

Telraam

“Combo of innovative citizen science and local cohesion ensures modal shift and reduced emissions when school streets are introduced” - Wouter Florizoone (Telraam)

POLIS Conference 29/11/23

Telraam, a spin-off company by and



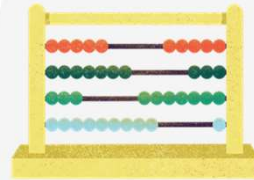
SMART PEDAL PITCH 2023



Velo-City LEIPZIG 2023    

Tel - raam

Counting - window



Telraam = abacus

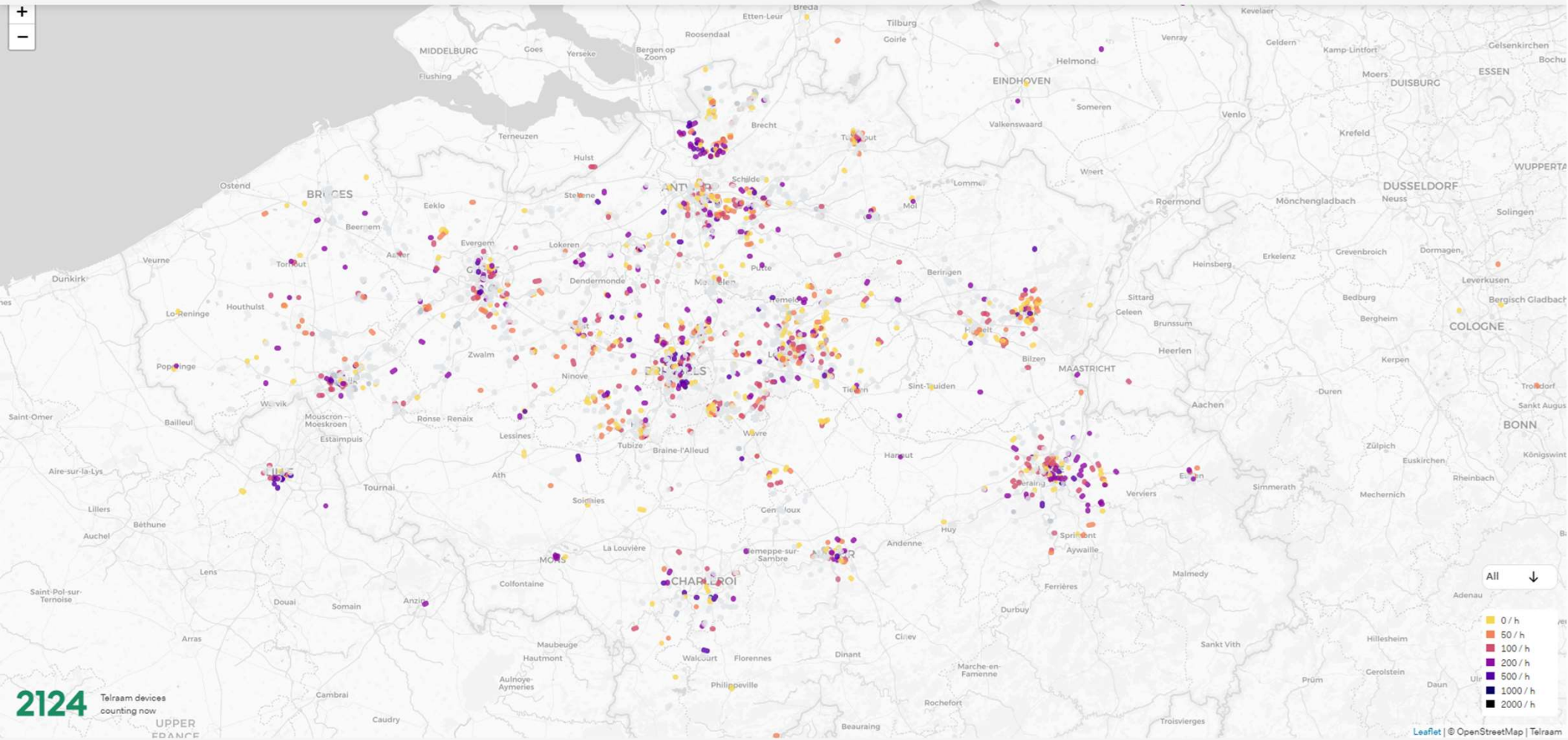
Telraam, the product

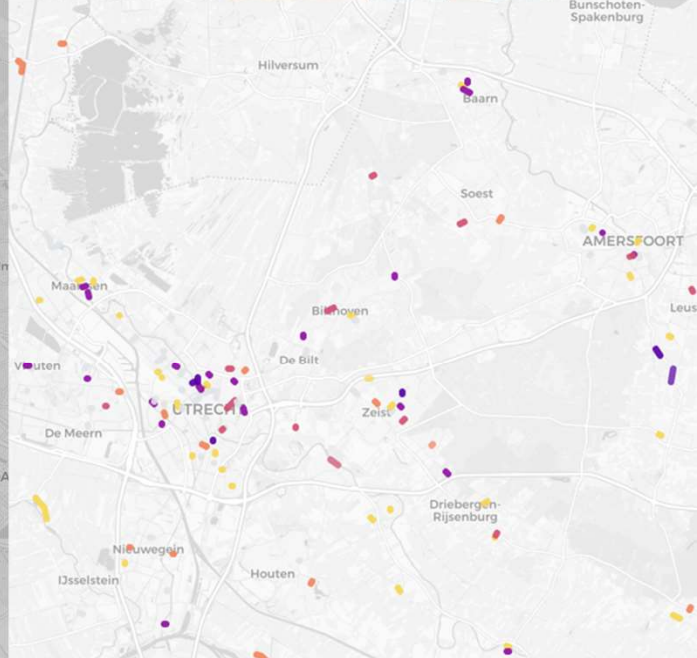
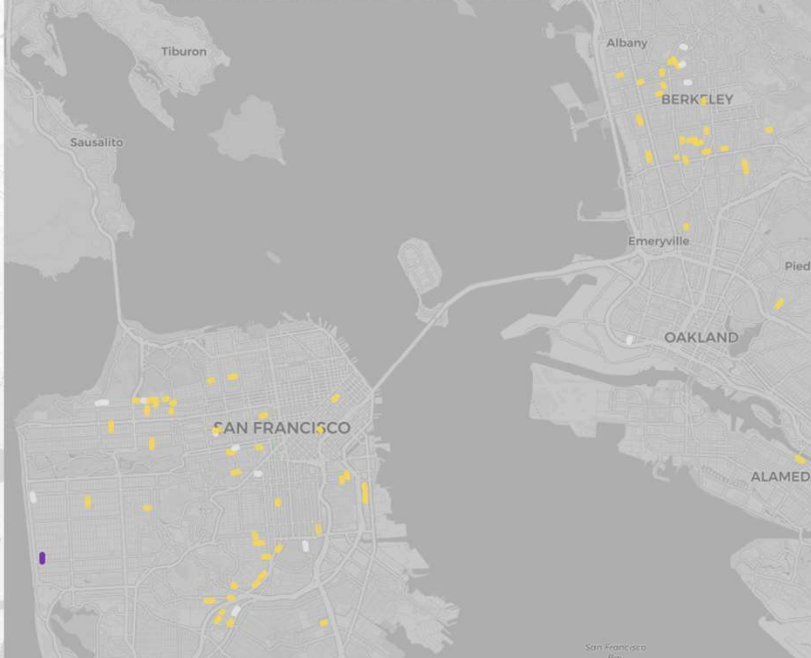
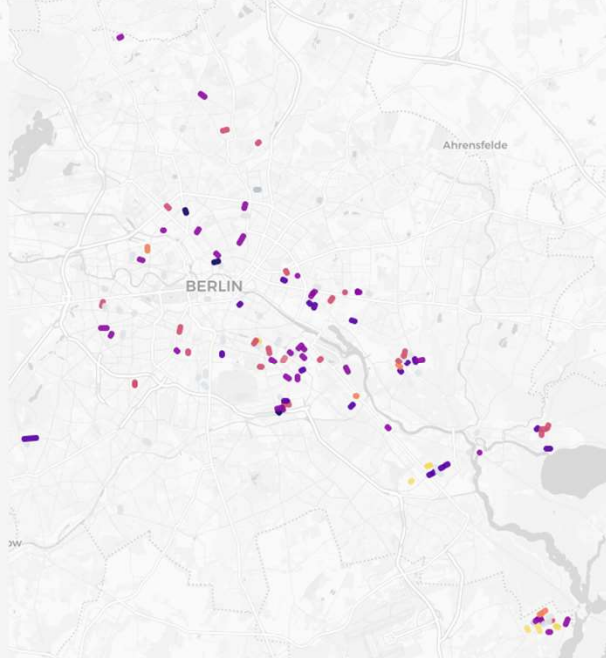
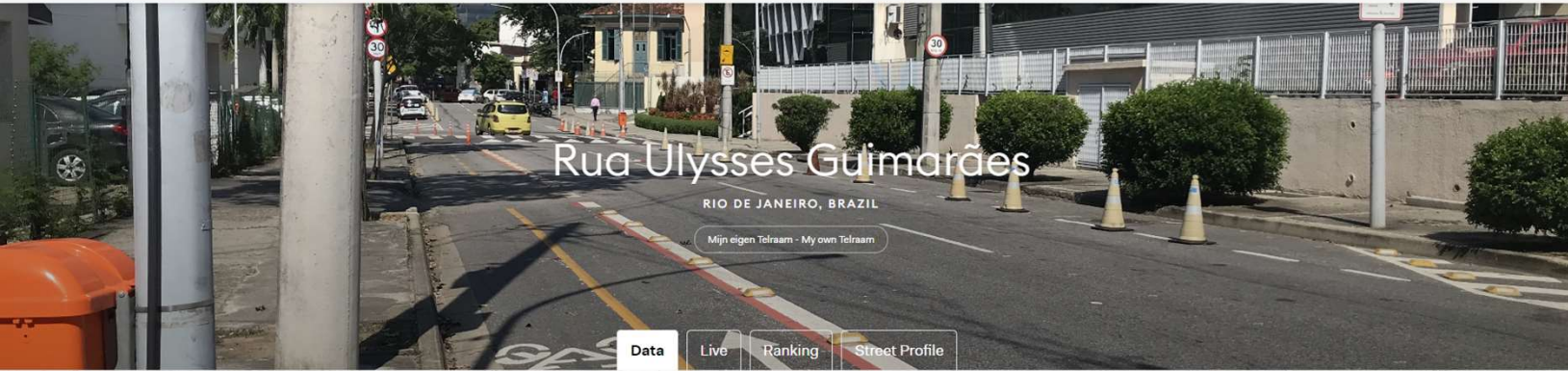


V1 (3/2019 > 1/2023)



S2, from 2/2023





Telraam, a sensor in the window



A sensor in the window with a camera that counts continuously (in daylight*) and is able to distinguish **multiple modes, direction** and average **speed** (cars):

V1 DATA CATEGORIES

Pedestrians

Two-wheelers

Cars

Heavy vehicles

S2 DATA CATEGORIES

Pedestrians
Strollers

Bicycles
Motorbikes

Cars

Vans
Trucks
Buses
Trailers
Tractors

**night counting functionality in development & testing*

Uses of the Telraam S2



Compact

All-in one & elegant design
LCD interface

Easy to install

10' installation process
Plug & play

AI generated counts

Ability to improve through
machine learning

Night counts *

Counting motorised
vehicles in darkness

More traffic data

Expanding to more modes
15' typical traffic

* night counting functionality in development & testing



**In partnership with citizens,
local authorities, schools etc.**

COMPAIR

Pilot project in Herzele
(Belgium) - traffic sensors



Schoolomgeving Herzele verbeteren met een schoolstraat?

DENK MEE, MEET MEE, VOLG MEE!



Werk mee aan veilige/gezonde schoolomgevingen in Herzele

- Meet mee verkeer en luchtkwaliteit in de schoolomgeving
- Bekijk meetgegevens via de QR-code of via wecompair.eu/flanders
- Doe mee aan de workshops!



 Dit project is gefinancierd door het onderzoeks- en innovatieprogramma Horizon 2020 van de Europese Unie in het kader van subsidieovereenkomst nr. 101036563

V.U.: Lieven Raes
Havenlaan 68, 1000 Brussel

Goals?

- Examine **impact** of a 'schoolstreet' on both traffic and air quality;
- **Raise awareness** (among pupils, citizens, teachers, municipality etc) about traffic and air quality via participatory experiments, workshops and dashboards;
- **Encourage a modal shift.**

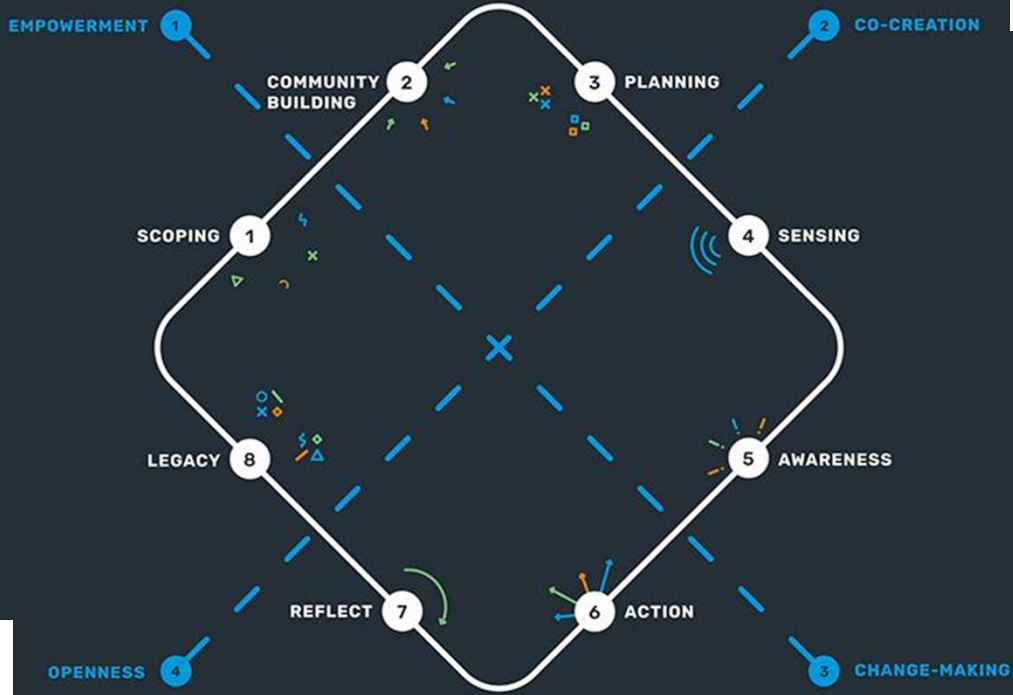
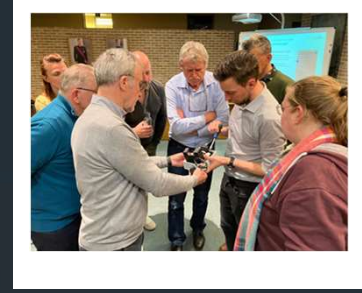
What is a 'schoolstreet' ?

- Street at start and end of school day '30 minutes exclusively reserved for pedestrians and cyclists'
- Increase safety of pupils at start and end of school day
- Exception for emergency services, buses and vehicles with permit to pass (neighbours).



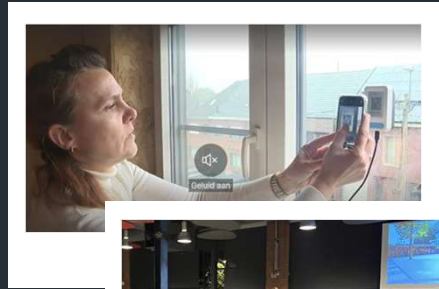
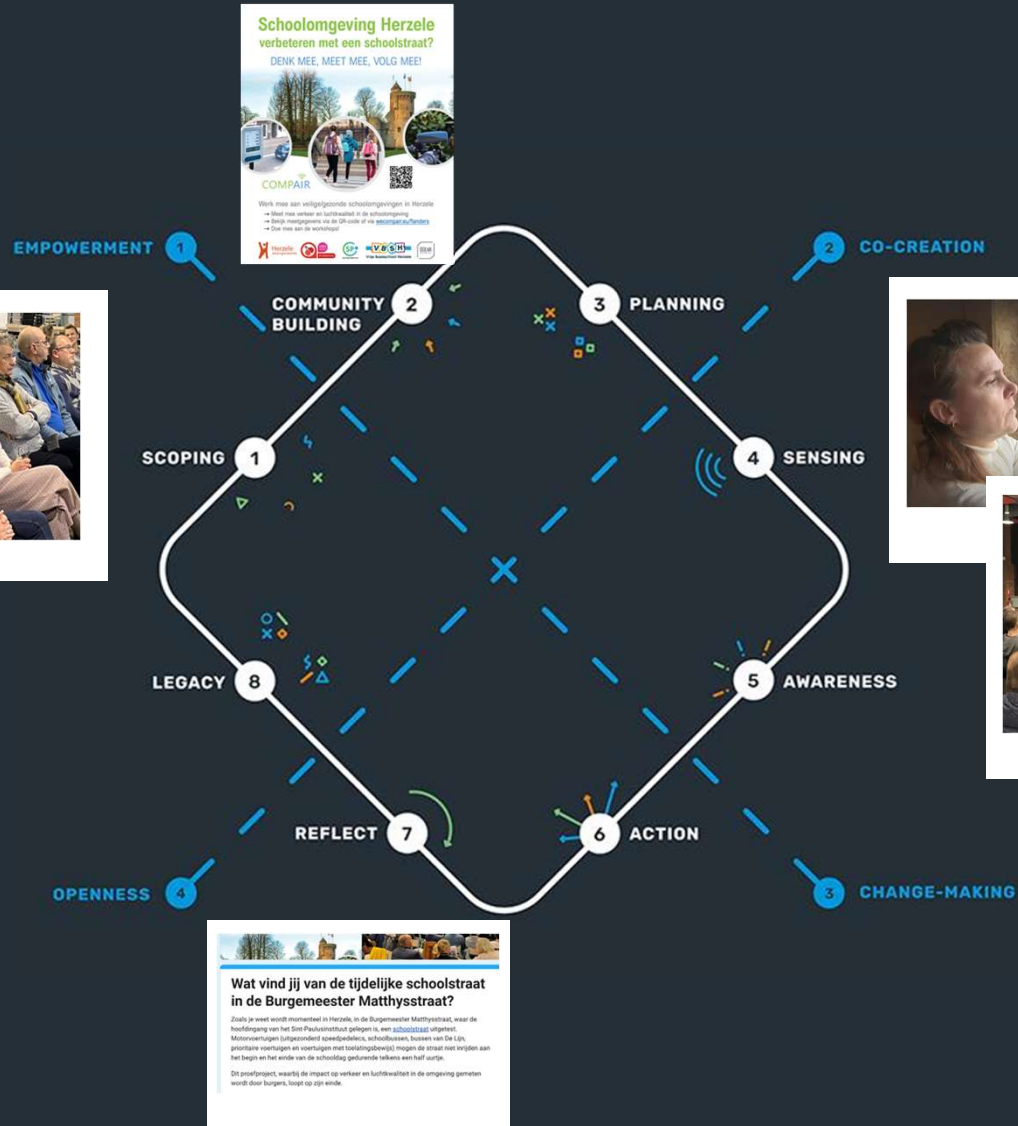
The making sense framework

Citizen Sensing (Gonano-project.eu)



The making sense framework

Citizen Sensing (Gonano-project.eu)



Information sessions, workshops, traffic lessons, ... many do/did participate!

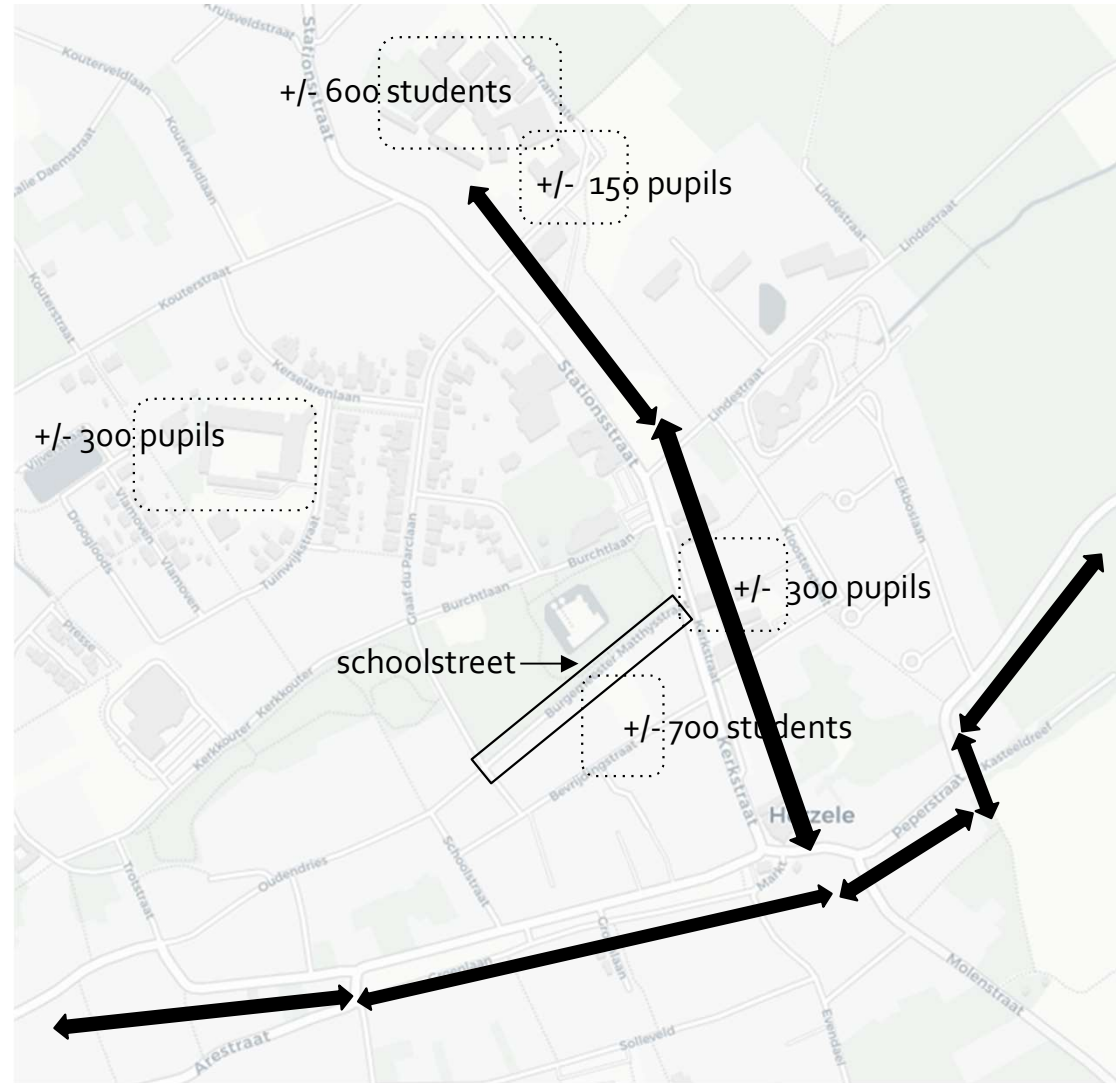


Situation (before)

5 schools (+/- 2.000 pupils)

Traffic intensity

- north-south axis : connecting road
- east-west axis: connecting road

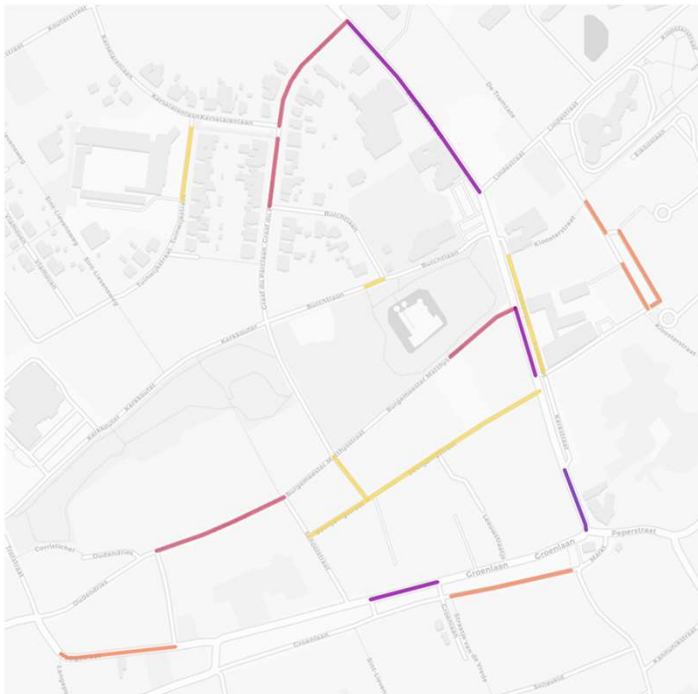




Traffic counts

21 Telraam S2 devices in the centre of Herzele

- 17 Citizens
- 3 Schools
- 1 Town hall

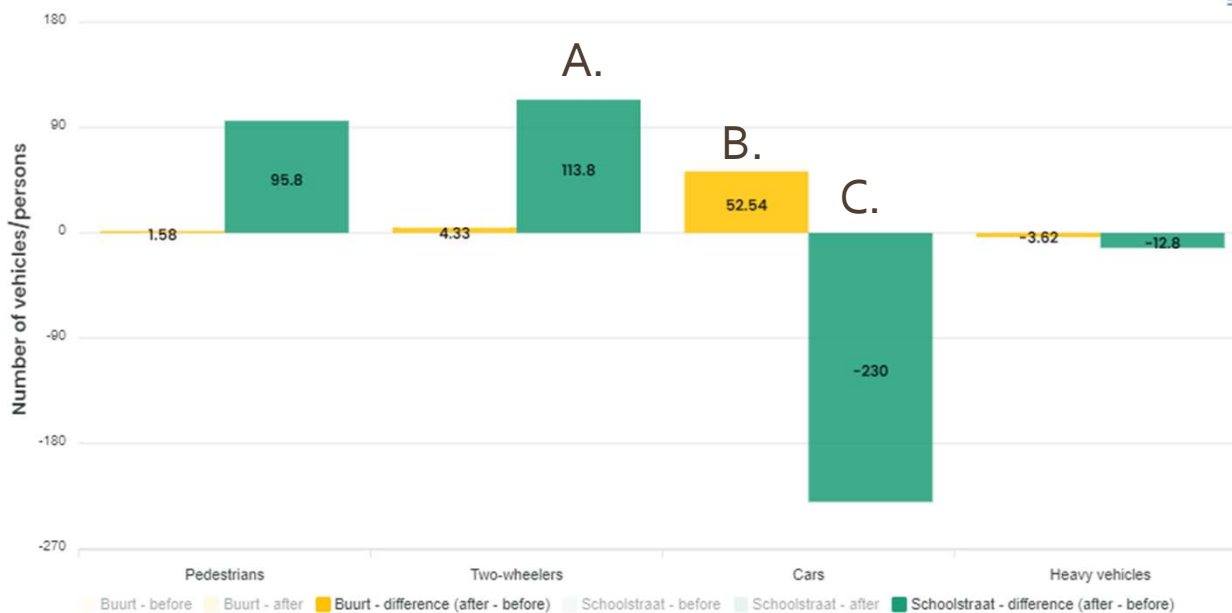


Policy Monitoring Dashboard

Quickscan
20/03/2023 - 24/03/2023
08/05/2023 - 12/05/2023

> Learn more about Quickscan graphs

Impact on Traffic ⁱ



Findings:

- A. Increase in bicycle traffic in school street
- B. Slight increase in car traffic in neighbourhood
- C. Decrease in car traffic in school street



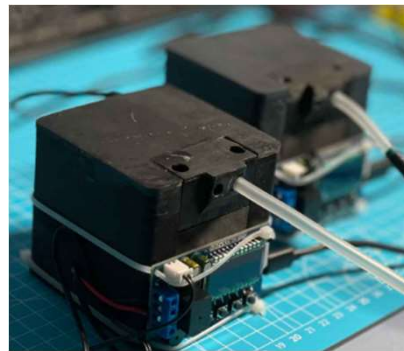
Pilot project in Herzele
(Belgium) - air quality



Air quality sensors in Herzele



Nitrogen dioxide
NO2 / NitroSense



Black carbon
BC / bcMeter

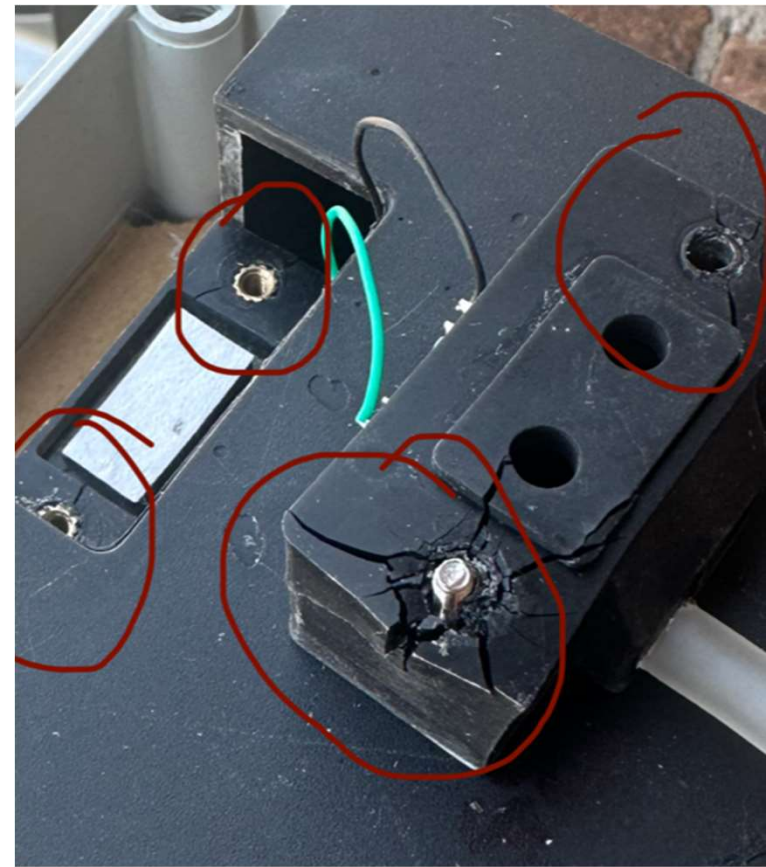


Particulate matter
PM (2.5) (10) / Luchtpijp



Particulate matter
PM (1) (2.5) (10) / SODAQ Air

Citizen science is...



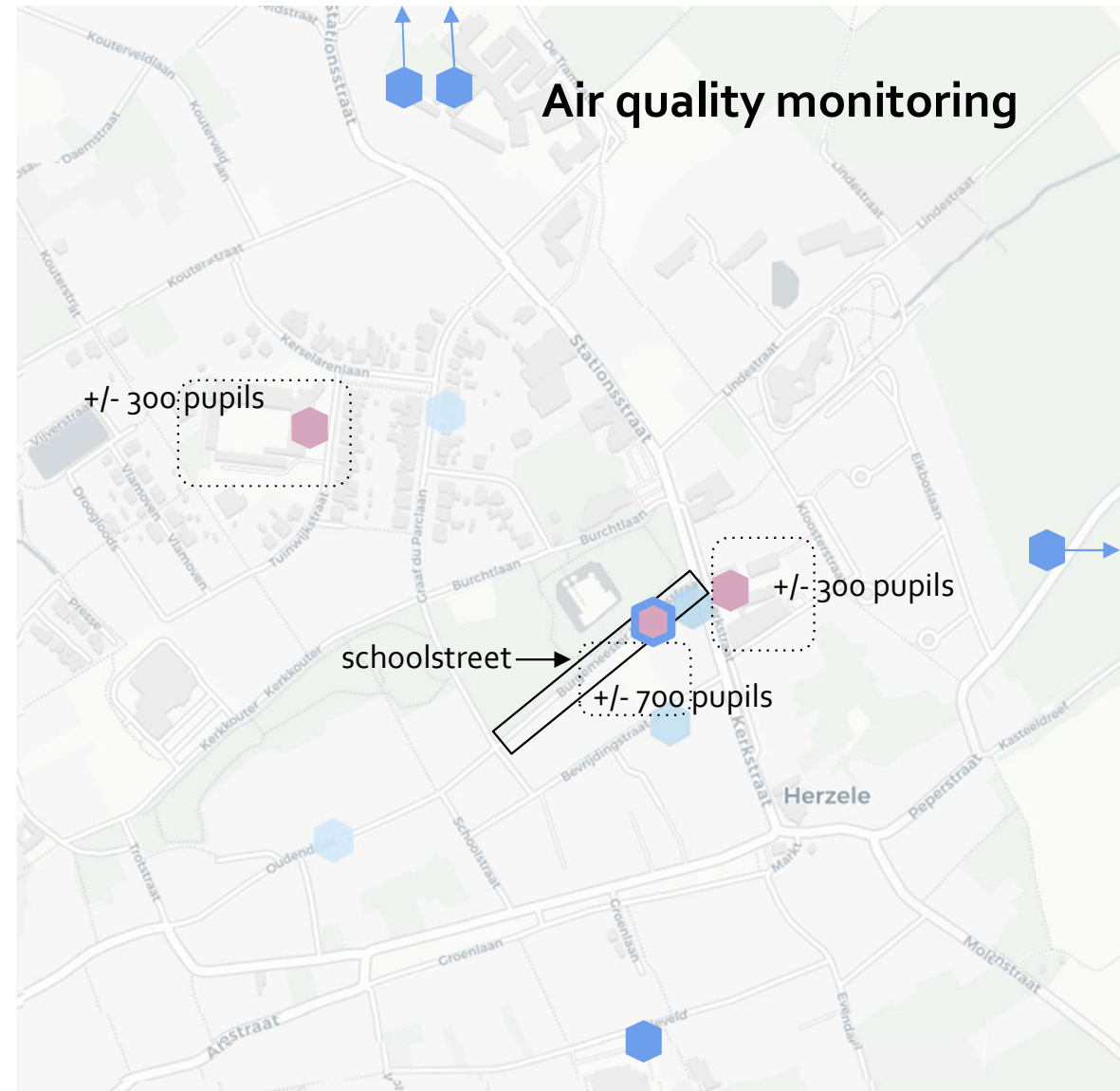


Air quality

Local situation

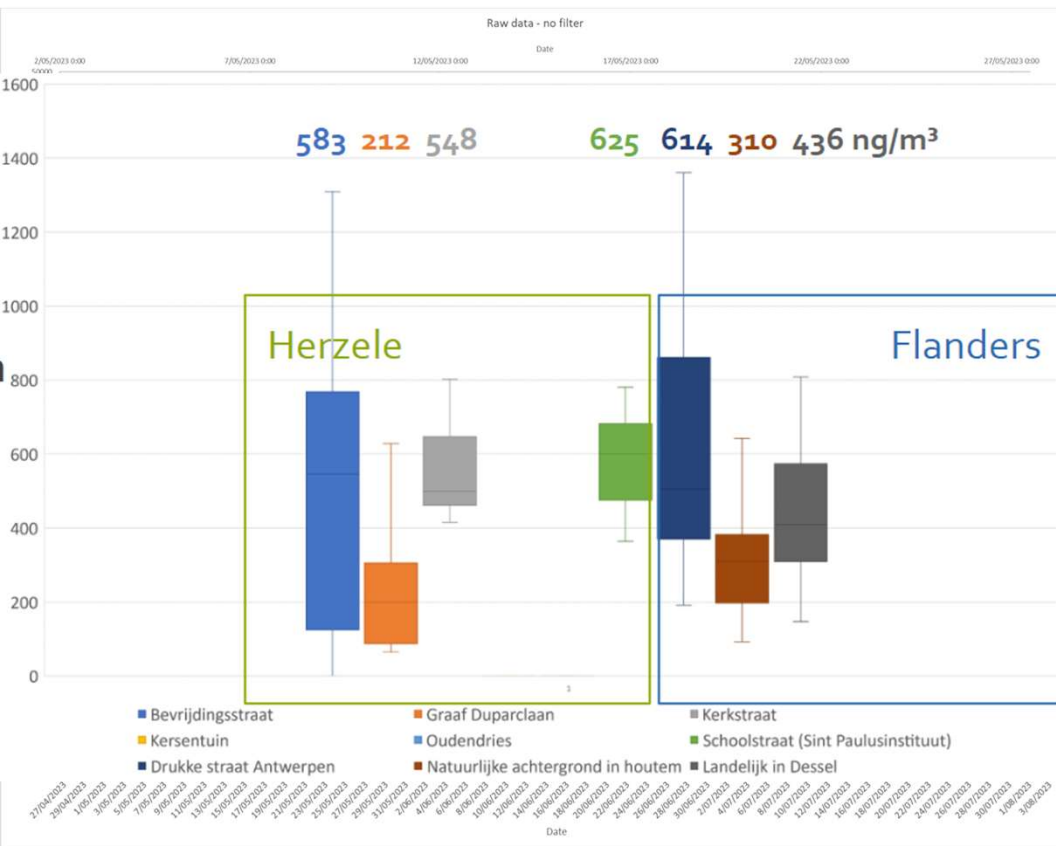
15 devices

- 1 NO₂ sensor in the schoolstreet
- 4 NO₂ sensors as a reference
- 4 BC-sensors with citizens
- 3 BC-sensors with schools
- 3 PM-sensors with schools



Air quality

Data optimisation



Data cleaning

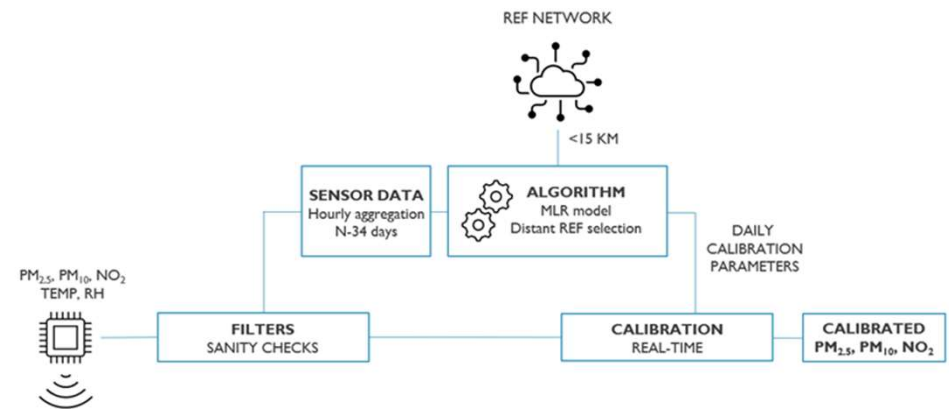
- Typical problems high-frequency sensor measurements
- Different statistical cleaning methods (filtering, smoothing)
- Result comparable to reference measurements in same period

Air quality

Data optimisation

Data calibration

- Combination reference network and sensor boxes
- Based on VLAIO DenCity calibration pipeline
- Benchmarking cf VMM quality framework ongoing



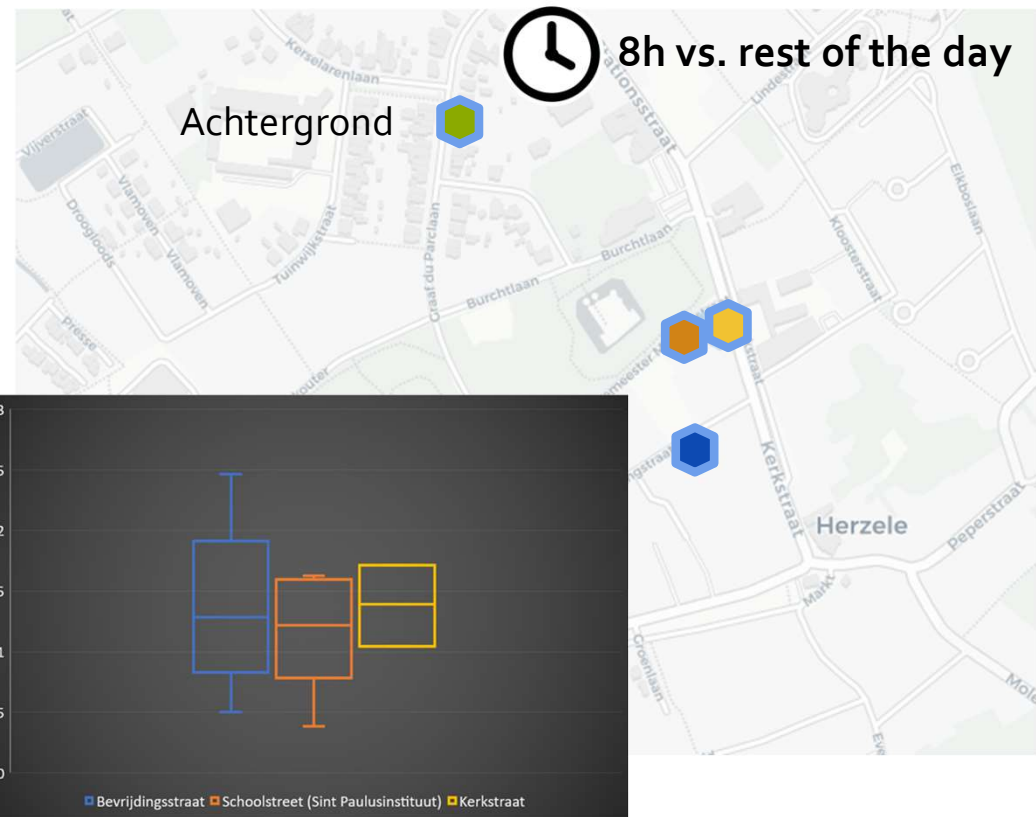
Air quality

Impact & best practices

Impact schoolstreet on black carbon

"Indication that local contribution is 19% lower"

- Local contribution compared to background location
- Time when school street is active vs. all other hours of the day



Learned lessons

- Participatory approach pays off
 - in terms of data collection
 - in terms of design / citizens are local feelers
 - as inspiration and support for (flanking) measures
- Small municipalities can also be smart, data-driven and participative (if supported);
- Low-cost sensors can be used in combination with professional sensors in policy decisions;
- Increase in cases/projects illustrates a more mature market, both in terms of sensors and applications;
- Standardisation increases product uptake.



Telraam

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