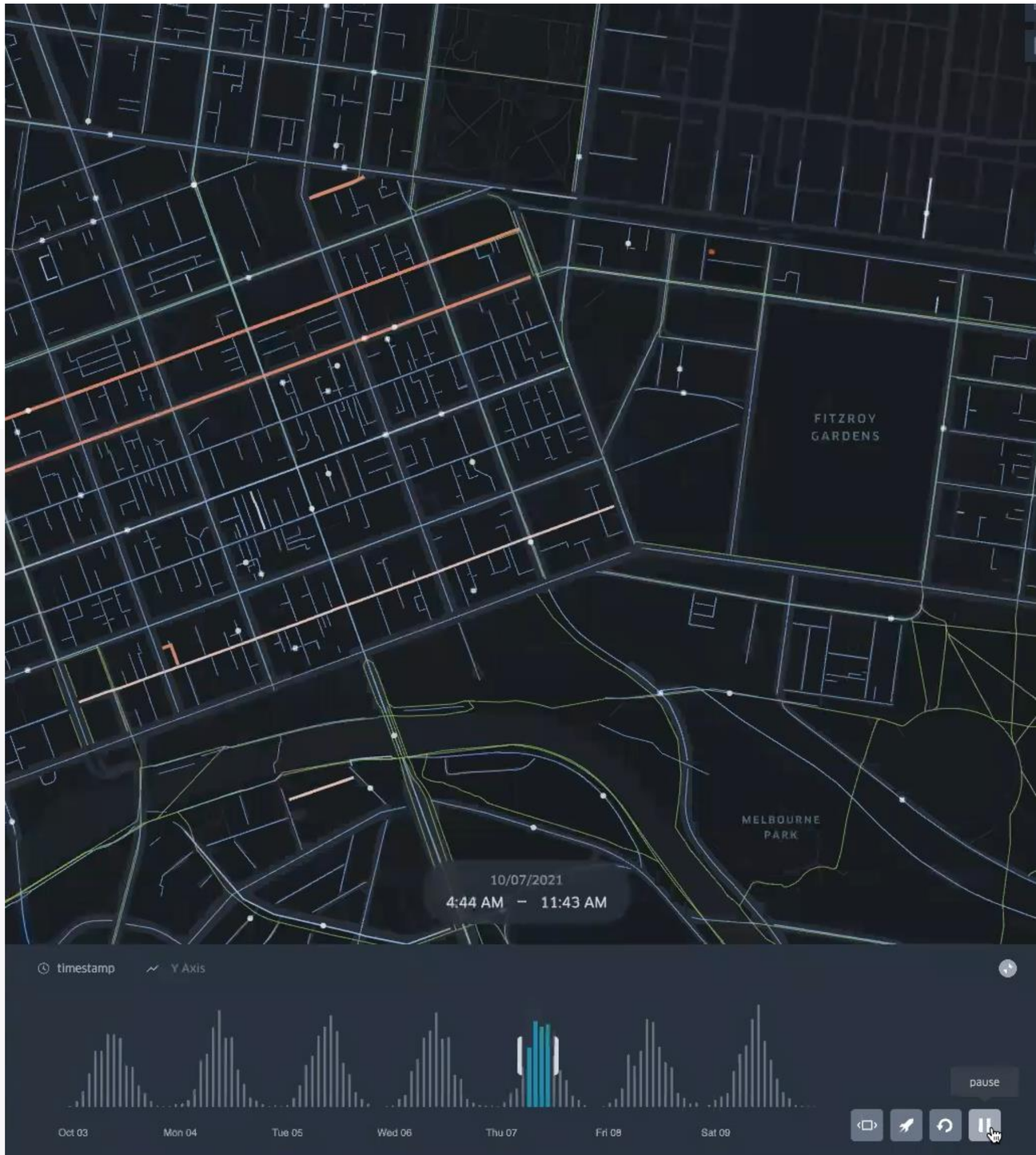
Precise positioning (cm level) **98%**

Onboard sensors and computers

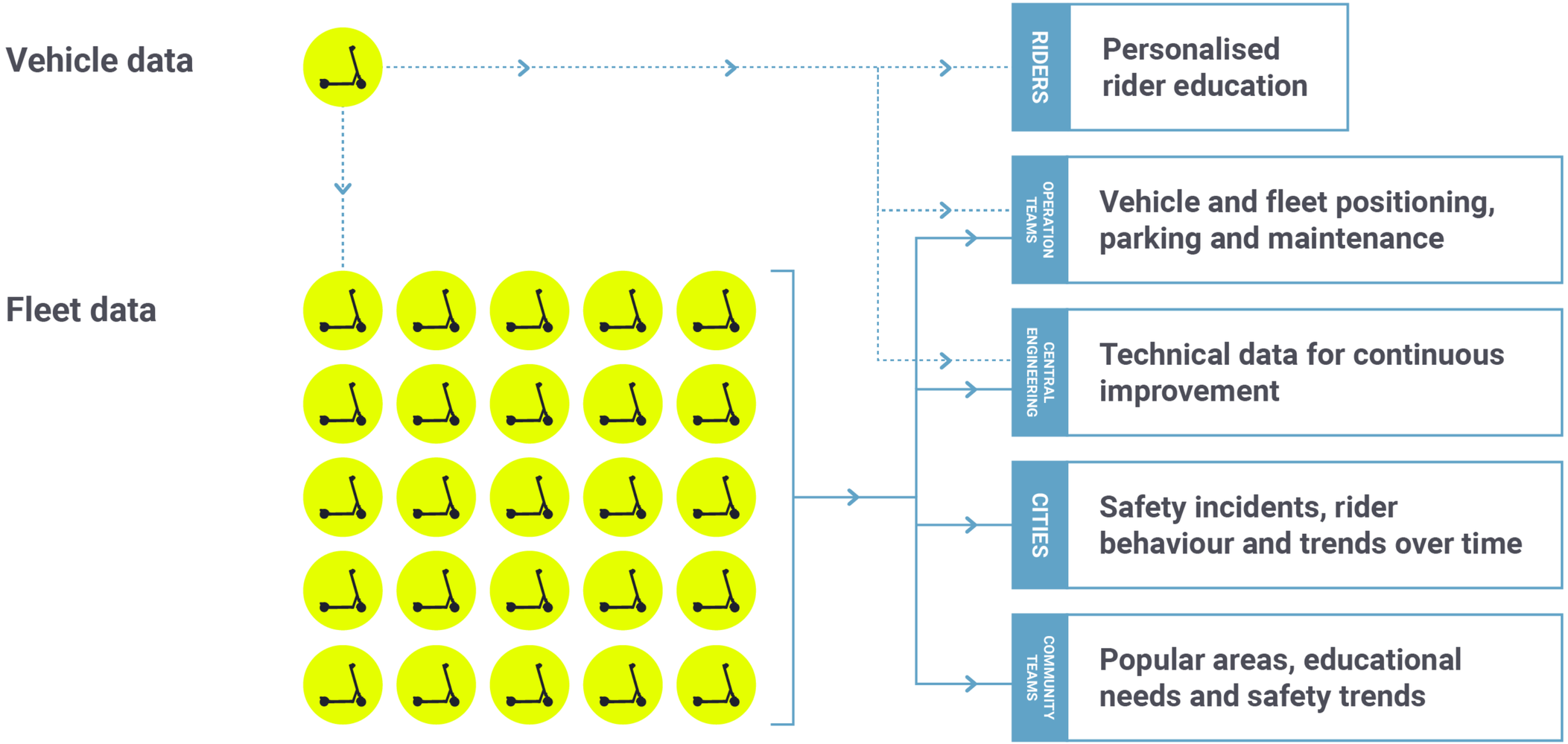
Civic Insights

Shape and shift rider behaviour at the system and community level

- Aggregate safety data across vehicles and riders
- Visualise heat map of safety incidents
- Compare safety statistics to other cities
- Understand how safety statistics improve over time



Using data to design interventions



Thoughtful mobility, from the inside out

Any questions?