

Our Objective

Urban ReLeaf investigates how citizen science can contribute to urban climate research and planning by generating locally relevant environmental data and enabling more inclusive decision-making processes. The project examines both the scientific value of citizen-generated data and the conditions under which it can be effectively integrated into policy and practice.

This work aims to:

- Generate high-resolution environmental data through citizen science approaches
- Assess how citizen science data can complement official monitoring systems
- Understand factors influencing the uptake of participatory data in urban planning and governance
- Explore how citizen engagement contributes to more inclusive and equitable climate adaptation

A look at the project in numbers



Methods

Urban ReLeaf applies a co-designed citizen science approach across six European cities, aligning data collection with local environmental priorities and planning needs. Key methodological components:

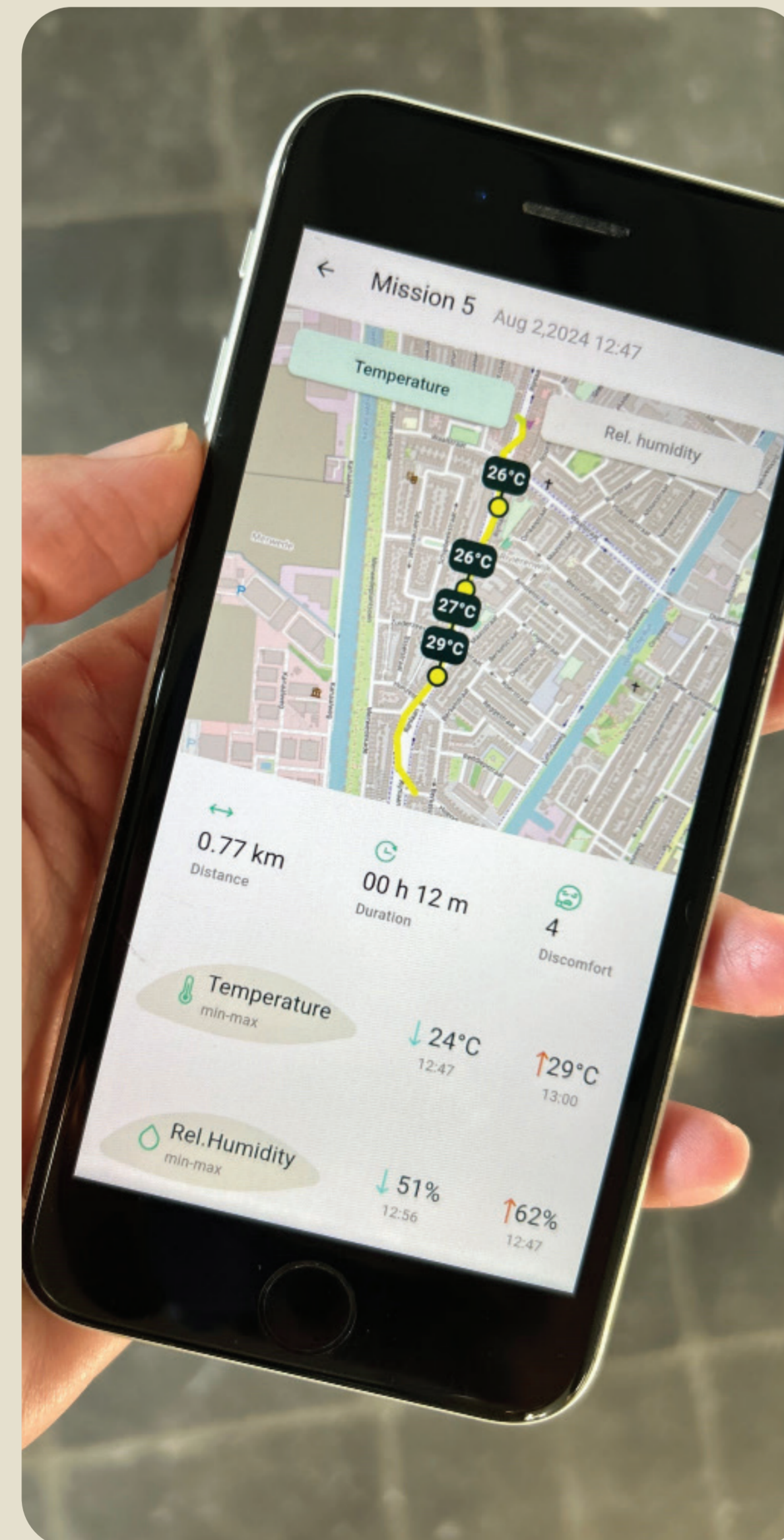
Co-design: Collaboration between municipalities, researchers, and citizens

Participatory data collection:

- Wearable sensors (heat exposure)
- Fixed sensors (air quality)
- Surveys (environmental perceptions)
- Tree registries (urban greenspace data)

Inclusive engagement: Use of digital and non-digital tools to broaden participation
Data integration: Linking citizen science data with municipal planning tools and systems

This approach combines environmental measurements with citizen perspectives to support locally relevant climate action.



Utrecht, Netherlands



Utrecht's "Green Neighbourhood, Cool Neighbourhood" campaign engaged residents in collecting temperature and humidity data and mapping heat perceptions. Citizen-collected data informed local adaptation measures and supported decision-making through the Utrecht Digital Twin.

Riga, Latvia



Riga's "Adopt a Sensor" campaign engaged residents in monitoring air pollution and urban temperature using distributed sensors. The data increased awareness of air quality and heat islands and supported evidence-based policy action.

Cascais, Portugal



Cascais transformed urban greenspaces through the "A Future-Proof Urban Park" campaign, engaging residents in reporting thermal comfort and measuring heat stress with mobile sensors. Citizen science informed greenspace planning, identified urban heat spots, and supported protection of vulnerable groups.

Athens, Greece



Athens addressed increasing heatwaves and air pollution by deploying a network of low-cost air quality sensors across all municipal districts. Municipal street cleaners were also engaged in monitoring heat stress with mobile sensors while a new participatory tree registry aimed to improve greenspace management and climate resilience.

Dundee, UK



Dundee engaged residents and community groups in assessing perceptions of and access to greenspaces plus conducting off-grid air quality monitoring activities near schools. Citizen input supported more inclusive greenspace planning and raised awareness of environmental health and urban resilience.

Mannheim, Germany



Mannheim enhanced its public tree registry with citizen observations via a smartphone app to improve tree management and identify planting sites. The campaign also engaged residents in mapping heat stress perceptions in public squares to inform urban greening and heat protection measures.

Themes



Technologies



Lessons & impacts

Strong community engagement:

Successful campaigns relied on events, local ambassadors & partnerships with schools, NGOs & community groups.

Technology + accessibility:

Multi-format data collection (apps, sensors, web, paper) ensured inclusion of digitally-excluded groups

Evidence-based policy:

Data is shaping climate adaptation strategies, heat mitigation plans, mobility measures & greenspace planning.

Community empowerment:

Participants gained environmental awareness & agency, leading to local greening initiatives & increased civic participation

Data collection & engagement metrics



Conclusion

Citizen science can generate high-resolution, locally relevant environmental data while strengthening collaboration between communities and public authorities.

Urban ReLeaf demonstrates how participatory approaches can complement official data, support evidence-based planning, and contribute to more climate-resilient and inclusive cities.



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