



VoltScape

Bolzano's electric-vehicle charging, explored in 3D.

by K3A · NOI Hackathon · Open Data Hub × Godot × Meta Quest 3

The goal

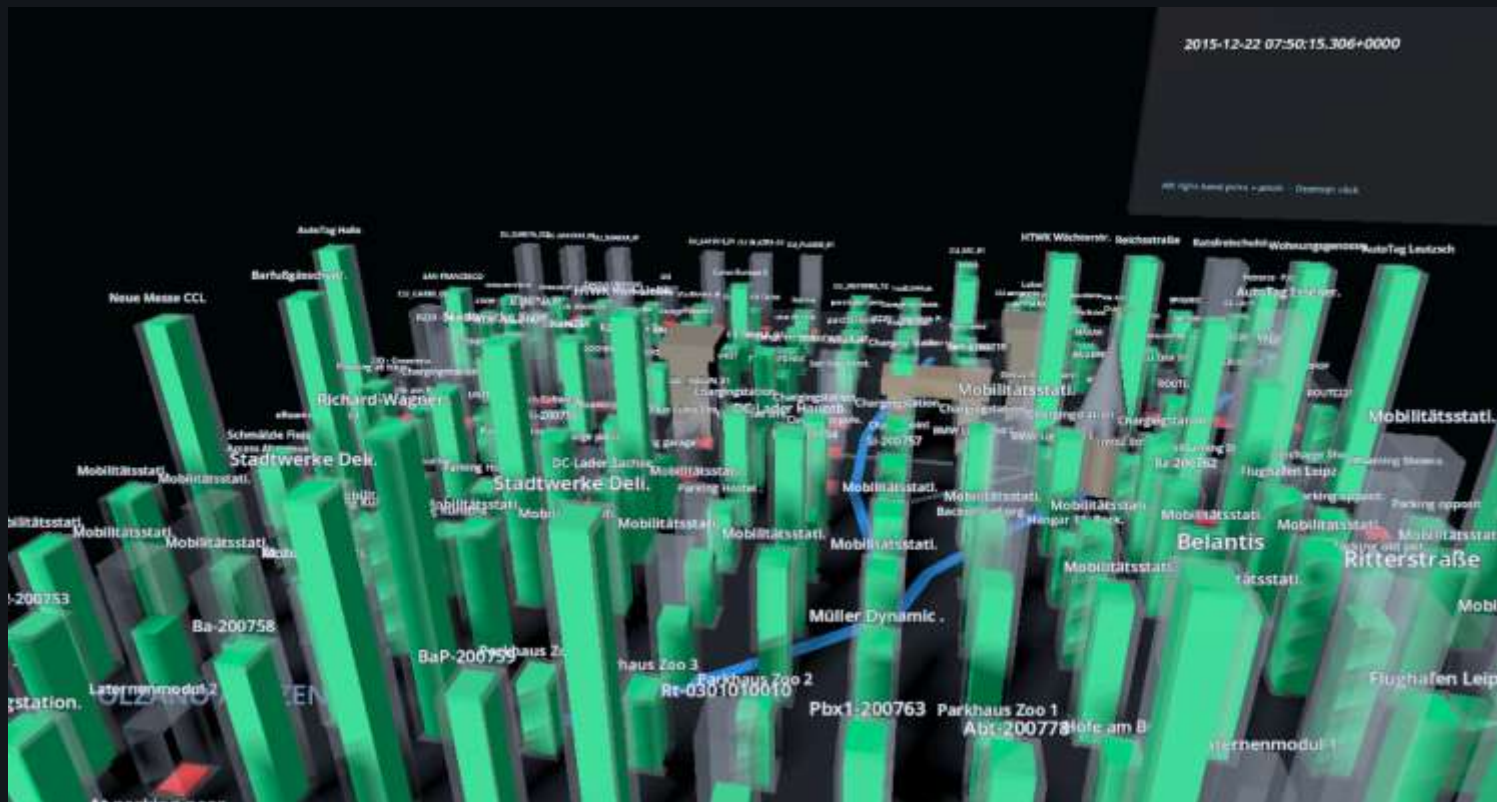
The Open Data Hub Challenge: make real data easier to understand in space.

Our take — put Bolzano's EV charging on a map you can walk around in XR, on the Meta Quest, instead of another flat 2D dashboard.

The same live data that feeds a normal web map, re-imagined as a place you can stand inside.

A challenge: too much, all at once

The EChargingStation feed is Alperia's Europe-wide network — thousands of stations from Leipzig to San Francisco, every label drawn at once, with no map underneath. Unreadable.



How we fixed it

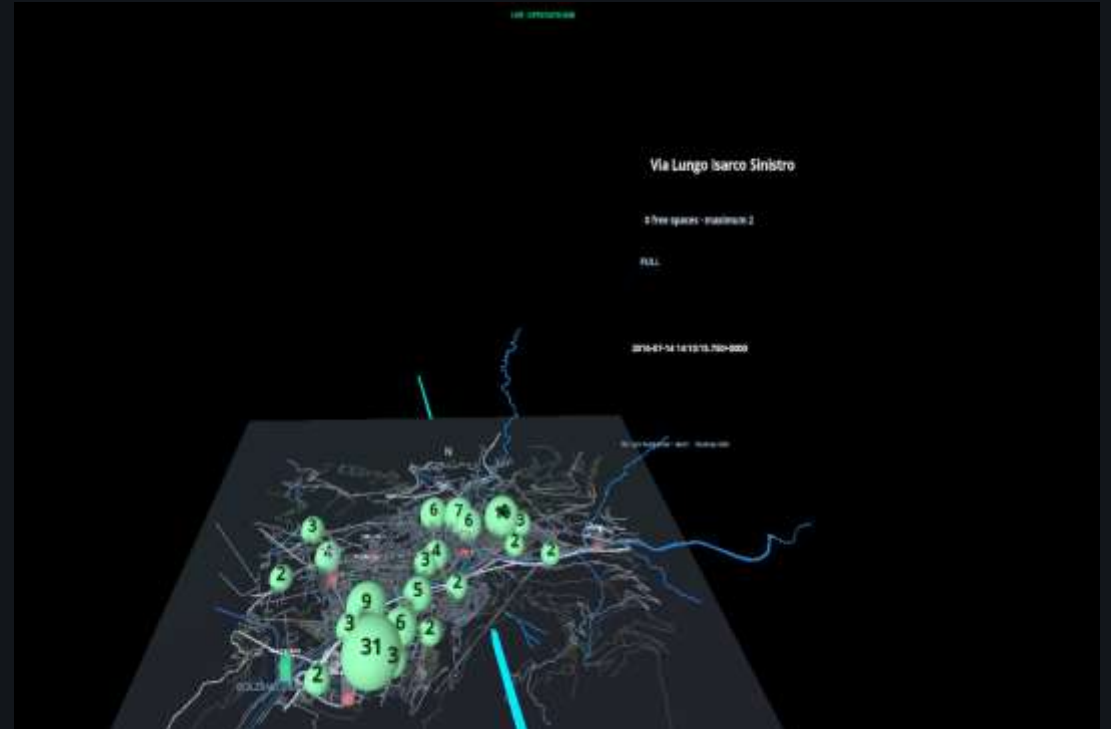
Four changes turned the noise into a readable Bolzano map.

- Filtered the API to Bolzano with a coordinate bounding box
- Clustered overlapping stations into counts that fan out on tap
- Added a real OpenStreetMap layer — ~6,000 buildings, ~3,000 roads, rivers
- Batched each layer into one mesh, so it runs smoothly on the headset

Explore it in XR

Hand- and controller-driven, inside your own room.

- Point to highlight a station before selecting
- Trigger to rotate the map around its centre
- A / B to zoom in and out
- Tap a cluster — its stations fan out into pillars
- Passthrough — the map floats in your real space



In the headset

Under the hood

Open, live data on a standalone headset.

- Open Data Hub Mobility API v2 — live, filtered by geographic bounding box
- Real-time free-plug counts mapped to each pillar's height and colour
- Real OpenStreetMap geometry, batched for performance
- Godot 4.7 + OpenXR on Meta Quest 3, built on the NOI Techpark template
- Offline fallback copy, so the demo always runs

Thank you.