AMSTERDAM INSTITUTE FOR
ADVANCED METROPOLITAN SOLUTIONS

Gemeente
Amsterdam

Responsible Sensing Lab

Designing city sensing systems that people accept

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source: AMS Institute

Toward a smart & sensing city

A tech push approach

Striving for efficiency, safety and livability

Collecting a wealth of data to solve interconnected problems

05:00 AM

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source: New York Times

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source: New York Times

THE CHALLENGE

Can we have a responsible digital city as balance between the two?

SMART SYSTEMS THAT BRING THE CITY

MORE LIVABILITY
MORE SAFETY
MORE EFFICIENCY

TENSION

SMART SYSTEMS THAT RESPECT CITY VALUES

AUTONOMY
TRANSPARENCY
HUMAN CONTROL
PRIVACY

THE SCOPE

How do we make the digital city responsible?

Legal & Regulatory

Formulating new laws to prevent undesired outcomes

Auditing systems

Methodically checking whether systems do what we expect them to do

Procurement

Specifying desired outcomes in buying digital solutions

Insourcing

Enhancing public control over digital systems by doing it oneself

Design

Redesigning sensing systems to prevent value conflicts

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SENSING SYSTEMS TODAY

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How do we design Responsible Sensing Systems?

VALUE CONFLICTS?

Can we overcome value conflicts between innovation drivers and city values?

SMART SYSTEMS THAT BRING THE CITY

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MORE EFFICIENCY

SMART SYSTEMS THAT RESPECT CITY VALUES

AUTONOMY
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PRIVACY
...

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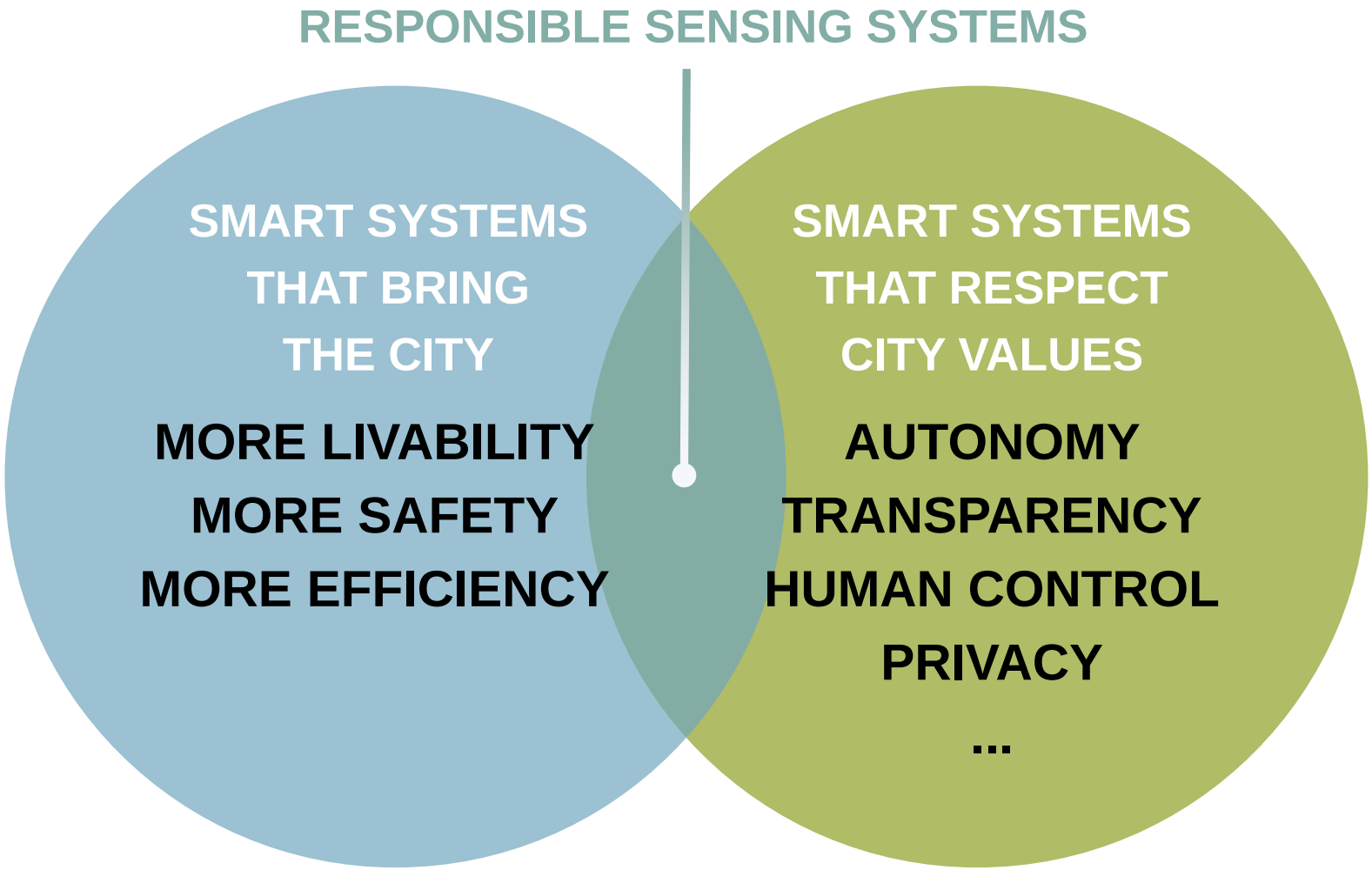
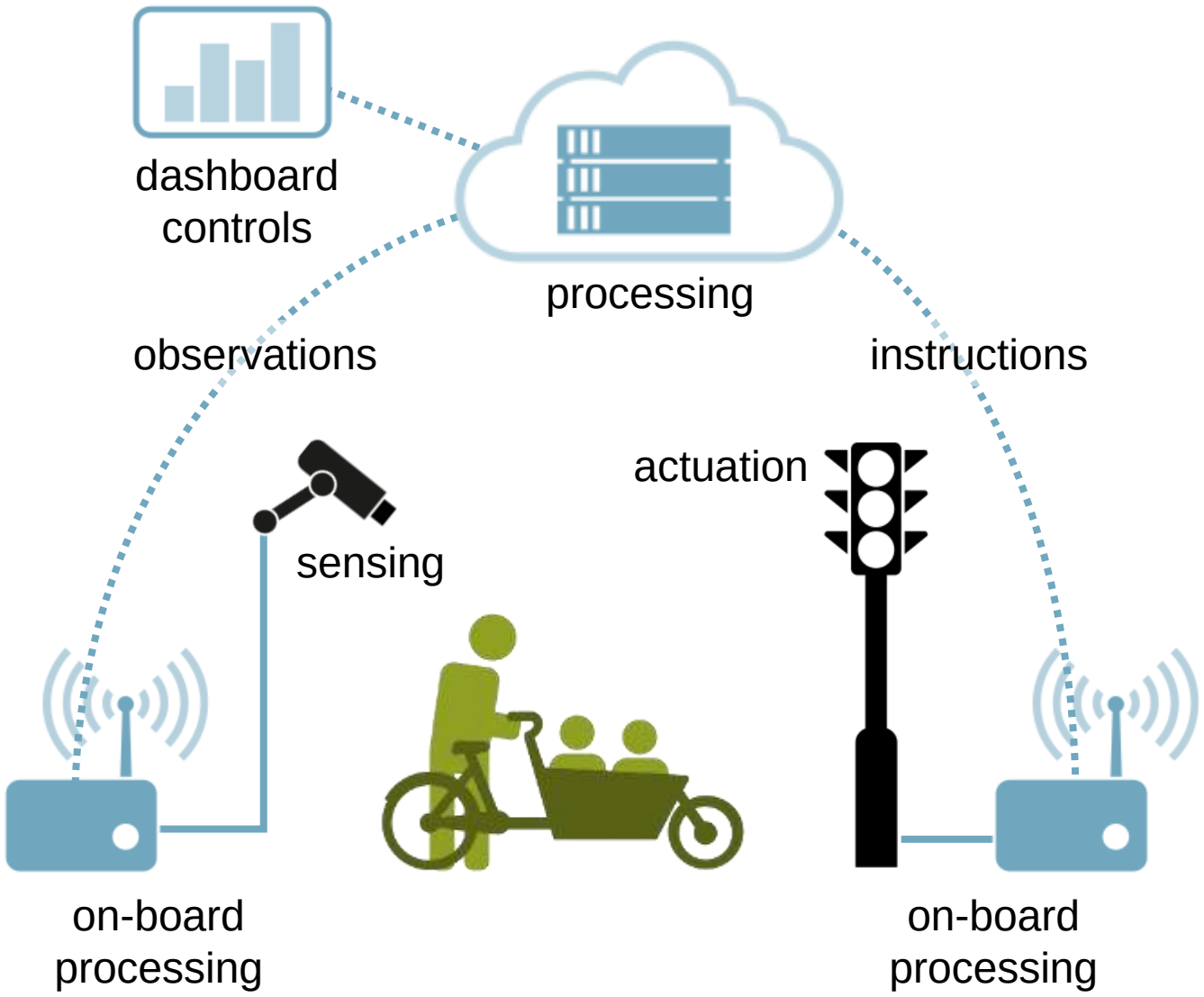
VALUE CONFLICTS?



DESIGN CHOICES



- Which type of sensor technology?
- Which local and cloud intelligence?

- What does it look like?
- Where is it placed?
- What does it explain about itself?

- How can you interact with it?
- How can you know you can trust it?
- How can you contest it?

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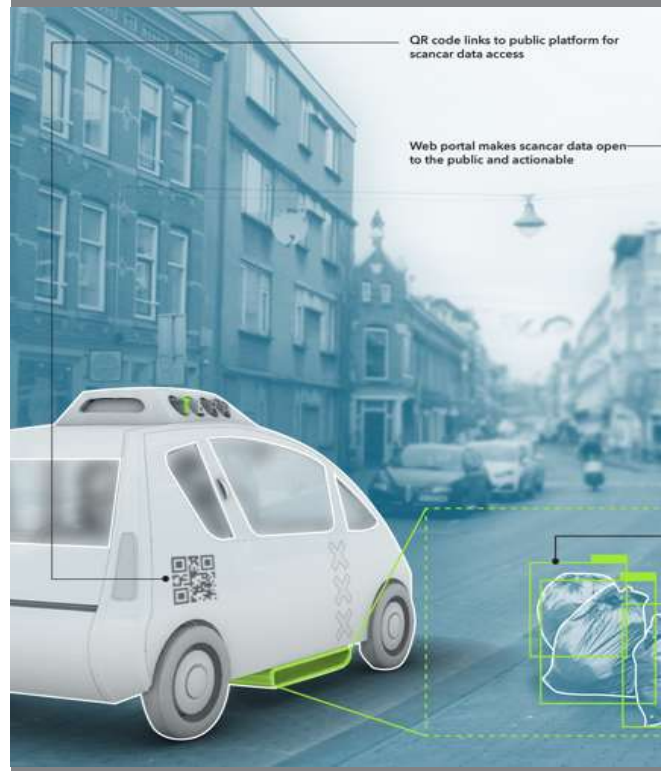
EXAMPLES

DOMAIN	INNOVATION DRIVER	CITIZEN CONCERN	RESPONSIBLE SOLUTION
Electric vehicle charging	Smart charging for efficient use of electricity grid	Lack of understanding of automatic prioritization in charging needs	Transparent charging station

EXAMPLES

DOMAIN	INNOVATION DRIVER	CITIZEN CONCERN	RESPONSIBLE SOLUTION
Scan cars	Scan cars for cost-effective collection of data on public space	Uncertainty of which data is collected	Showing what the scan car sees

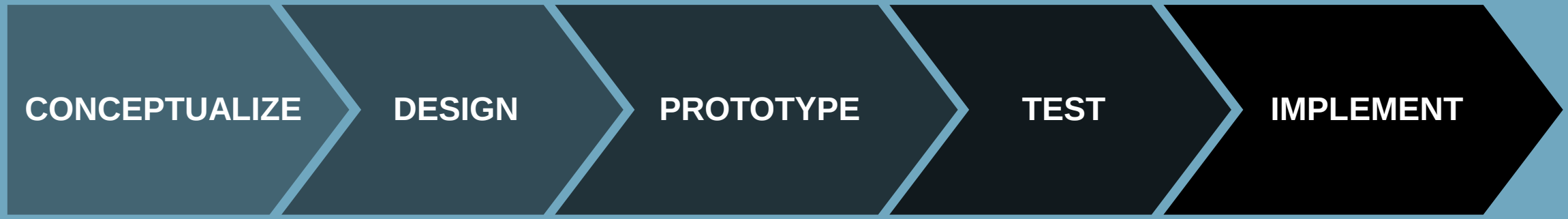


EXAMPLES

DOMAIN	INNOVATION DRIVER	CITIZEN CONCERN	RESPONSIBLE SOLUTION
Public playgrounds	Sensor-based usage data collection for efficient playground planning	Kids' privacy	No-camera, millimeter wave sensing

DESIGN PROCESS

WE REDESIGN SENSING SYSTEMS INTO RESPONSIBLE SYSTEMS



- With and for public owners of sensing systems
- With academic partners
- Fast prototyping
- Marineterrein as a test location

GOALS 2020

CONCEPTUALIZE | DESIGN | PROTOTYPE | TEST | IMPLEMENT

- Set up lab organization
- Execute design projects (5 concepts and 3 prototypes)
- Set up sensor showroom

GROWTH MODEL

2020

CITY OF AMSTERDAM

start 2021

POLICE
ENERGY COMPANIES
WATER
MANAGEMENT
TELECOM

end 2021

OTHER EUROPEAN
CITY REGIONS
INDUSTRY PARTNERS

PARTNERS

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marineterrein amsterdam

TU Delft

JOIN US!

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YOUR CHALLENGE

Our offer:

- An executed process to explore, design, prototype and test your challenge
- Internationally acclaimed design researchers
- Space for prototyping and testing at Marineterrein

Your commitment:

- A case (a digital physical system meant to sense, analyze and ultimately steer)
- Time of your project team
- Interest in implementing any solution on your roadmap

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WHY FOCUS ON DESIGN?

Citizens experience the city in physical space

Sensors are their touchpoints with invisible digital systems

Current sensing systems are ‘non-designed’

Data-minimization by design

Design as an opportunity to empower citizens, and to gain trust

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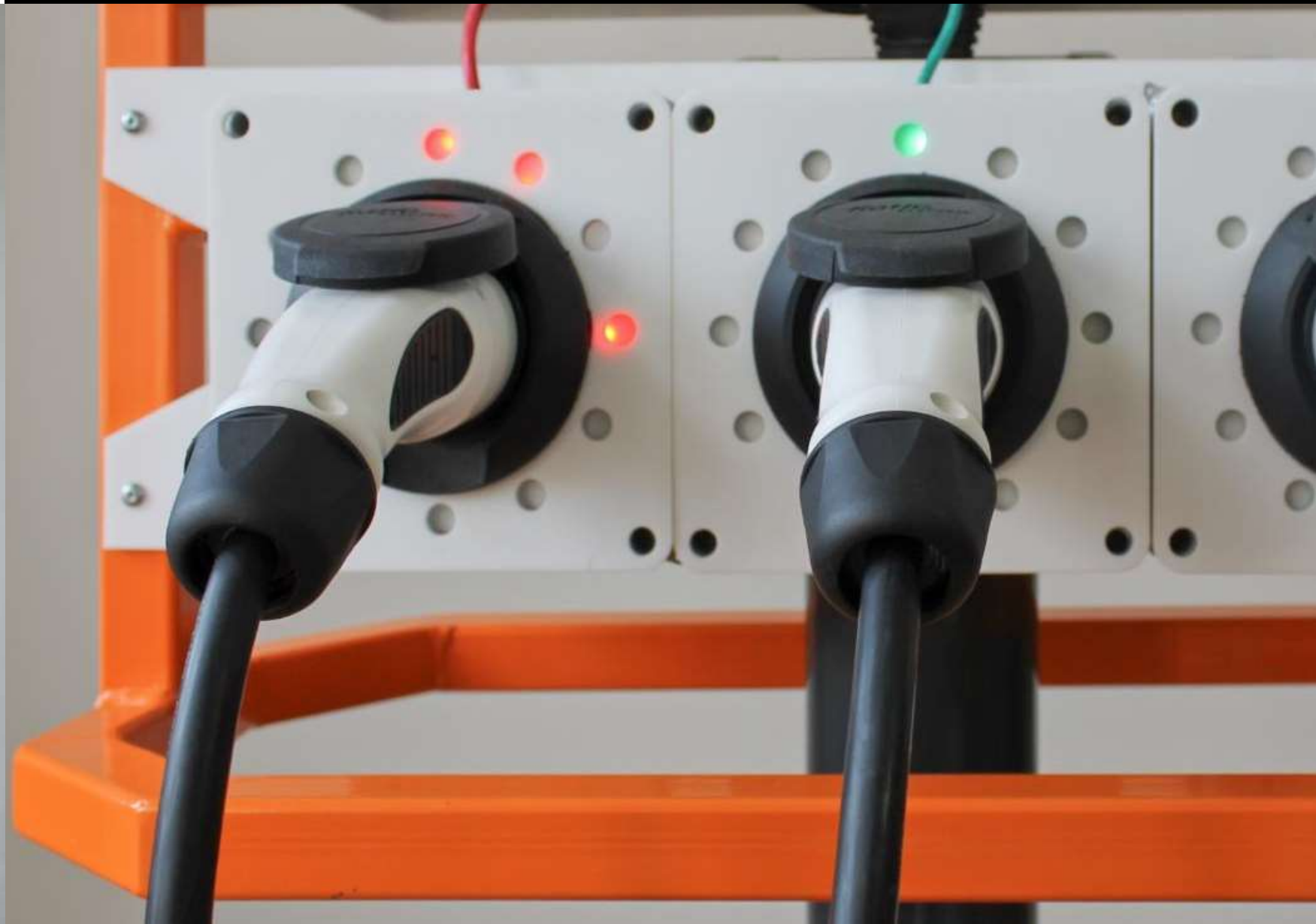
TRANSPARENT CHARGING STATION



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HUMAN SCAN CAR

QR code links to public platform for scan car data access

Web portal makes scan car data public and actionable

Scan car searches its environment for objects like trash, donated furniture, or missing bikes

AR tool creates transparency on what types of information the scan car collects