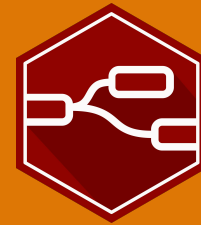
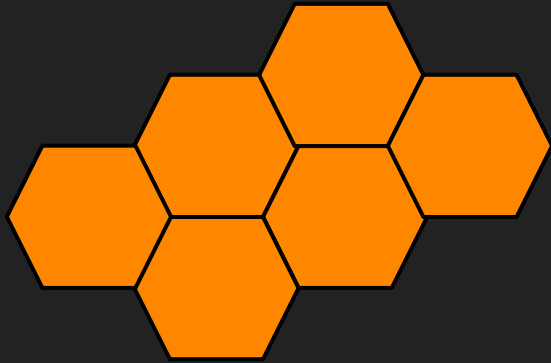


Connected Hive



BESNIER Benjamin - LEVESQUE Théo - WEILL William

The project

Monitor the hive remotely with sensors
Temperature, humidity, weight and
pressure

Collect, process and visualize data

Fast and easy deployment



Deployment

ESP32 connected to sensors

SX1272 for LoRa communication

Raspberry Pi with Pico Gateway for retrieve

LoRa packets and send it to a server

Web server for process, store and visualize
measures

Data sending

Optimization of transmission

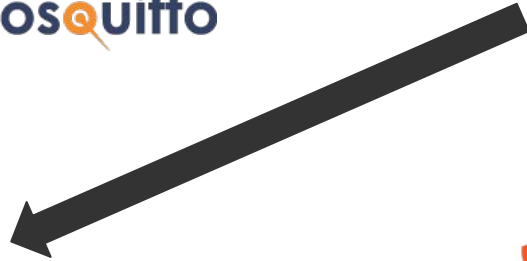
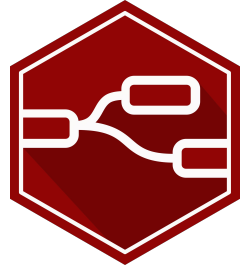
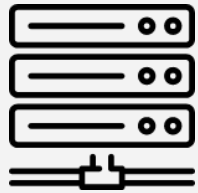
Sensors data are sended with the following protocol

ID	Measure 1	Measure 2	...	Measure 10
1 byte	4 bytes	4 bytes	...	4 bytes

Localisation ID	Card ID
4 bits	4 bits

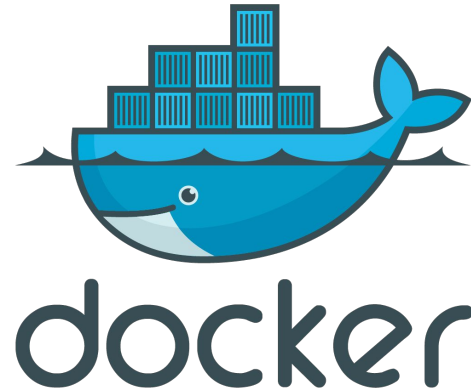


Functionment flow



Docker everywhere

For an easy deployment, all the components are shipped into a container
We use Docker Compose to manage all the containers



Future developments

More sensors - Better report of the state of the hive

LoRaWAN - Easier configuration of ESP32 card

Eclipse SmartHome - View localisation of sensors and add compatibility with other systems



Demonstration



Thanks for
listening