

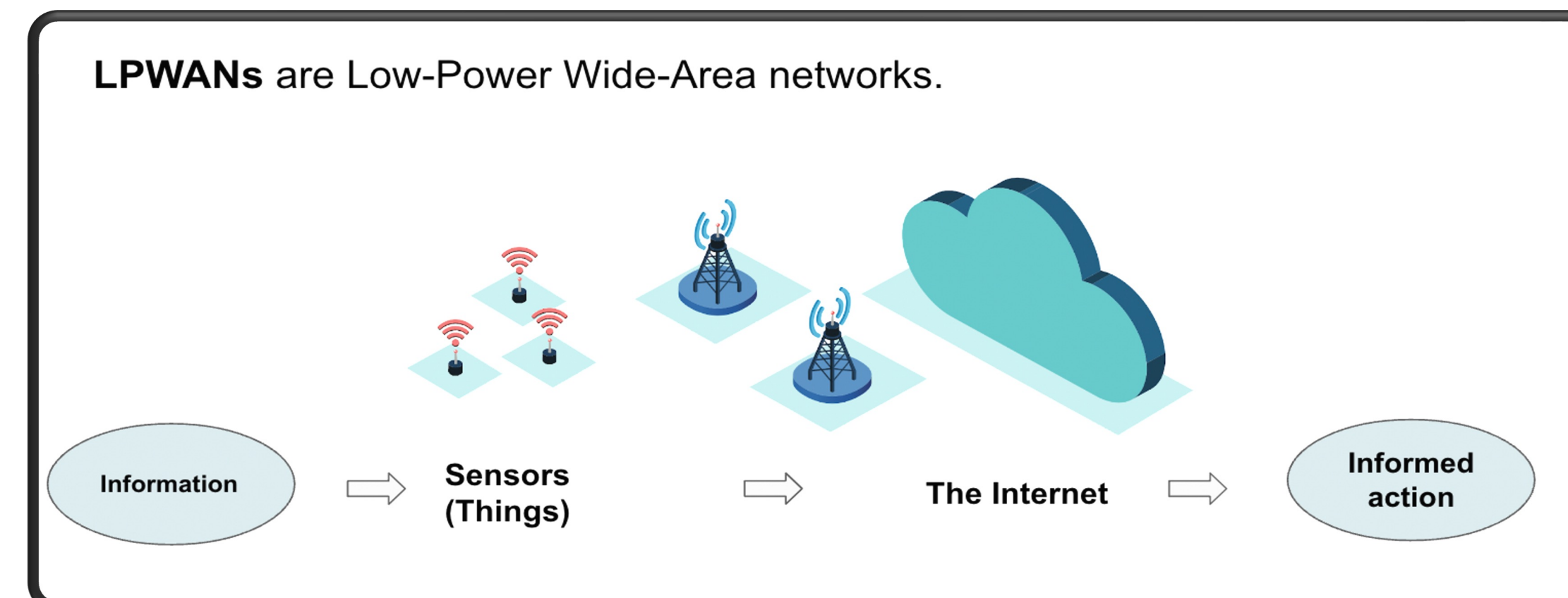
# Towards a Statewide Public IoT Network

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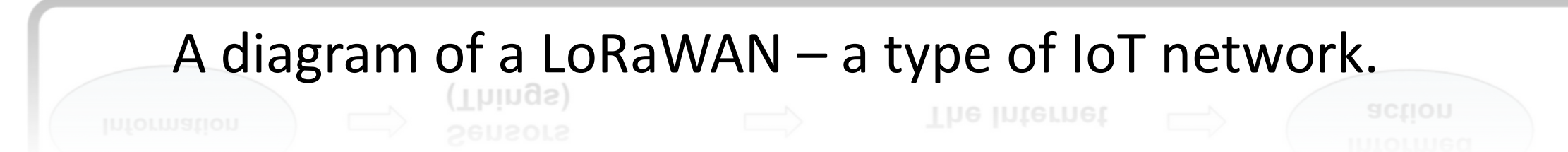
Our goal is to design a statewide public Internet of Things (IoT) network that provides 100% coverage to all residents, aiming at bridging the digital gap between urban and rural communities.



We have achieved four major accomplishments as an integrated team and several advances in individual disciplines.

## 1. Innovative community-based participatory network design

- Collaboratively designed and conducted online info sessions, interviews and workshops with municipal leaders
- Selected and planned three impactful IoT applications representing municipal operations, small business and education



Brainstorming workshop in Geneva with community members

## 3. A novel collaborative model for a cost effective IoT market structure

- Game-theory framework to help understand cost reductions and efficiencies
- Assess the value of LPWAN service providers



Community workshop ideation

## Products and published works

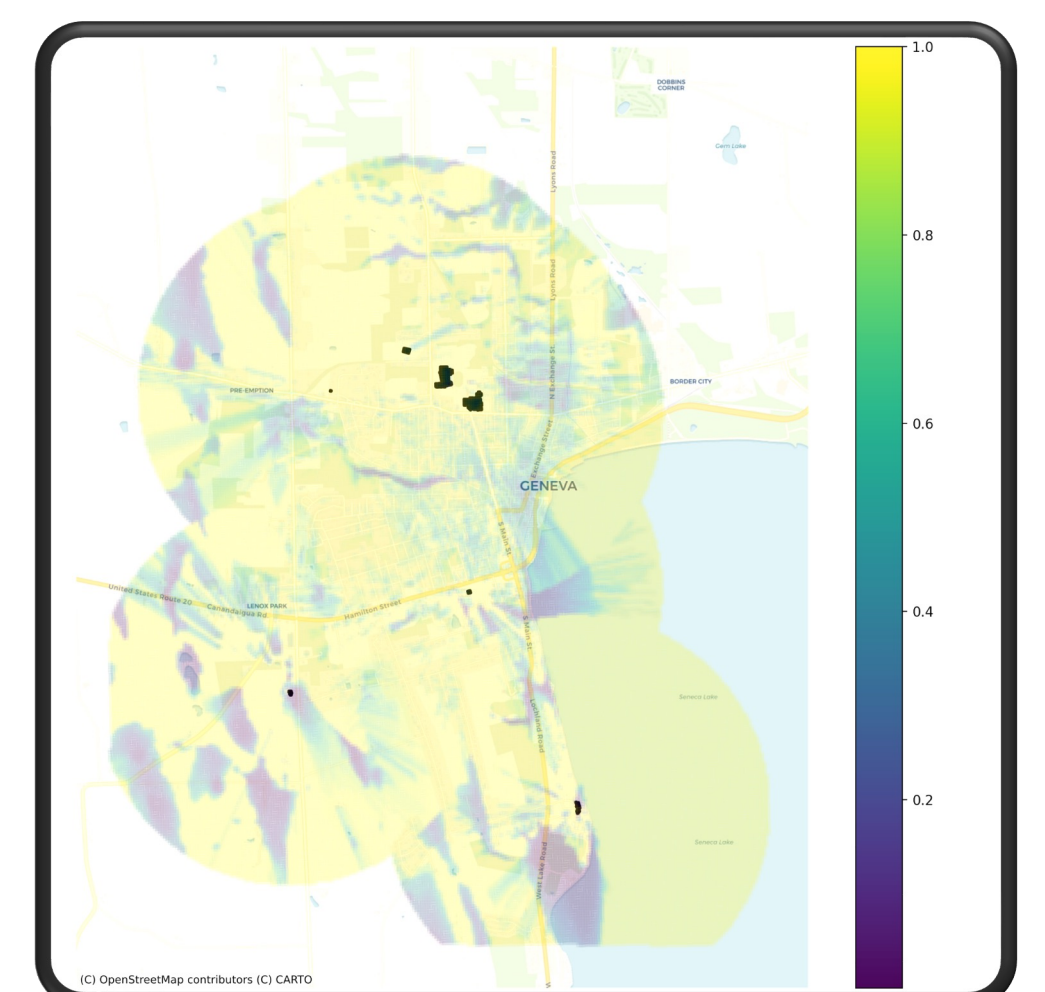
Butkowski, C., Chan, N. K., & Humphreys, L. (2022). Community Internet of Things as mobile infrastructure: Methodological challenges and opportunities. *Media and communication*. 10(3).

Ozkul, D., Haleagua, G., Wilken, R. & Humphreys, L. (Eds). (in press). Special Issue Sensor-Mediated Communication. *Journal of Computer-Mediated Communication*. (12 abstracts have been invited for full submission due Sept 30).

Butkowski, C., Chan, N. K., Berniker, T., Rodriguez, A. A., Schlather, K., Zhang, K. & Humphreys, L. (under review). Communication about sensors and communication through sensors: Localizing the Internet Of Things in rural communities. *Journal of Computer-Mediated Communication*.

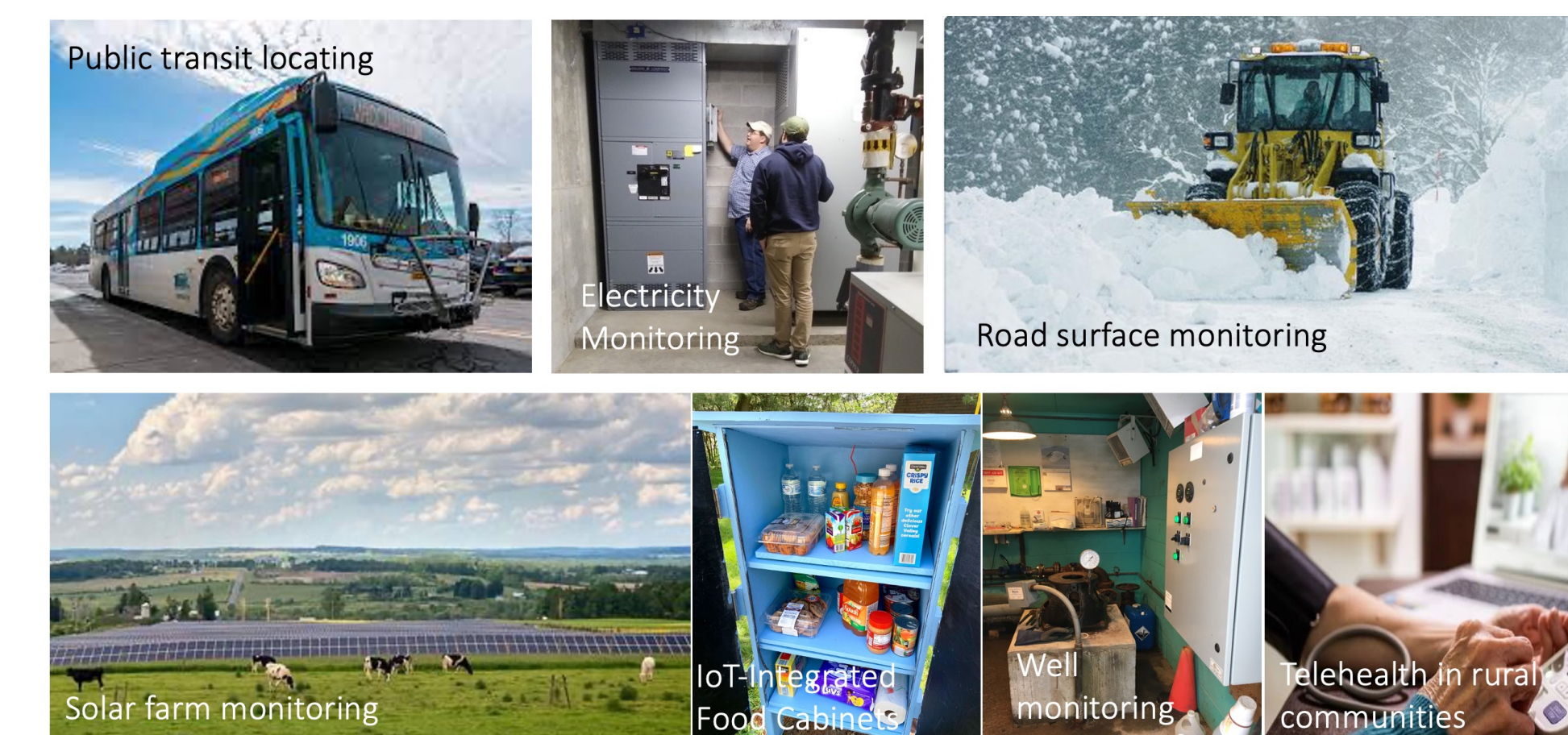
## 2. Data-driven models and scalable tools for IoT network design

- A data-driven model for wireless interference
- A machine learning predictor for wireless coverage
- A scalable algorithm for wireless receiver placement



## 4. Furthered the integration of research, education, and community engagement

- Offered an introductory-level IoT course in Spring 2022
- Student teams participated in initial engagement with Geneva community



Student-based community-driven IoT projects