LoRa as wireless connection between low power sensors
Evaluating a stack and transport layer for live metric collection

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Low cost and effort stack for wide area live measurement of environmental data using LoRa and Microcontrollers

BACKGROUND: The evaluated hardware and software stack allows low cost and low effort data science material based on real time collected data. Collecting metrics is s a base requirement for data scientists and many environmental disciplines, be it Geologists, Oceanographers or Atmospheric scientists.
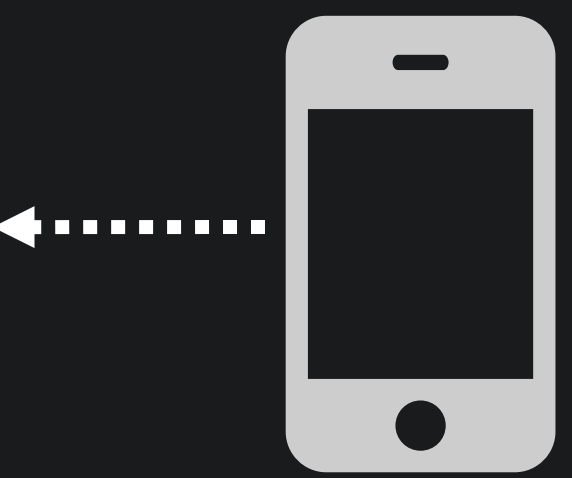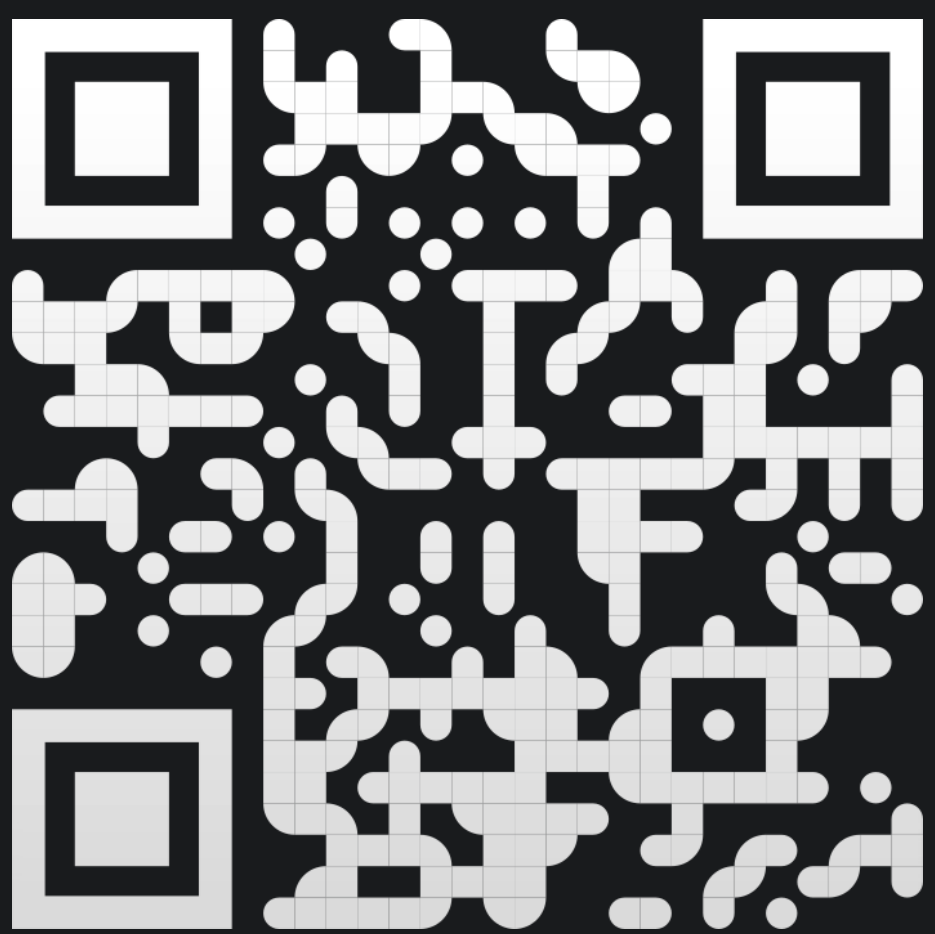
METHODS

The wireless transportation protocol called **LoRa** allows the usage of tiny microcontrollers collecting all sorts of metrics via **flexible sensors**. The low power consumption allows running on **battery for months**, the **long range** of LoRa allows cheap setups.[1]

Microcontrollers are highly affordable and thereby allows the deployment of large numbers of sensor points.
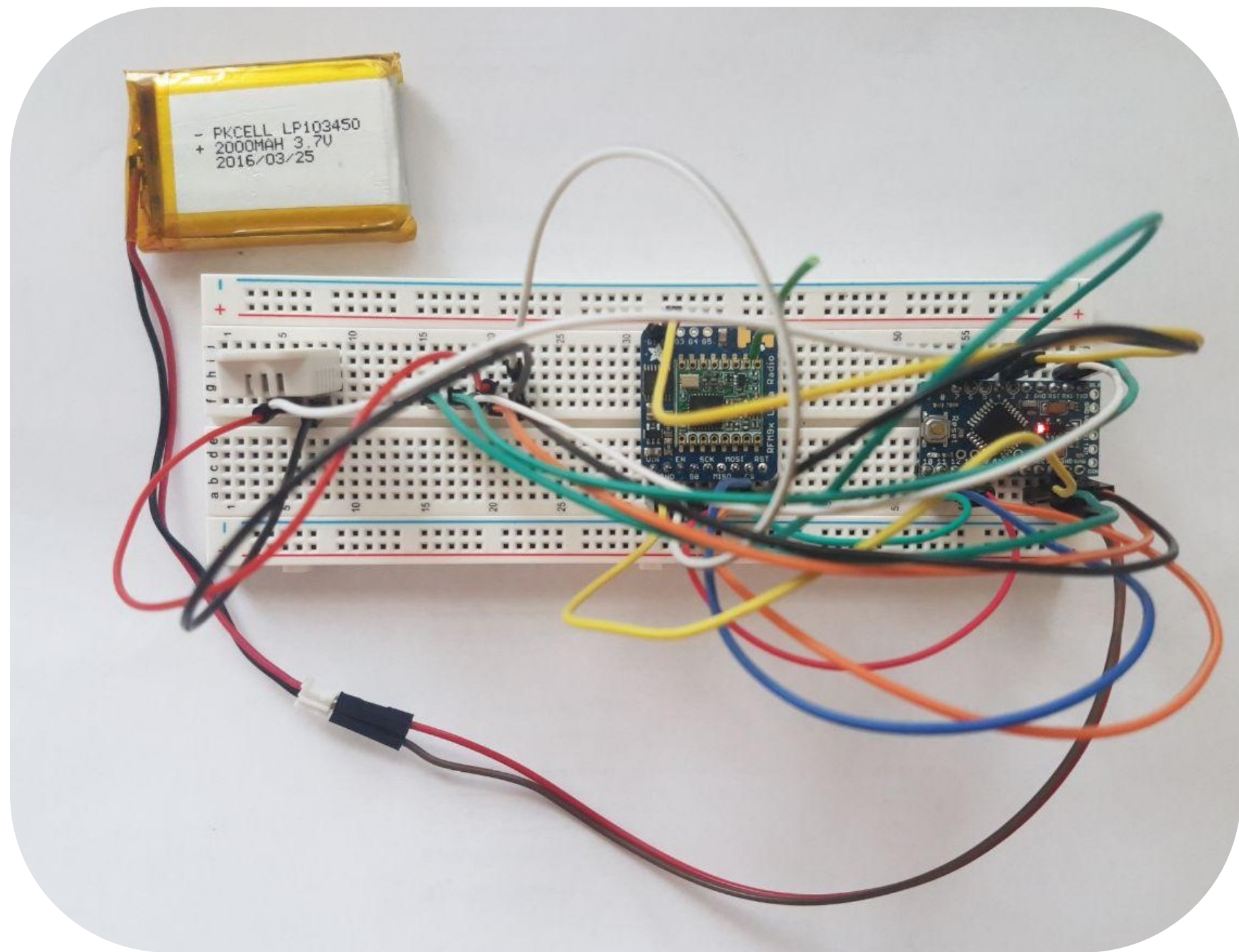
Using InfluxDB and Grafana allows to store and visualize time series points in a scalable way and offer a public API to data scientists.

RESULTS

The used stack with all used source code is available following the **barcode** on the right. The stack only forms the baseline for data science projects to build on.
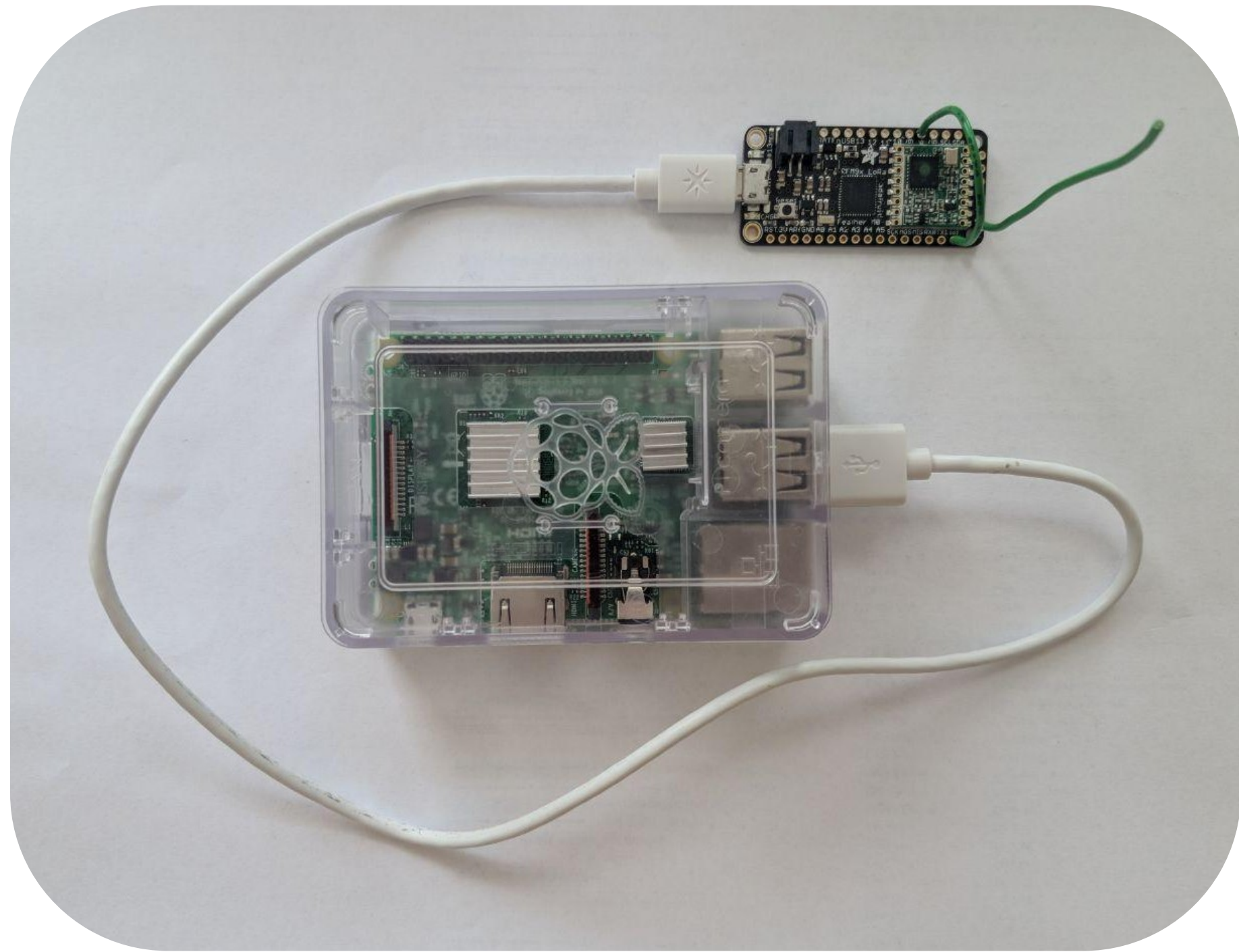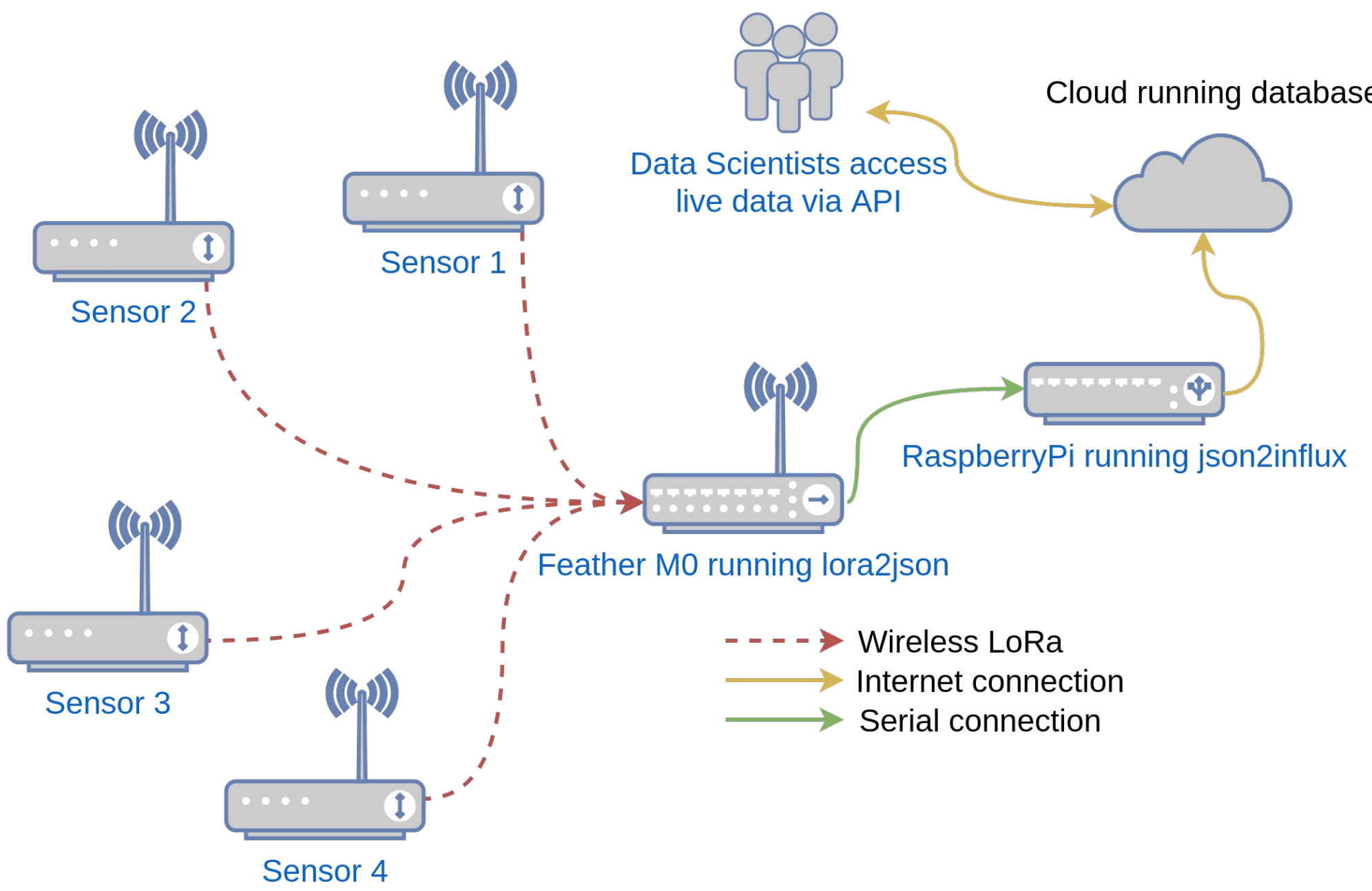

Take a picture to view the documentation

Prototype of temperature sensor node

Prototype gateway connected to database

LoRa stack with cloud database

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