SUSTAINABLE PLACES 2023

Outdoor Health and Well-being Digital Interface

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Varcities Project

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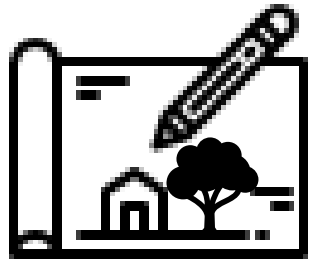
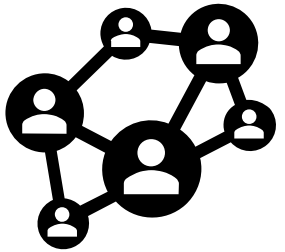
- Design nature-based solutions which contribute to the shaping of future cities and the well–being of citizens **Visionary Solutions (VS)**



- Monitor and assess the sustainability and the impact of interventions through advances KPIs **IoT Sensors Network toward health and wellbeing**

  THIS PRESENTATION

- Improve the sustainable transition to smart and future cities by creating Governance, Business, and Financing frameworks **local stakeholders network and structure**



- Include various stakeholders in the co-design process and inspire sustainable and resilient future smart cities **local design inputs**

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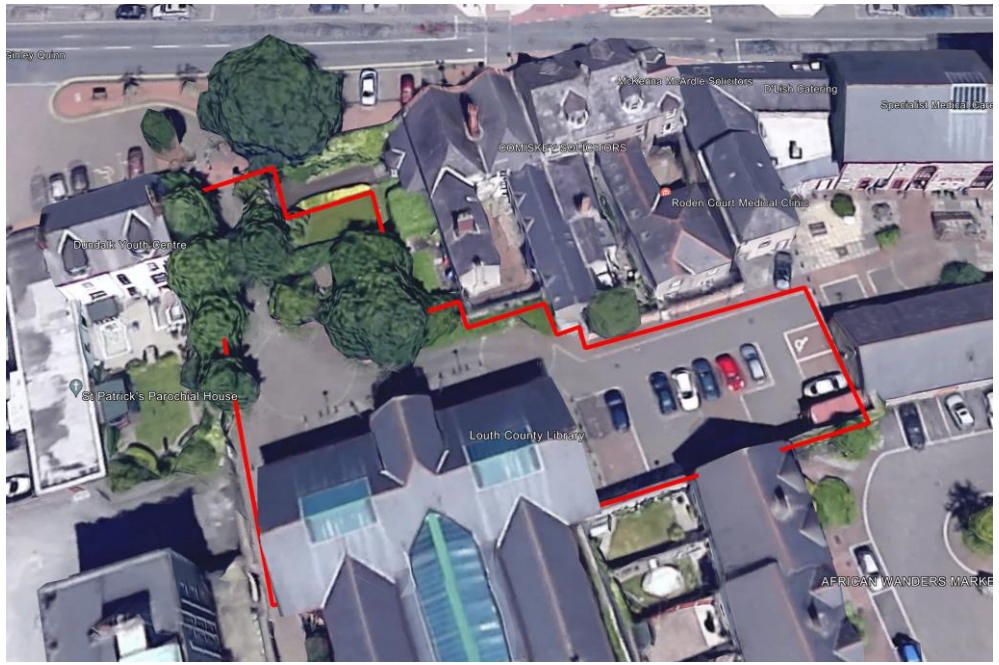
A quick overview of the Varcities project

VS

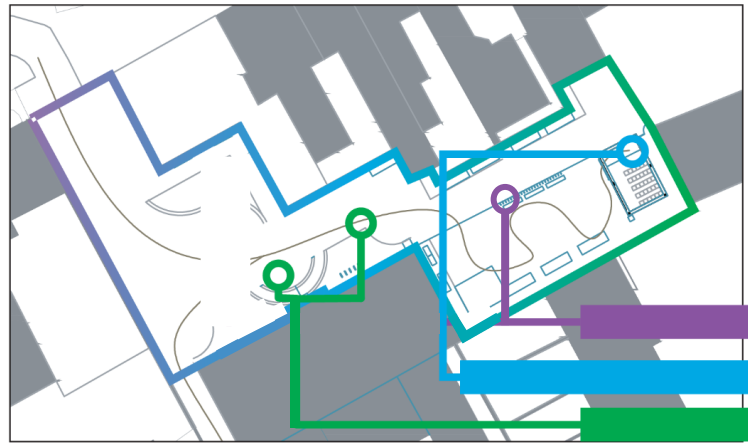
Dundalk Pilot Site Design VS that Support NbS



VS

- **Sensory Garden**
- **Learning Pod**
- **Bike Stations**

The Visionary Plan



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IoT

Castlefranco Veneto Pilot Site IoT Sensors

Sensors

- Temperature
- Humidity
- CO_2
- Wind Speed
- Air Pressure
- Solar Radiation
- NO_2
- VOC

- Water Sensor

Local Stakeholder & Co-governance

Chania's VS2 presented at Genova Smart Week 2022

Chania Local Stakeholders and Skelleftea Co-design

1st Co-creation workshop in Skellefteå

June 2021

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IoT Dashboards

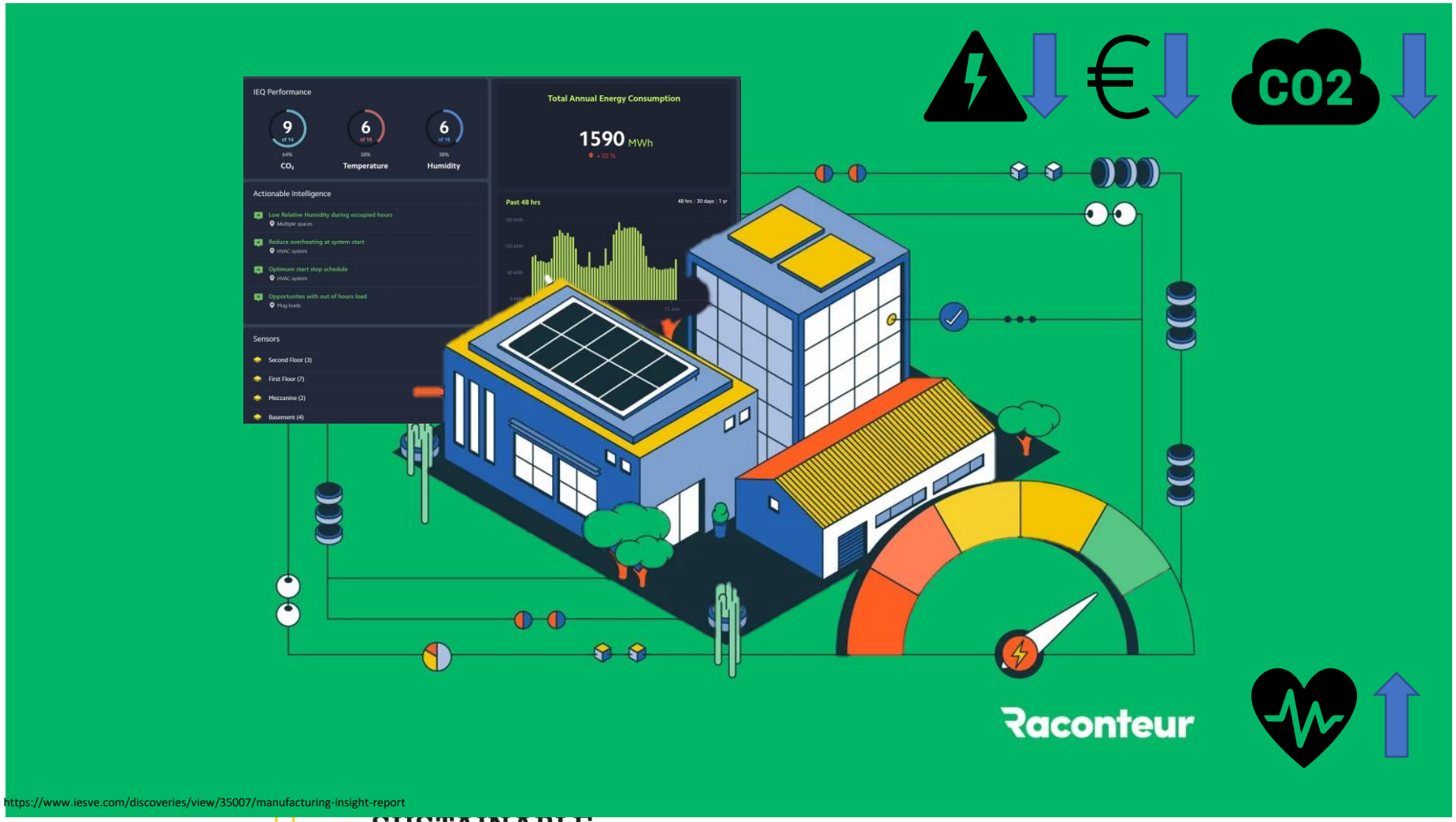
- **You cant manage what you can’t measure**
  - Peter Drucker

IoT Dashboards in Buildings

https://manuals.plus/milesight/am103-868m-indoor-ambience-monitoring-sensor-manual

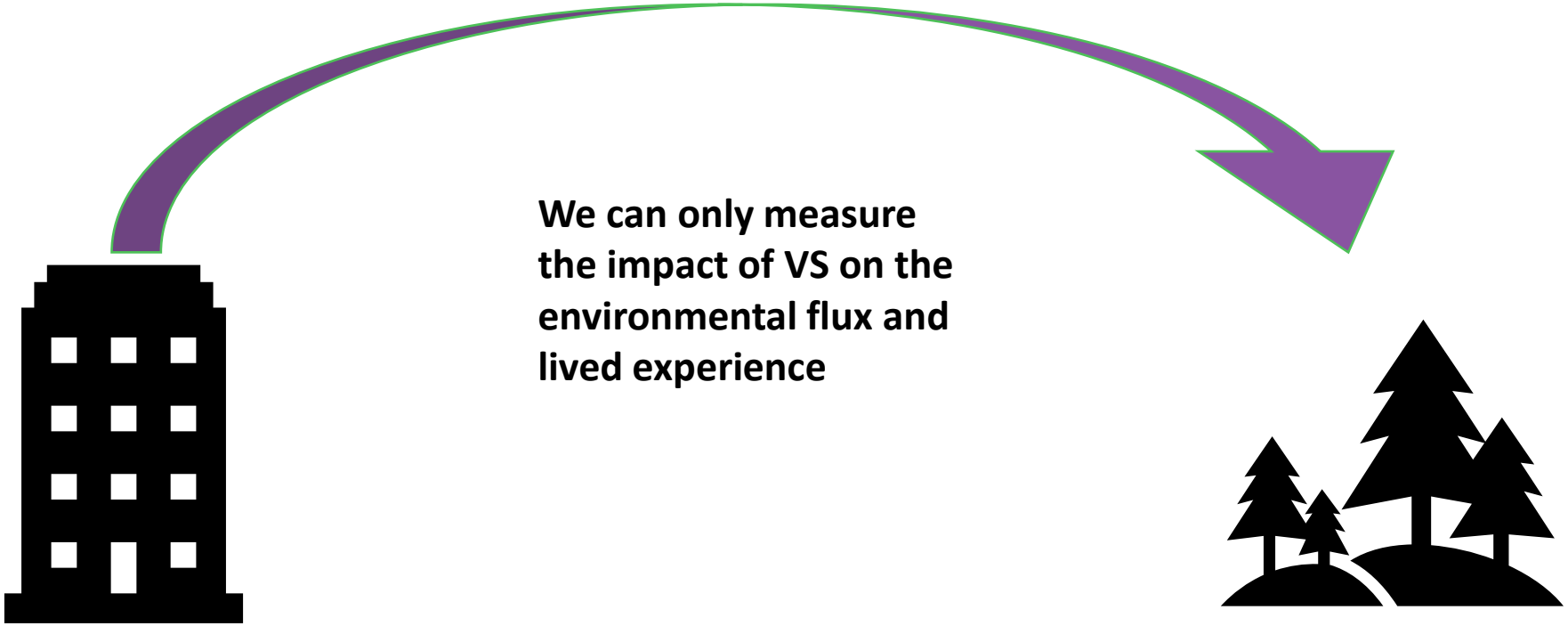
https://www.iskra.eu/en/Smart-energy-meters/

https://shop.bb-sensors.com/en/Measurement-by-branches/Building-automation/Brightness-sensor-with-measuring-transducer-0-10-V.html



https://www.iesve.com/discoveries/view/35007/manufacturing-insight-report

Cross over from indoor sensors to the out outdoor sensors



We can only measure the impact of VS on the environmental flux and lived experience

Outdoor Sensors

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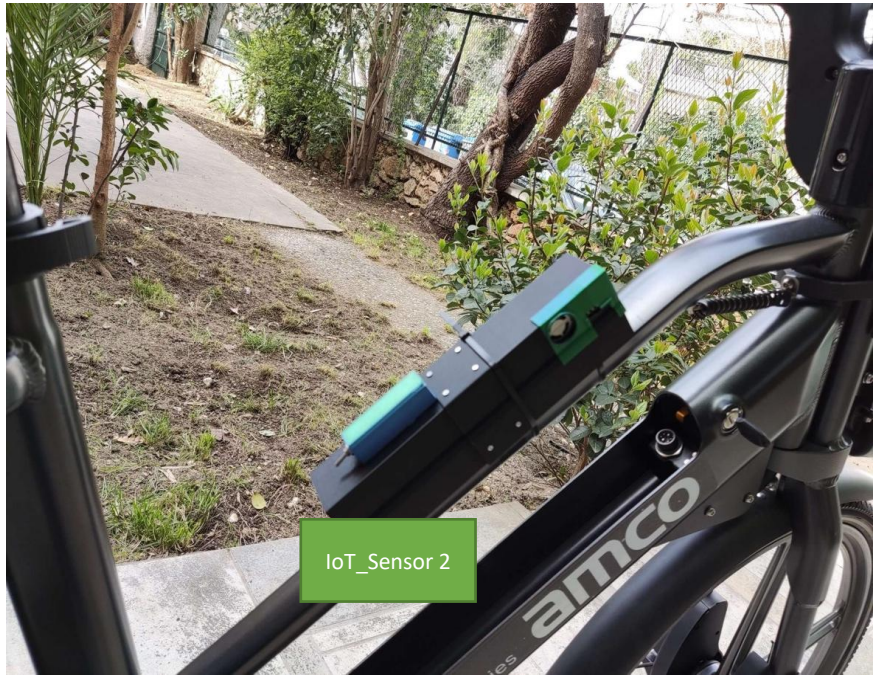
Stationary Sensors

sensedge

- Temperature
- Humidity
- CO_2
- Wind Speed
- Air Pressure
- Solar Radiation
- NO_2
- VOC

Mobile Sensors



CYCLOPOLIS
URBAN MOVE CREATORS

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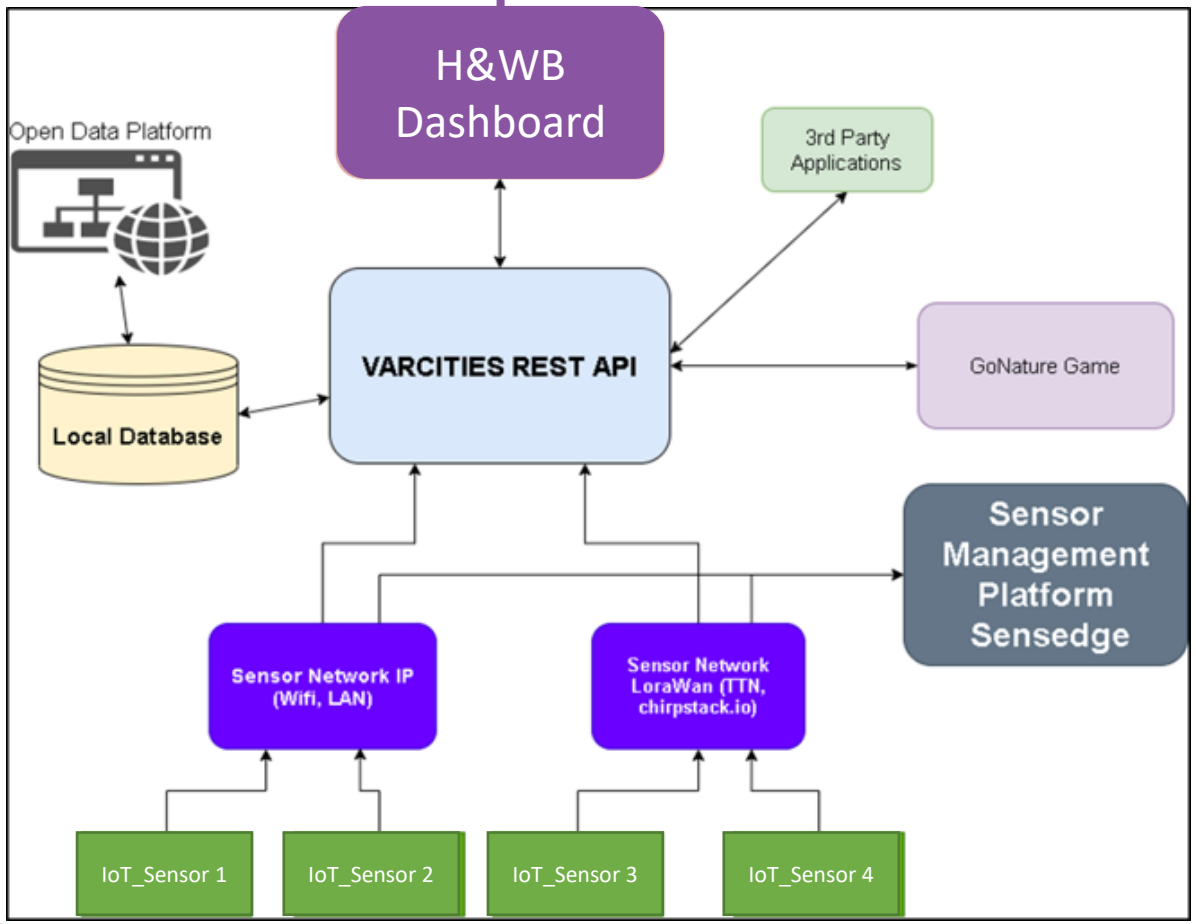
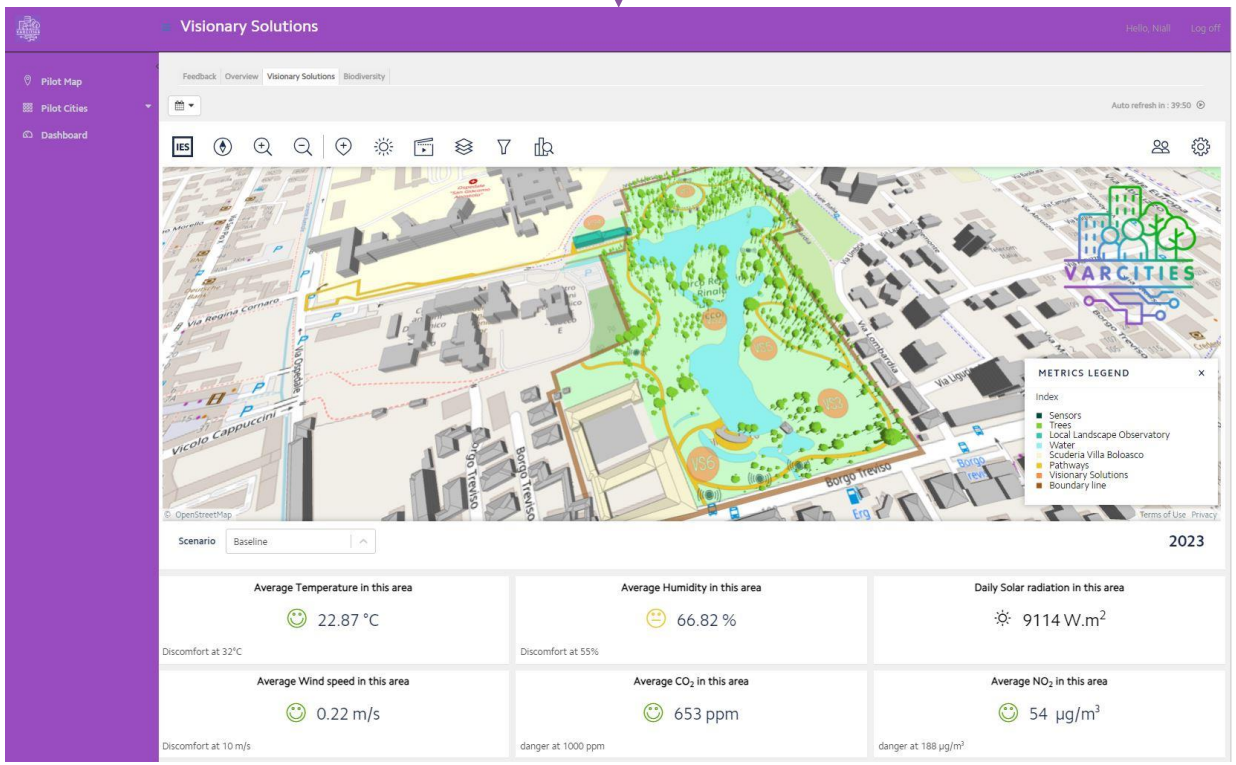
IoT Sensors Architecture Health & Wellbeing Dashboard





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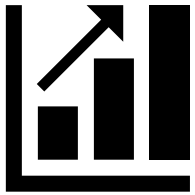
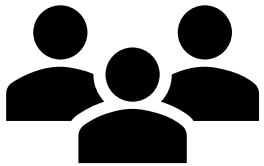
H&WB Dashboards

- Two main functions

- 1) **(Objective)** Monitor and evaluate the local environmental flux of each site compared with benchmarks (ASHRAE, CIBSE)



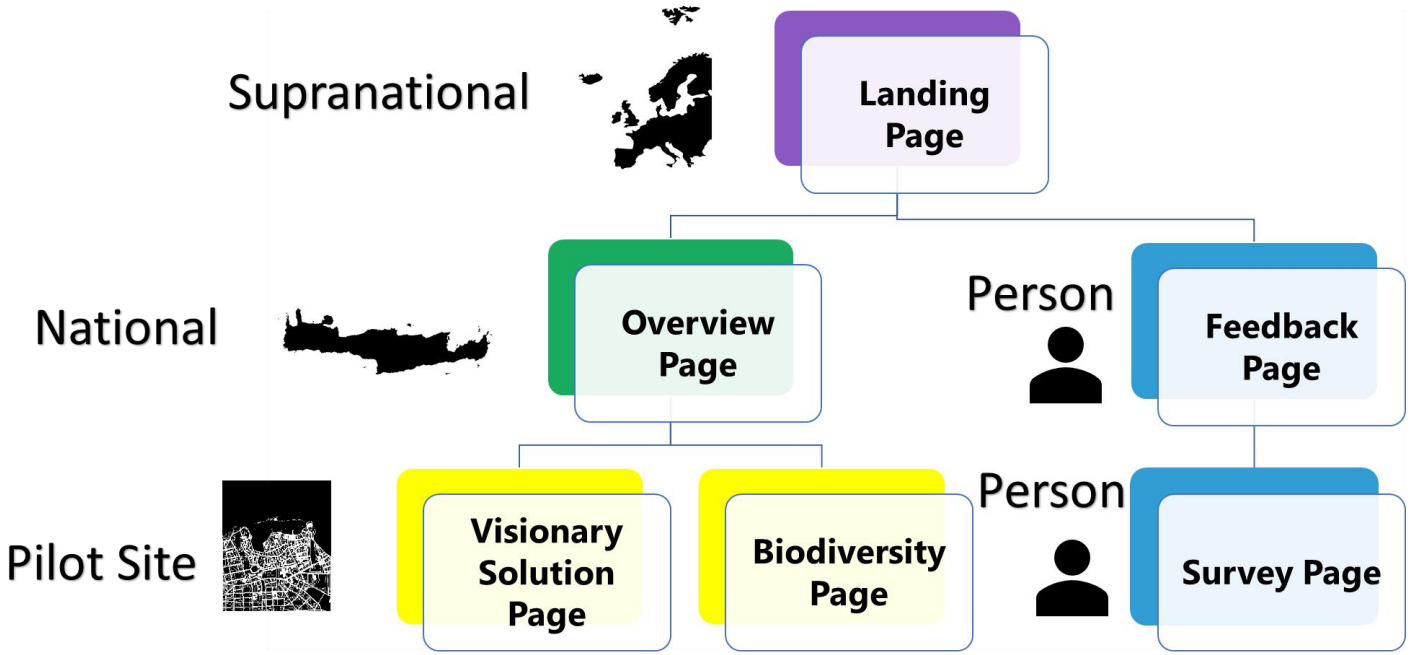
- 2) **(Subjective)** Receive feedback from local experience



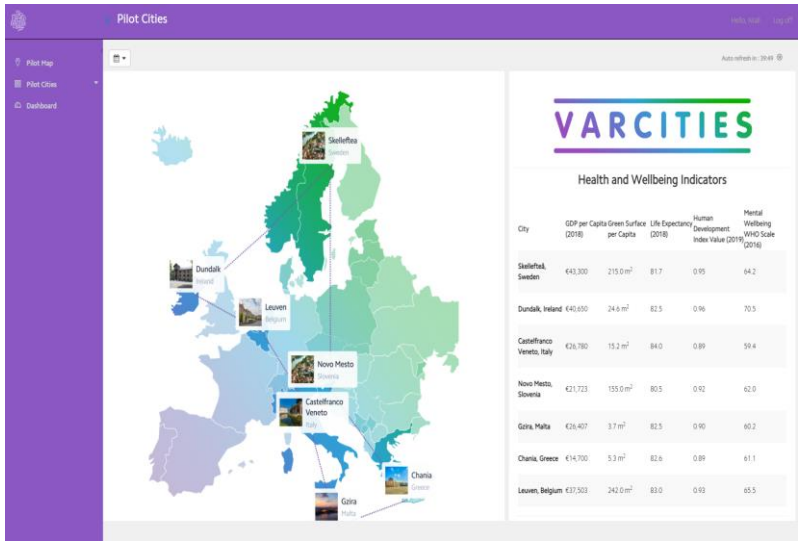
Method

Outdoor Public Dashboards

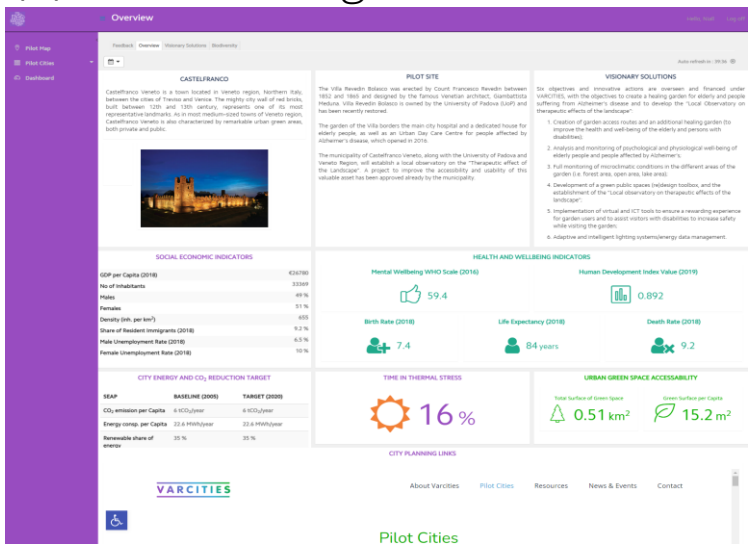
Totem poles pending installation



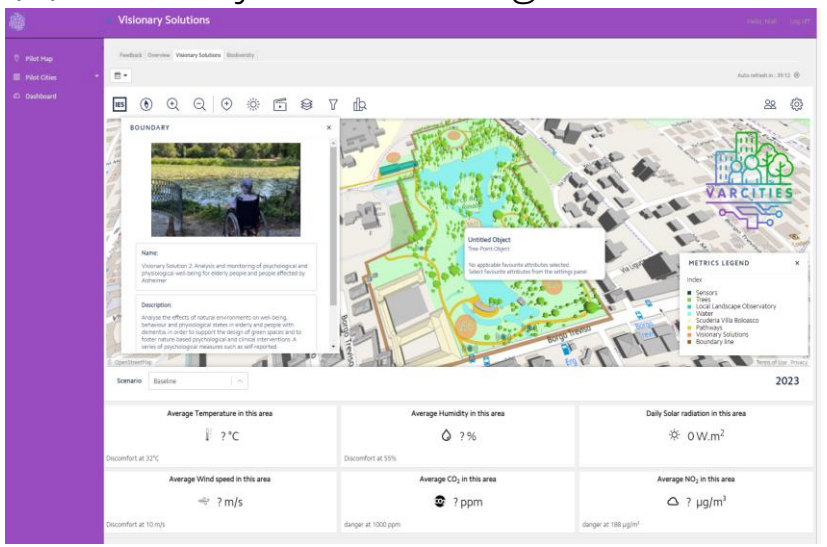
(1)Landing Page



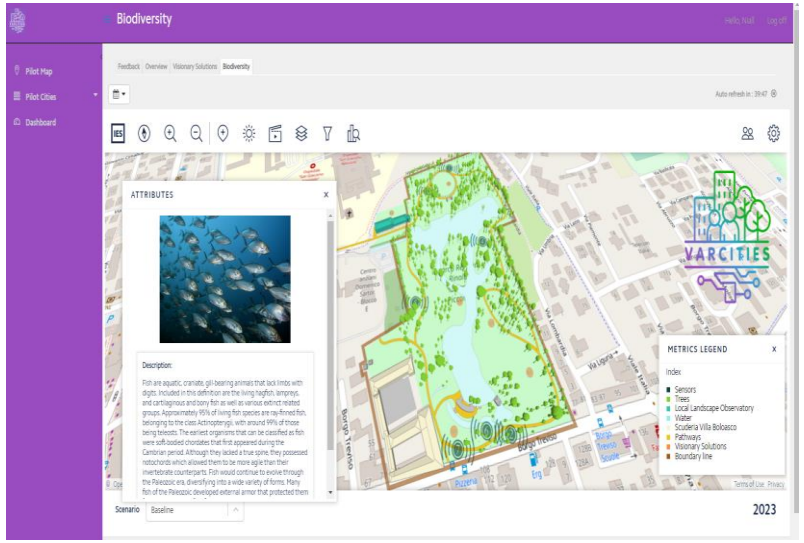
(2) Overview Page



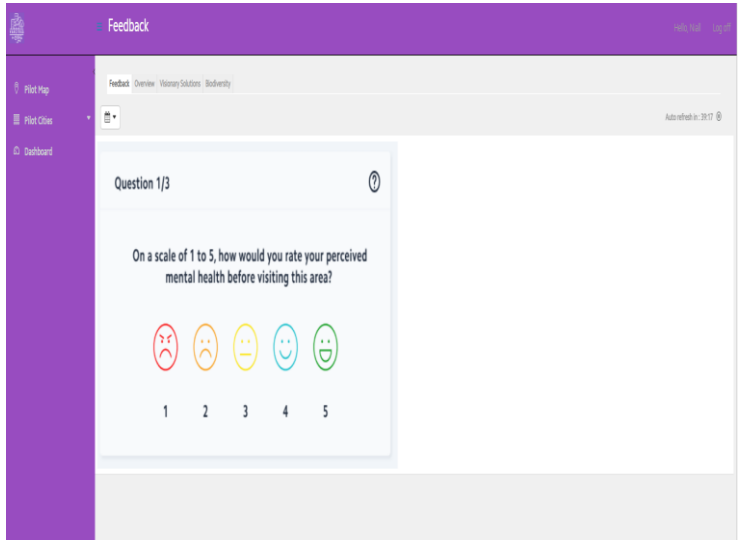
(3)Visionary Solution Page



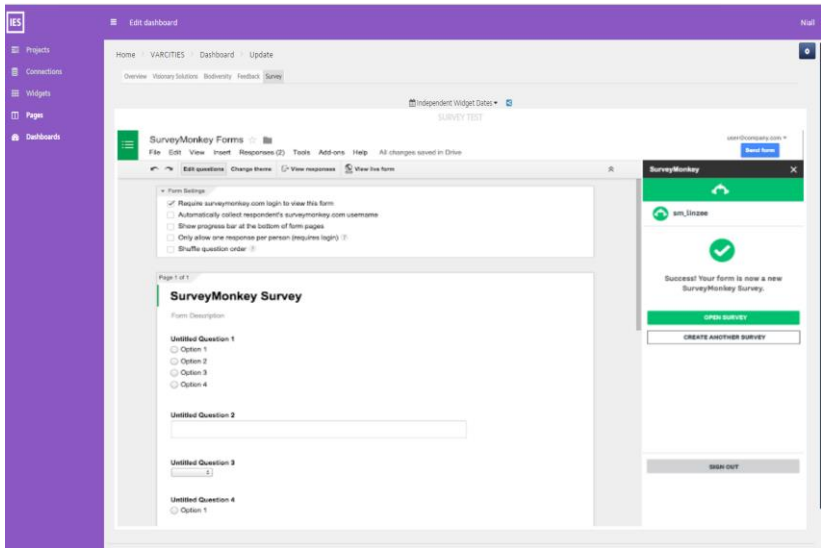
(4) Biodiversity Page



(5)Feedback Page



(6)Survey Page



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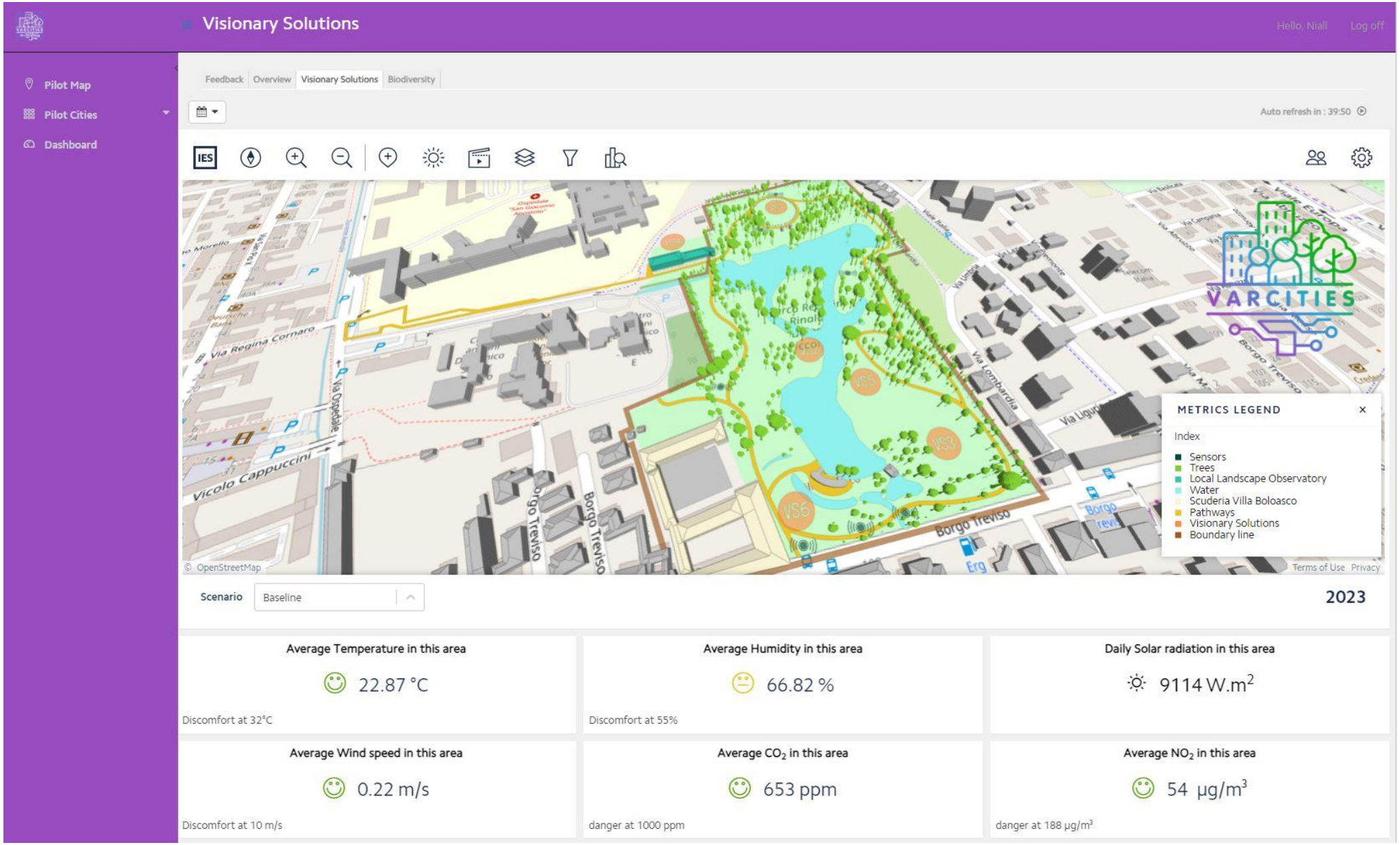
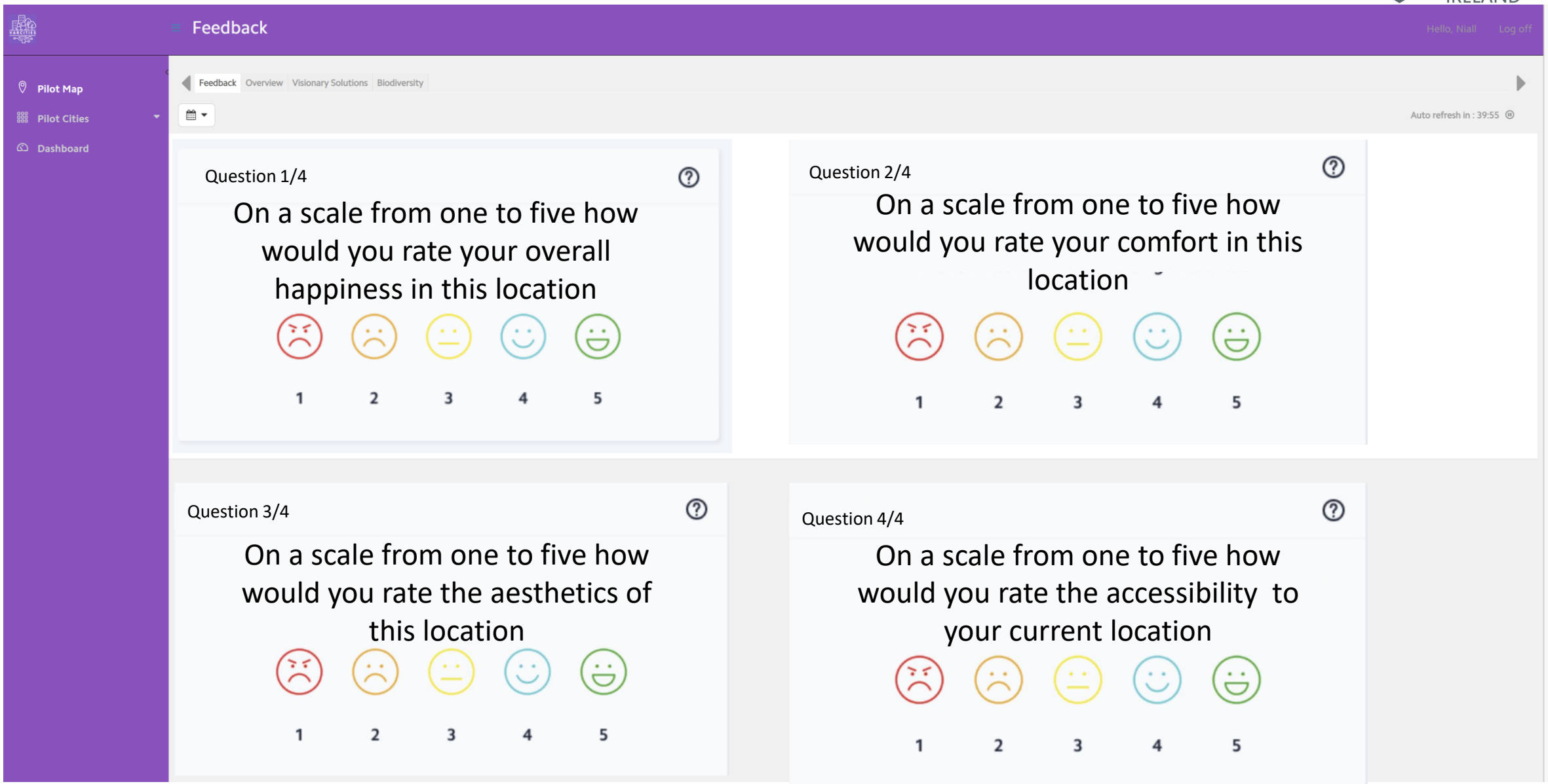
H&WB - VS and KPI Page (info for users) with benchmarks



H&WB - Feedback page



Current data flows from Castlefranco Veneto

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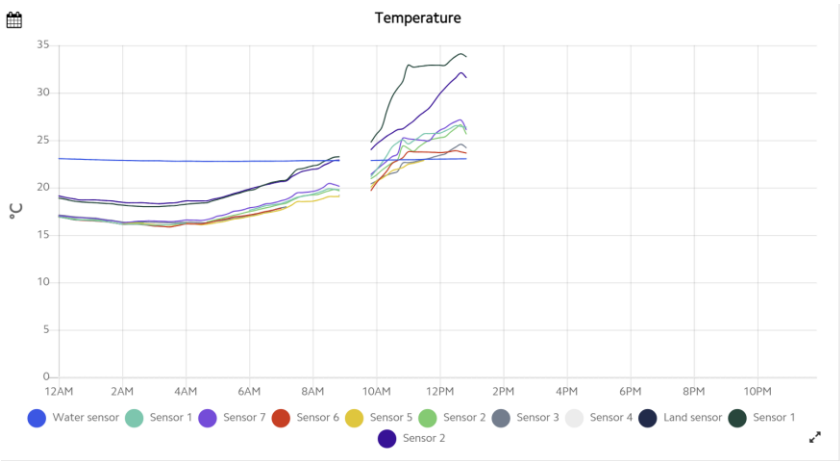
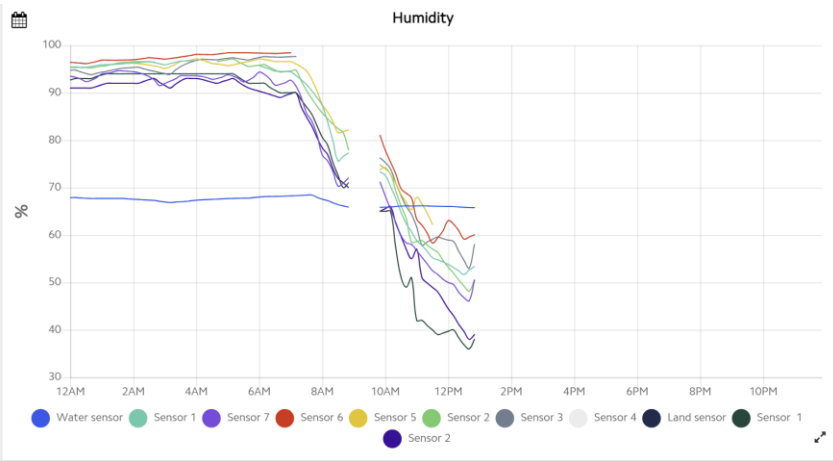
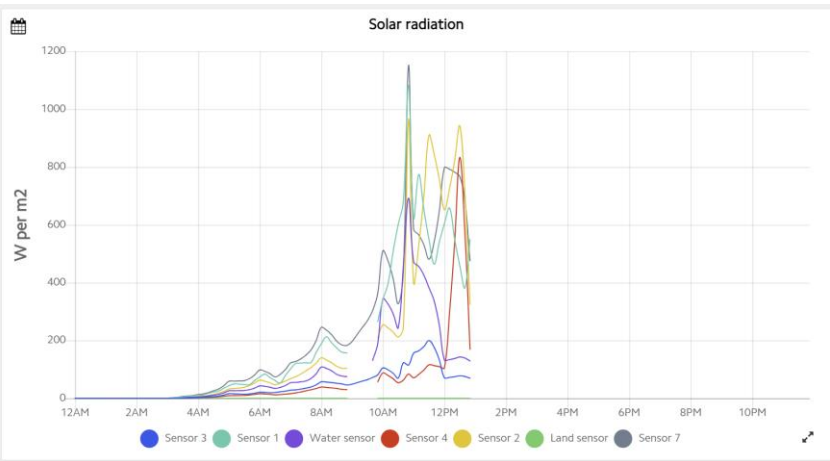
Average Temperature in this area	Average Humidity in this area	Daily Solar radiation in this area
26.22 °C	53.44 %	5886 W.m^2
Discomfort at 32°C	Discomfort at 55%	

Average Wind speed in this area	Average CO_2 in this area	Average NO_2 in this area
0.93 m/s	572 ppm	97 µg/m^3
Discomfort at 10 m/s	danger at 1000 ppm	danger at 188 µg/m^3







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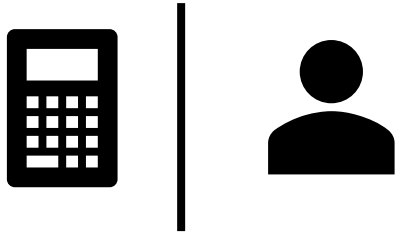
Conclusion and Next steps

- Sensors have been dispatched on two out of the seven pilot sites
- The H&WB Dashboard is operational but is pending totem touchscreen

- When subjective data begins we will:
- Review the correlation between benchmark thermal comfort and subjective thermal comfort



- Record peoples sense of wellbeing and pre and post VS installations
- Record benchmark and subjective wellbeing pre and post VS installations

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Thank you

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Questions

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