

Title: Datascope: Making Sensor Data Visible

Topic: Smart and Sustainable Regions

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The amount and complexity of the data available to us are increasing at an ever faster rate. Although this abundance of data opens up completely new possibilities for both technical progress and economic success, methods for analyzing data and supporting decision-making processes cannot keep pace with the rapid growth in data. Data per se is *invisible* to humans and therefore usually difficult to incorporate into real-world environments. Data visualization is about turning data into images to make it understandable for people. Similar to how a microscope makes things visible that are too small or a telescope makes things visible that are too far away, our new concept of a *datascope* aims to **make data visible in their physical environment**.

The collection of digital sensor data is a particular technical challenge, especially in rural areas. The establishment of low power wide area network (LPWAN) technologies can compensate for poorly developed network infrastructure by installing sensor networks and utilizing the data collected and generate added value for end users, communities, and businesses alike.

Goals

- Design, evaluation and prototypical implementation of visualization methods for making sensor data visible in its physical environment (extended reality)
- Establishment of an open data management platform (AR cloud) that stores sensor data and makes it available via standardized interfaces
- Design of smart service concepts, business models, and licensing models to ensure economic viability.

Possible Use Cases

1. *Agriculture and community gardening*
2. *Renewable energy and energy efficiency*
3. *Natural disaster prevention*
4. *Public community services*
5. *Tourism*

