

# Public Participation Powered by Design:

## Developing a Measuring Instrument to Enhance Citizen Science Engagement

Citizen science, the practice of public participation and collaboration in scientific research, offers significant societal and scientific benefits but also faces challenges related to participant motivation, budget constraints, and instrument usability. In collaboration with design studio Dott Achilles, this project developed a measuring instrument to enhance citizen science engagement, while adhering to its core principles such as transparency, ethical data use, and inclusivity.

The resulting product-service system consists of a robust, scalable, and user-friendly physical instrument complemented by an integrated online platform. Designed as a plug-and-play solution, it ensures accessibility for stakeholders regardless of technical or scientific expertise. The instrument features customizable sensor modules and versatile mounting options, allowing for deployment in diverse outdoor

residential and natural environments for various research topics, including air quality and drought monitoring. Its intuitive design incorporates visual, tactile, and auditory guiding elements, while its aesthetic balances approachability and abstraction, enhancing trust and broad applicability.

The online platform provides real-time data visualization, personalized feedback, and interactive installation guidance, increasing motivation and easing the workload for organizers. By enabling reuse and adaptability, the design allows for alternative financial models, such as rental systems, increasing sustainability. By addressing key challenges in citizen science measuring instruments, this system enhances engagement while balancing the needs of citizen scientists, researchers, and local organizers, ultimately maximizing scientific and societal impact.



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