MEMORY SAFE
IL RISCHIO DELL'INVISIBILE

INTERNET-OF-THINGS ENABLED

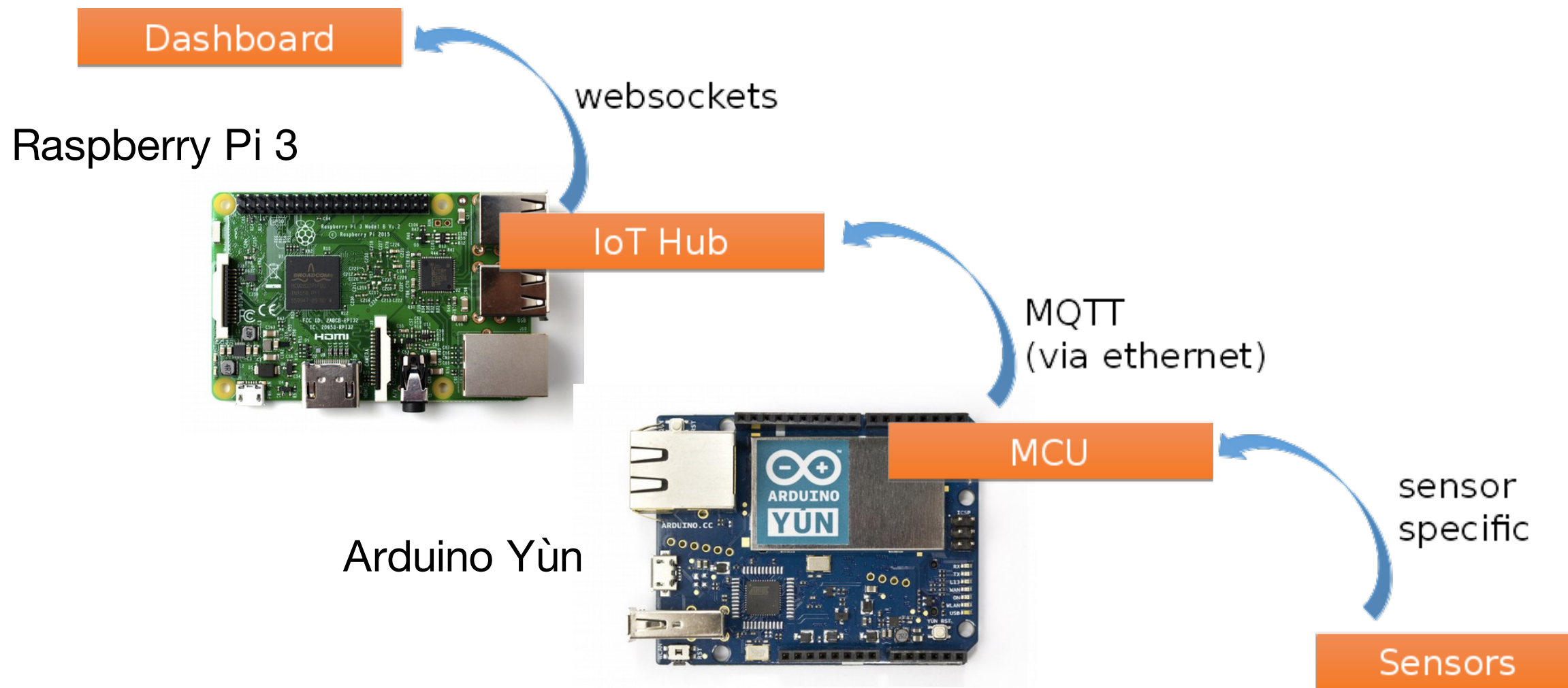## ENVIRONMENT MONITORING SYSTEM

Project stream objectives

Co-design of an IoT monitoring system
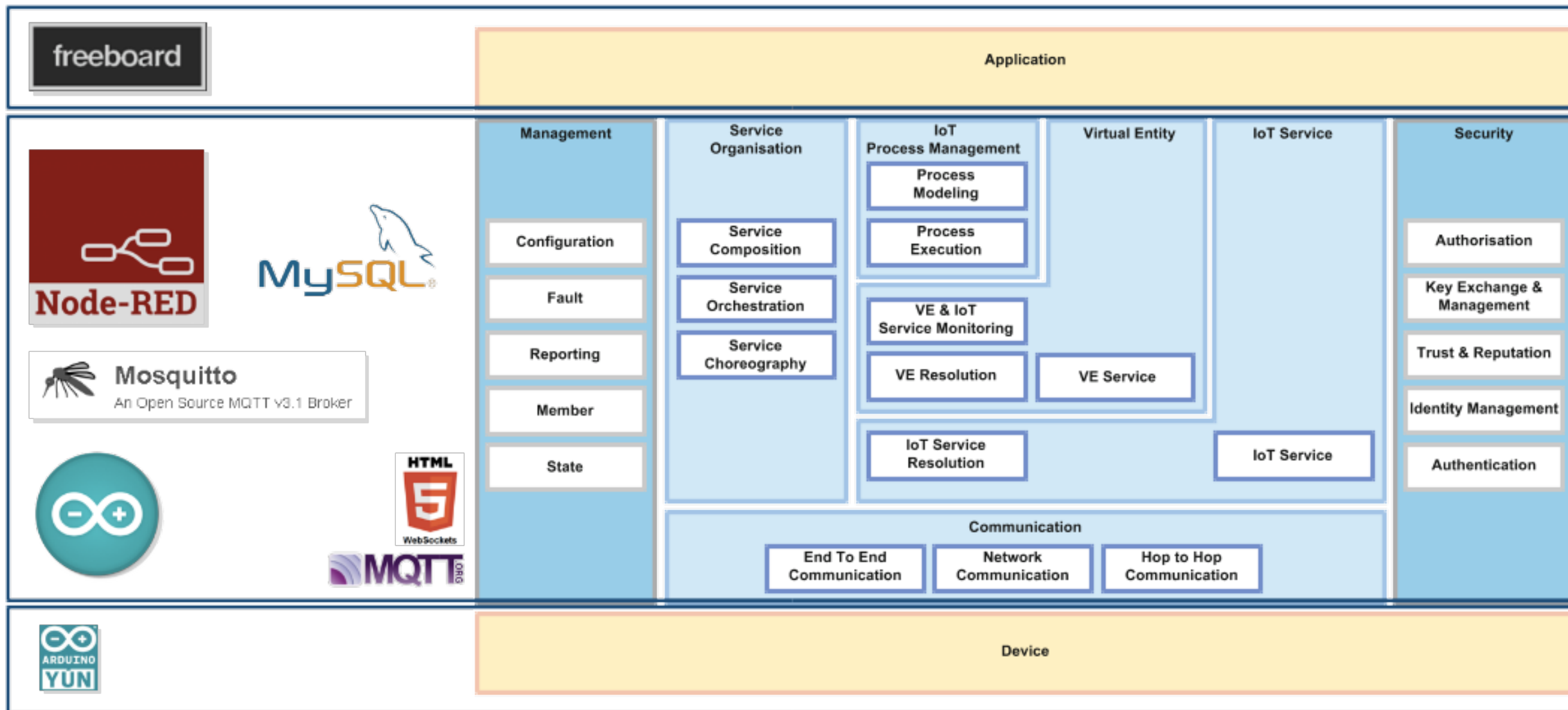
Goal: real time acquisition of data from:
-- sound sensors
-- light sensors
-- temperature sensors
-- humidity sensors
-- gas sensors
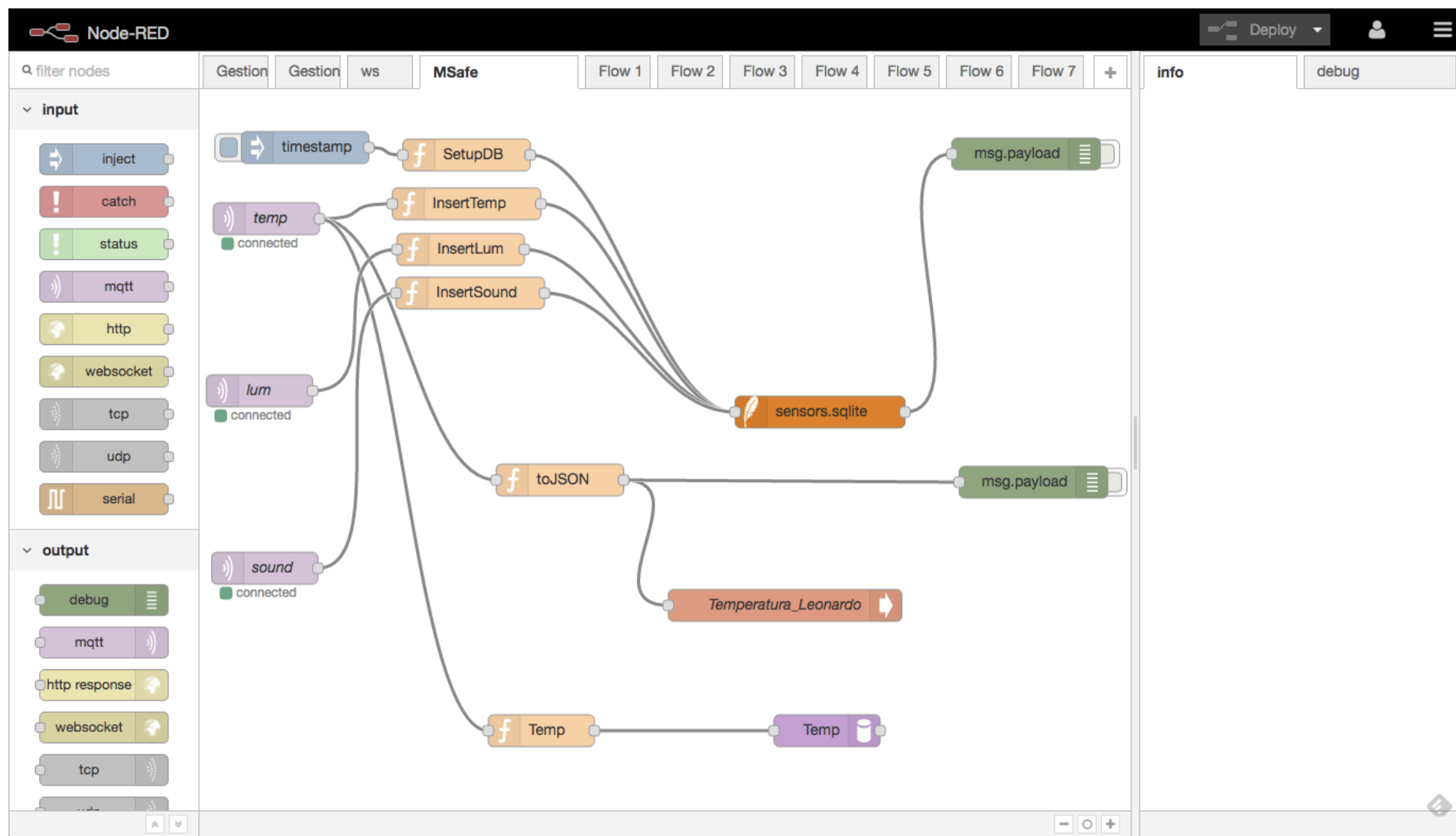and high level, effective presentation for educational purposes

The basic components

Dashboard

websockets

Raspberry Pi 3

IoT Hub

MQTT
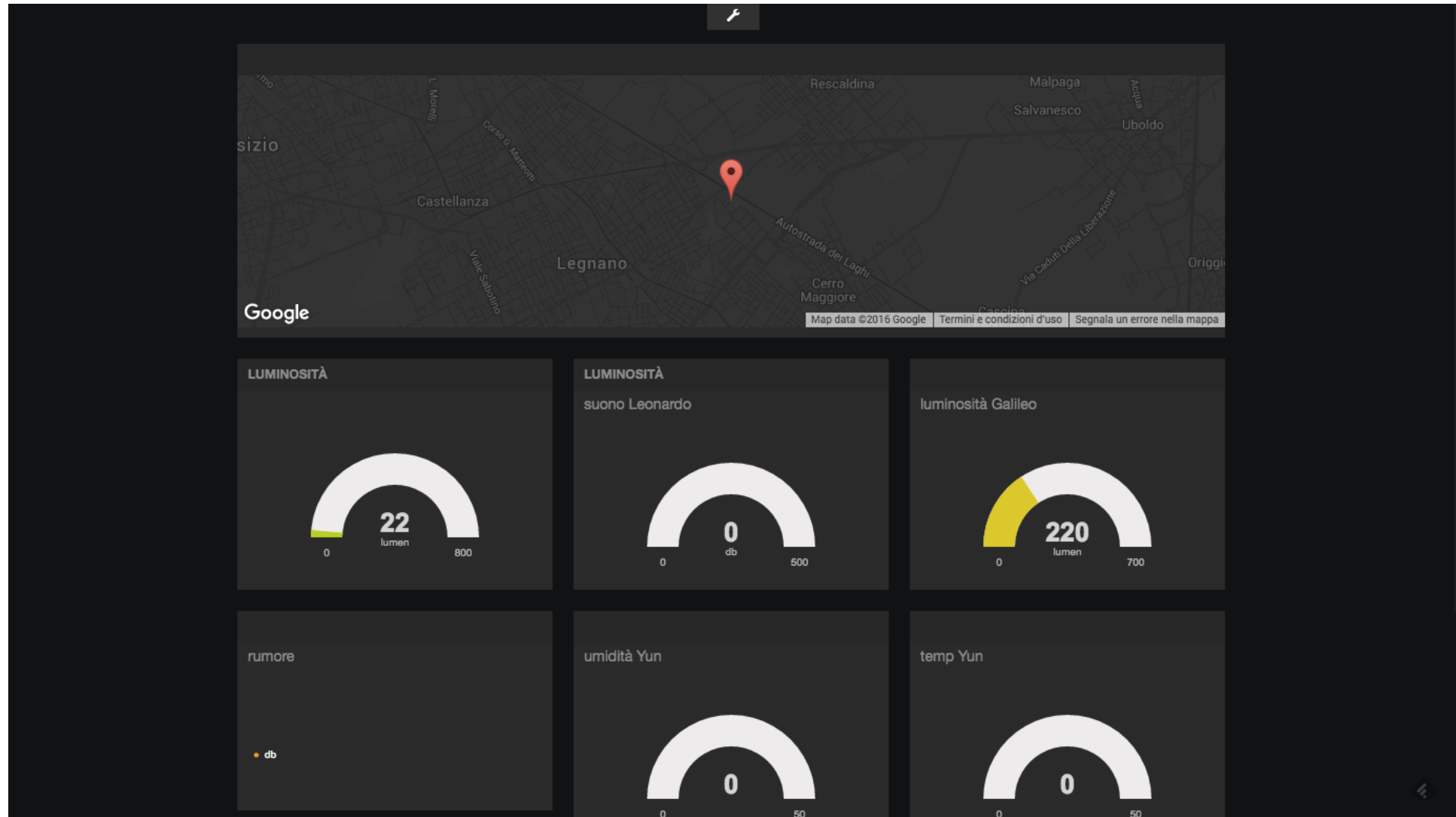(via ethernet)

MCU

Arduino Yùn

sensor
specific

Sensors

Open s/h IoT architecture

Node-RED: a visual tool for wiring IoT

Freeboard: a visual tool to create dashboards

IoT workshop settings

Workshop 1

Participants:

- ~40 high school students
- from different fields
- without any background knowledge in IoT
- 6-hour group challenge

Task:

- create a new IoT dashboard from scratch to display real-time data collected from the environment

Workshop 2

Participants:

- ~20 high school students
- from different fields
- with basic background knowledge in IoT
- 4-hour group challenge

Task:

- program an IoT board to collect real-time data from the environment with sensors