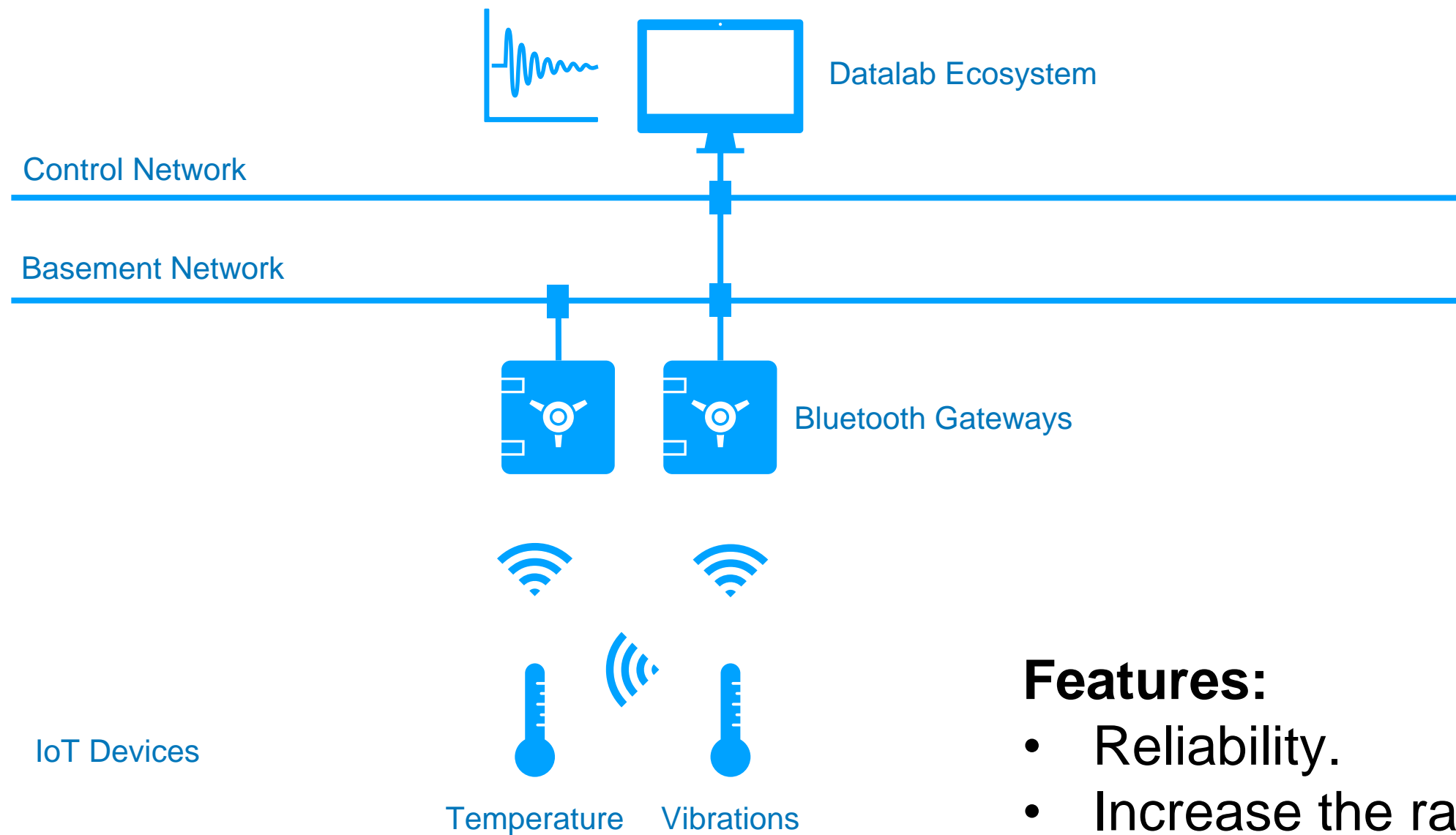




Thermography Application on CBM 2021 Summer Student Project

María Paz Morales

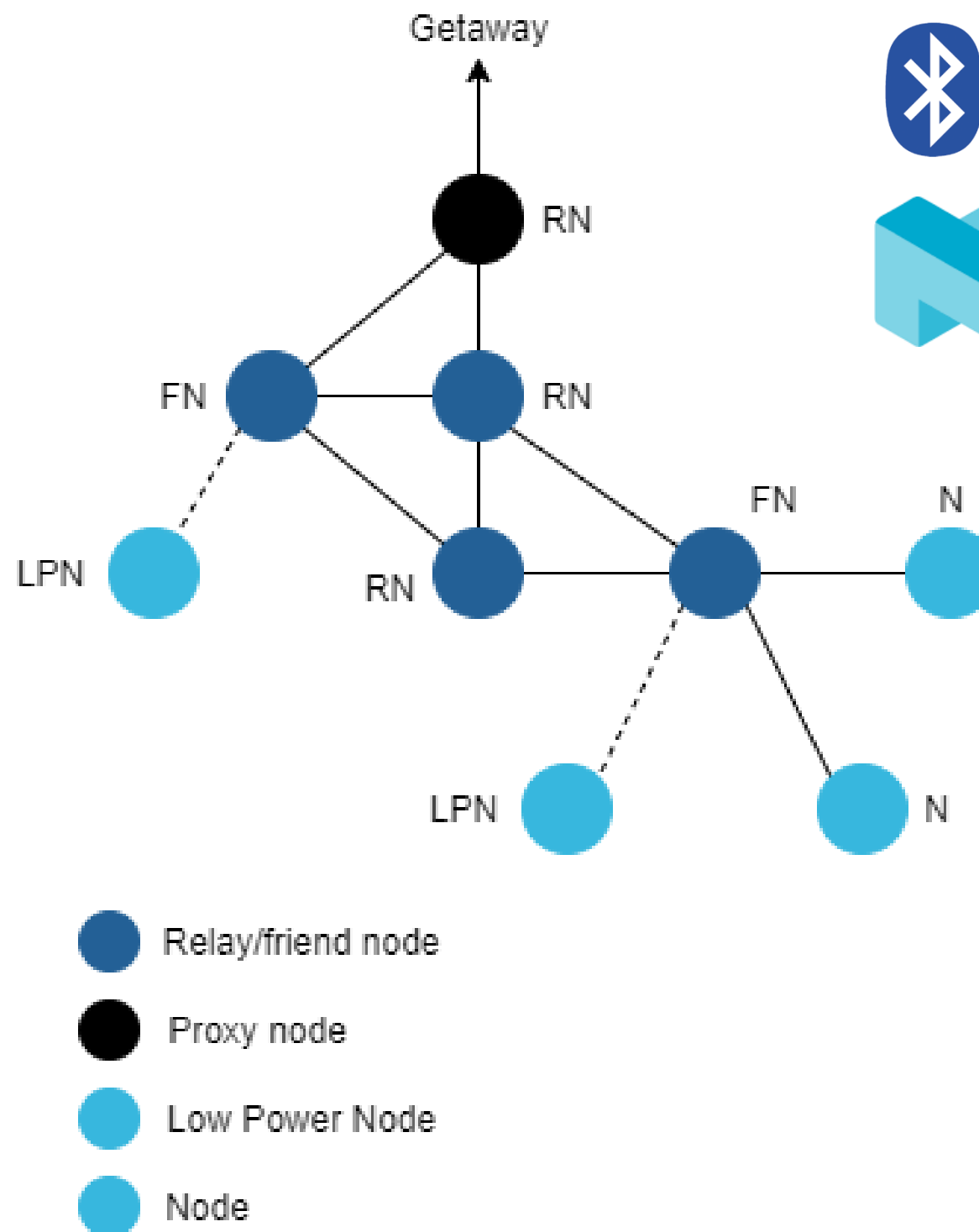
2021 Network Topology Bluetooth



Features:

- Reliability.
- Increase the range.
- Scalables.
- More complex.
- Lower data rate.

2021 Network Topology Bluetooth





Project:

Thermographic camera for telescope maintenance

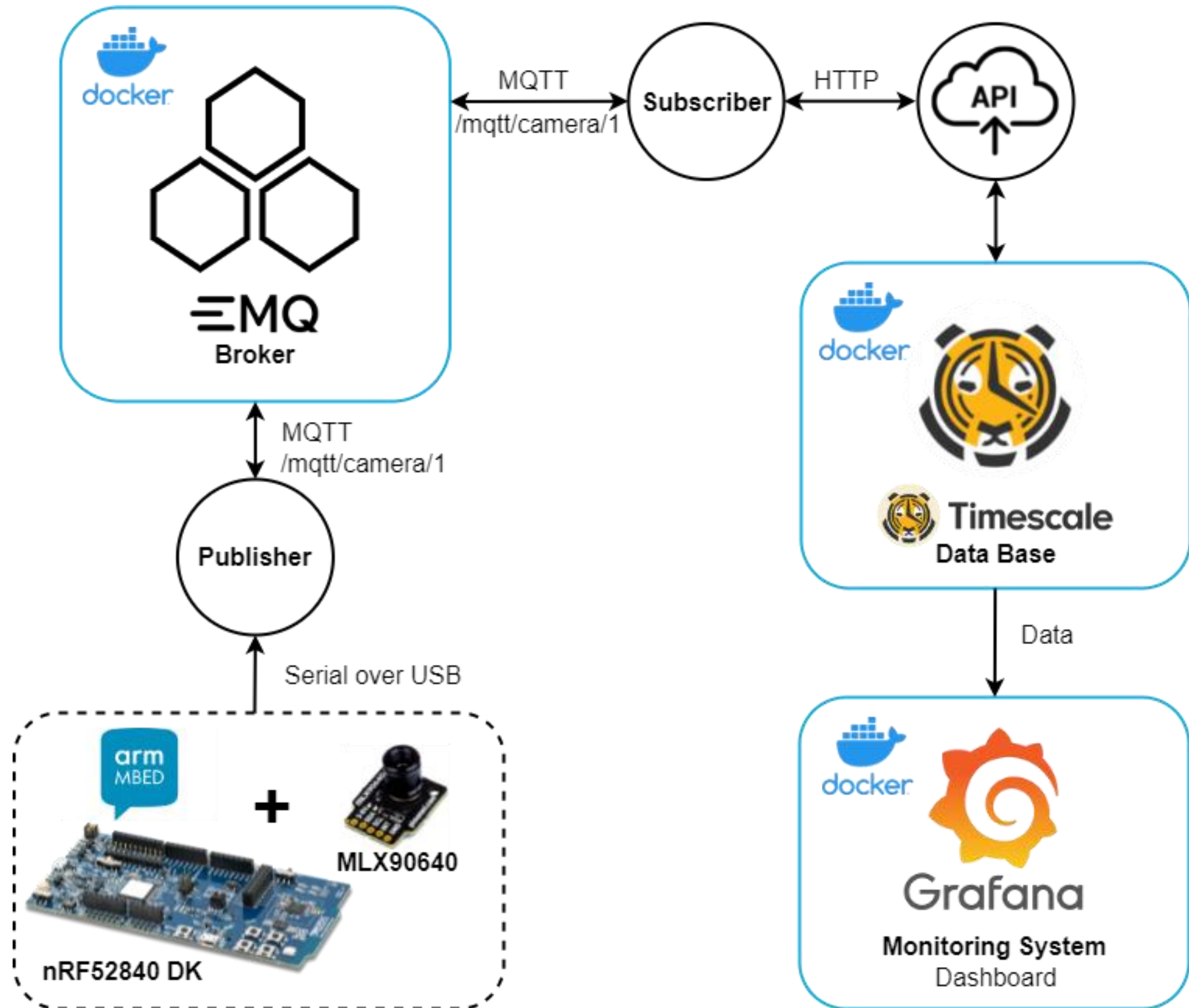
Getting practice and be familiar with the IoT technology using a small thermal camera to be deployed in the field in our telescopes for maintenance purpose.

Objetives:

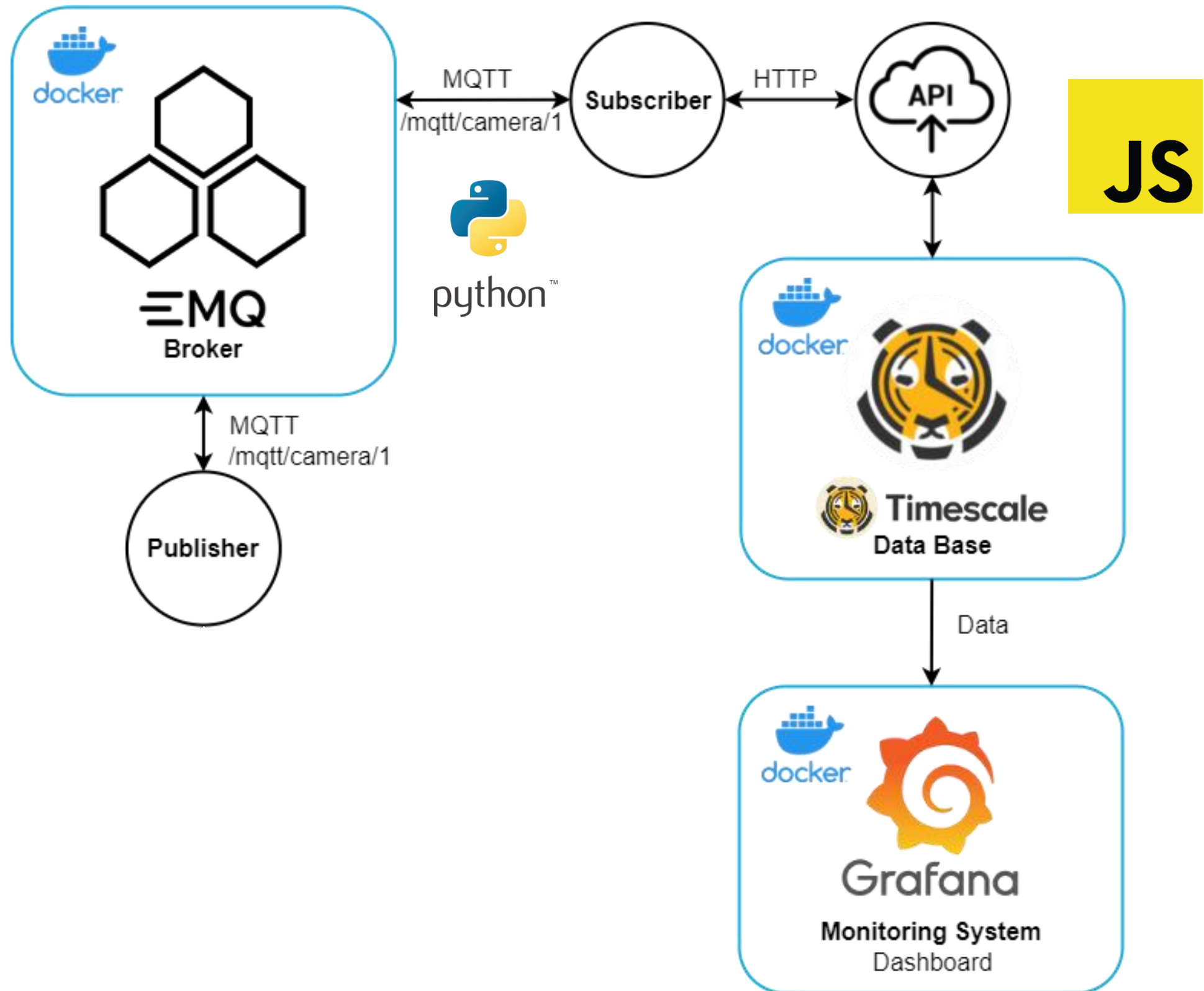
- Get familiar with the HW/SW and existing experiment.
- Automate data collection and analysis to provide information for predictive maintenance.
- Test and validate in the field

Solution: Event-based Architecture

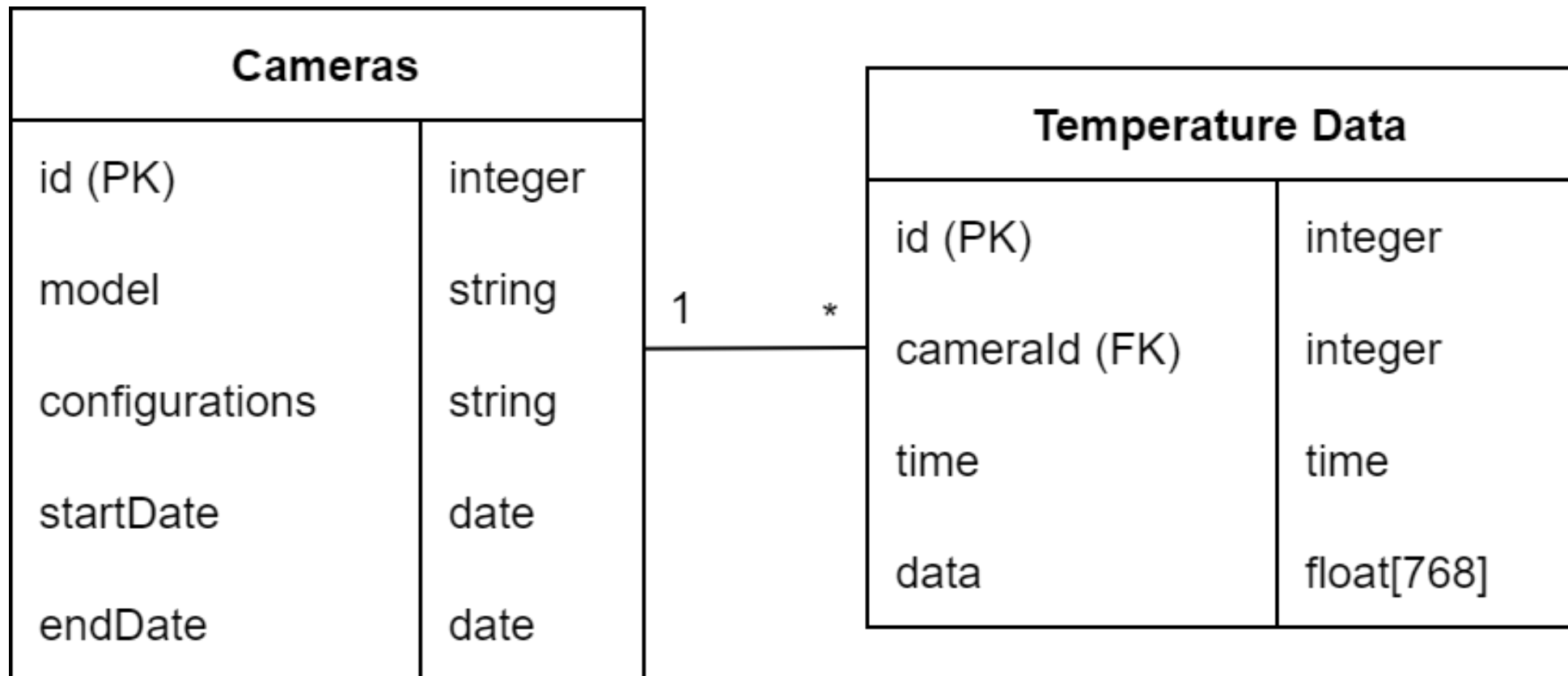
What was done



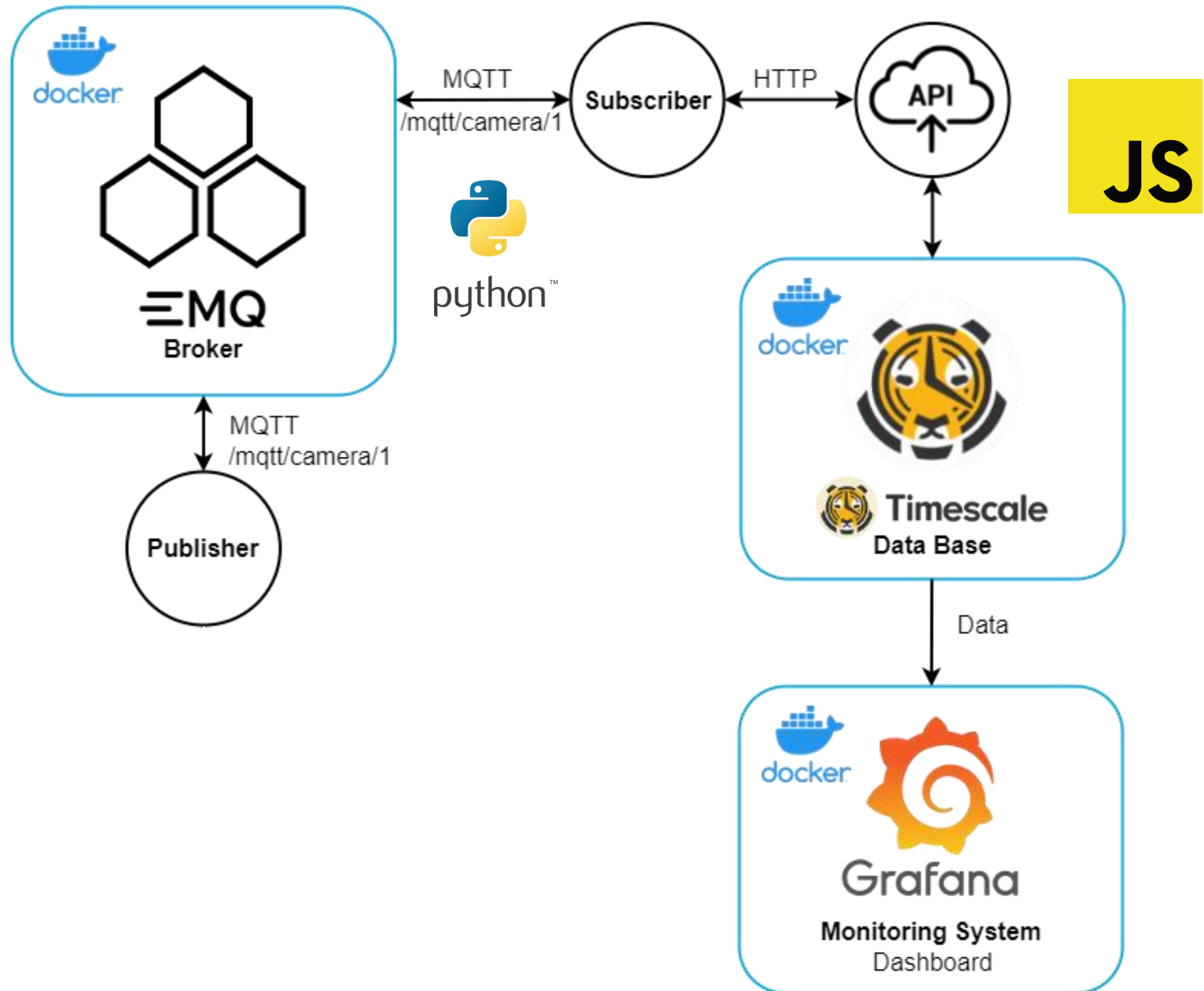
Solution: First Month



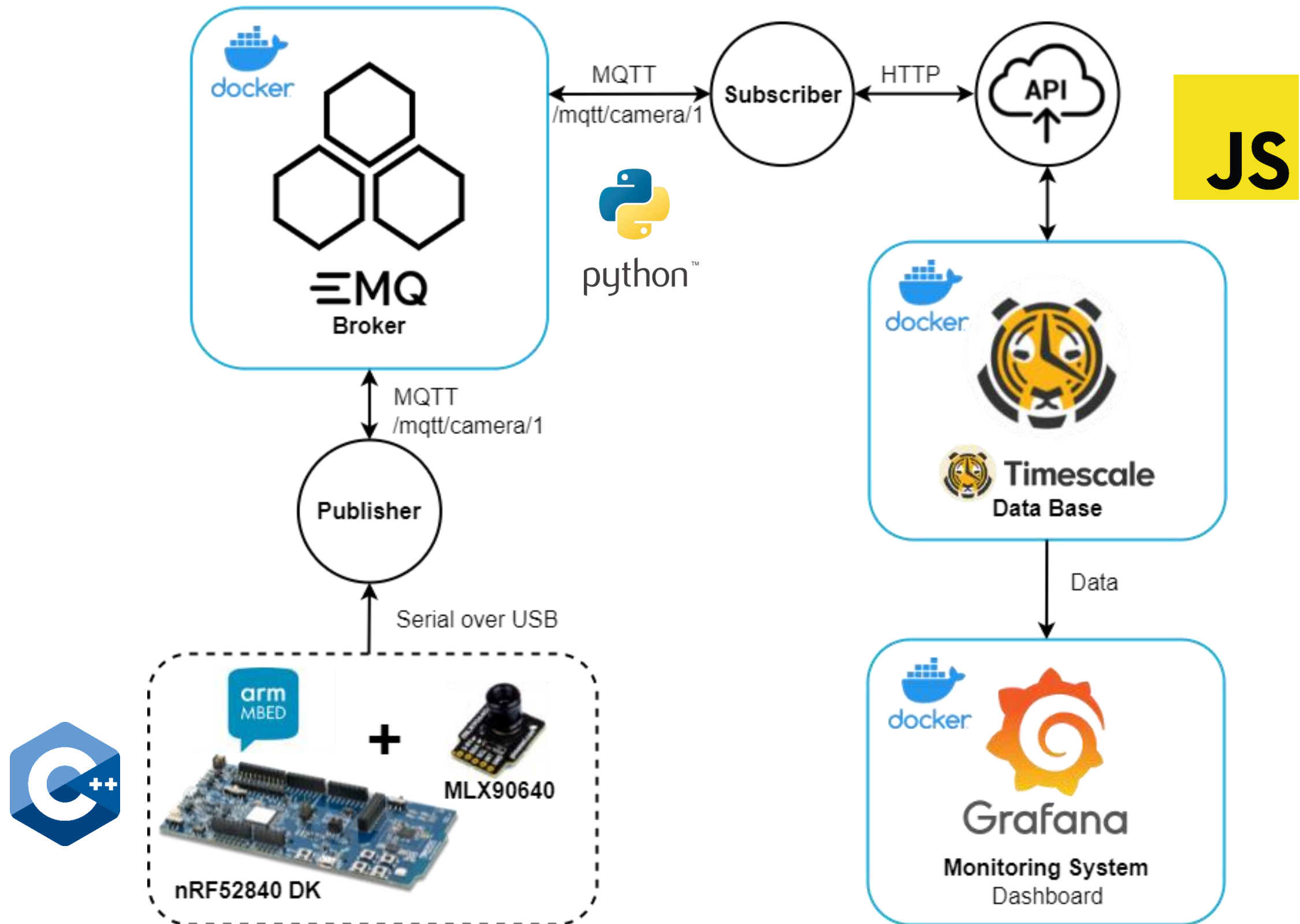
Solution: Database Model



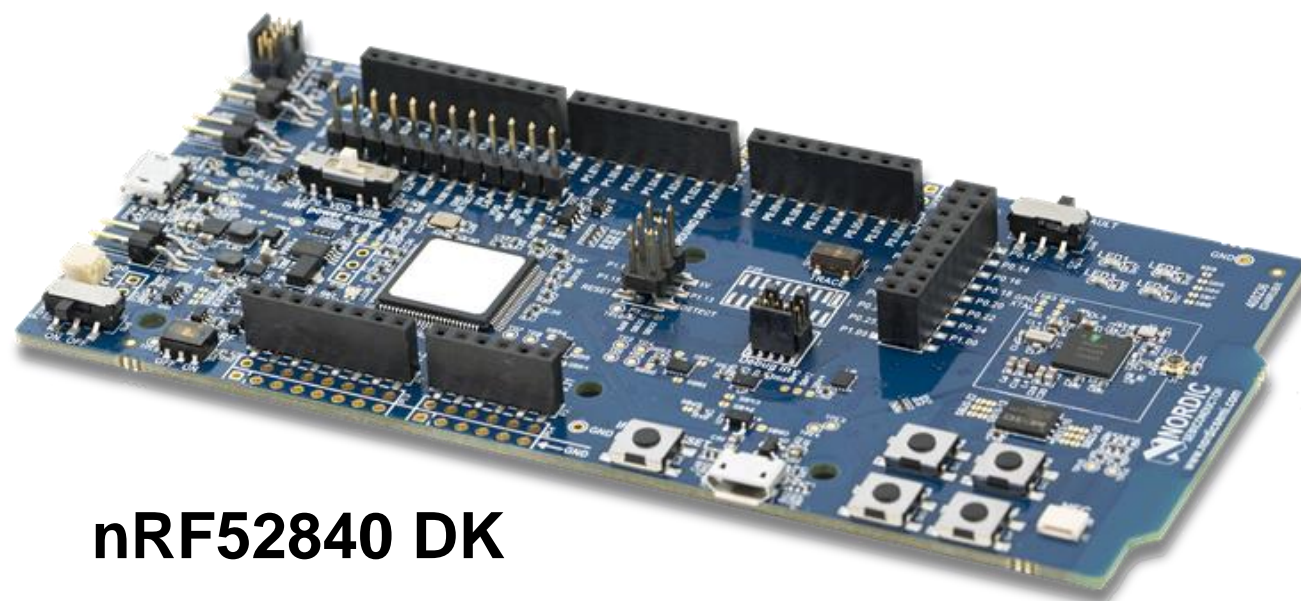
Solution: First Month



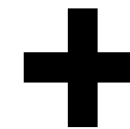
Then...electronics



Nordic Development kit

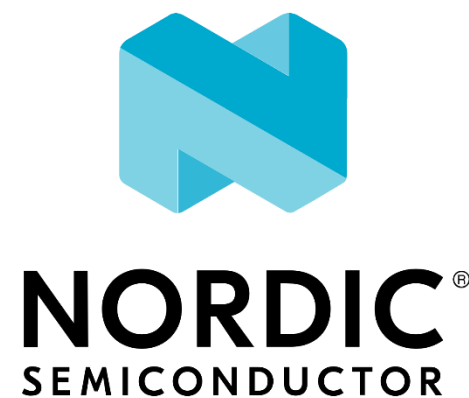


nRF52840 DK



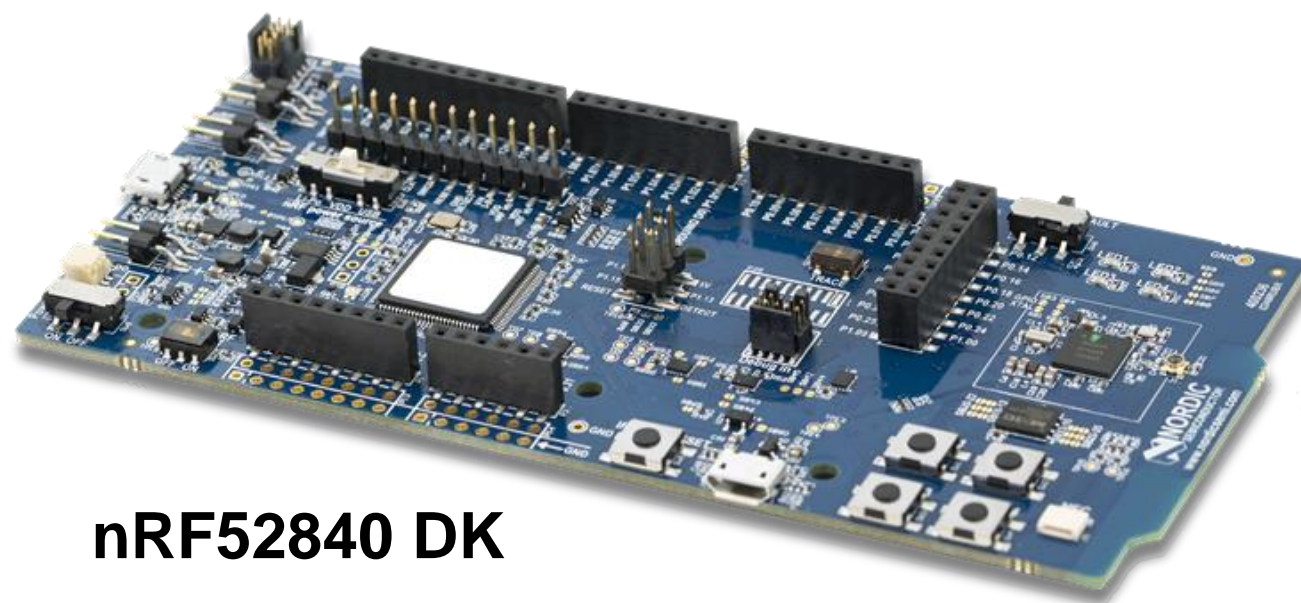
MLX90640

- Interface MCU firmware → J-Link

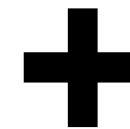


...a lot of
documentation

Nordic Development kit

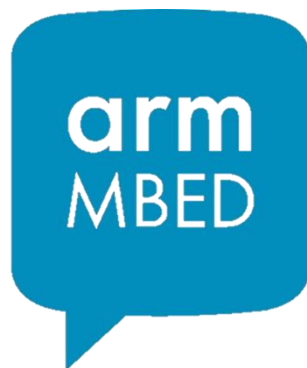


nRF52840 DK



MLX90640

- Interface MCU firmware  Mbed



Mbed Studio

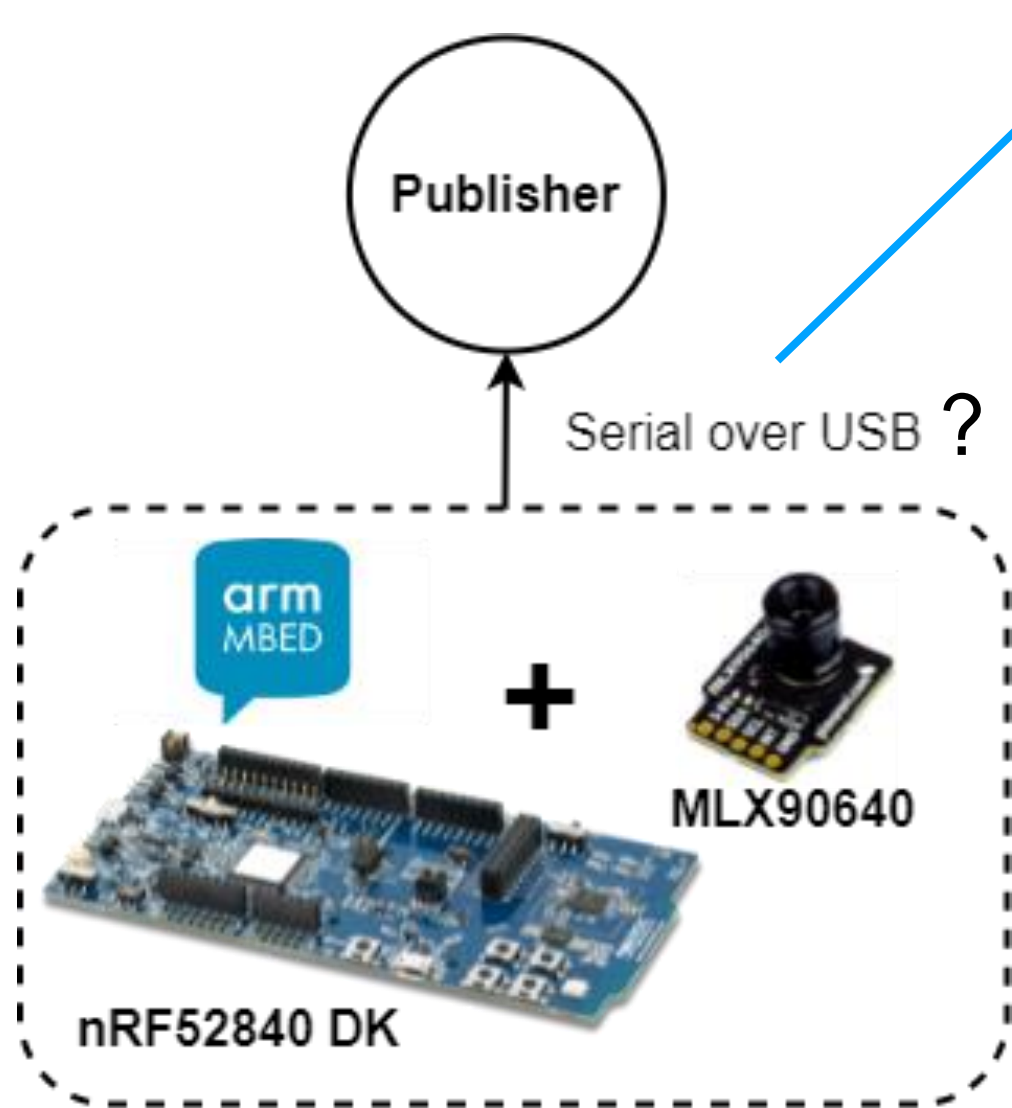


PuTTY



...a lot of
documentation

Three days left...



Bluetooth[®] Low Energy

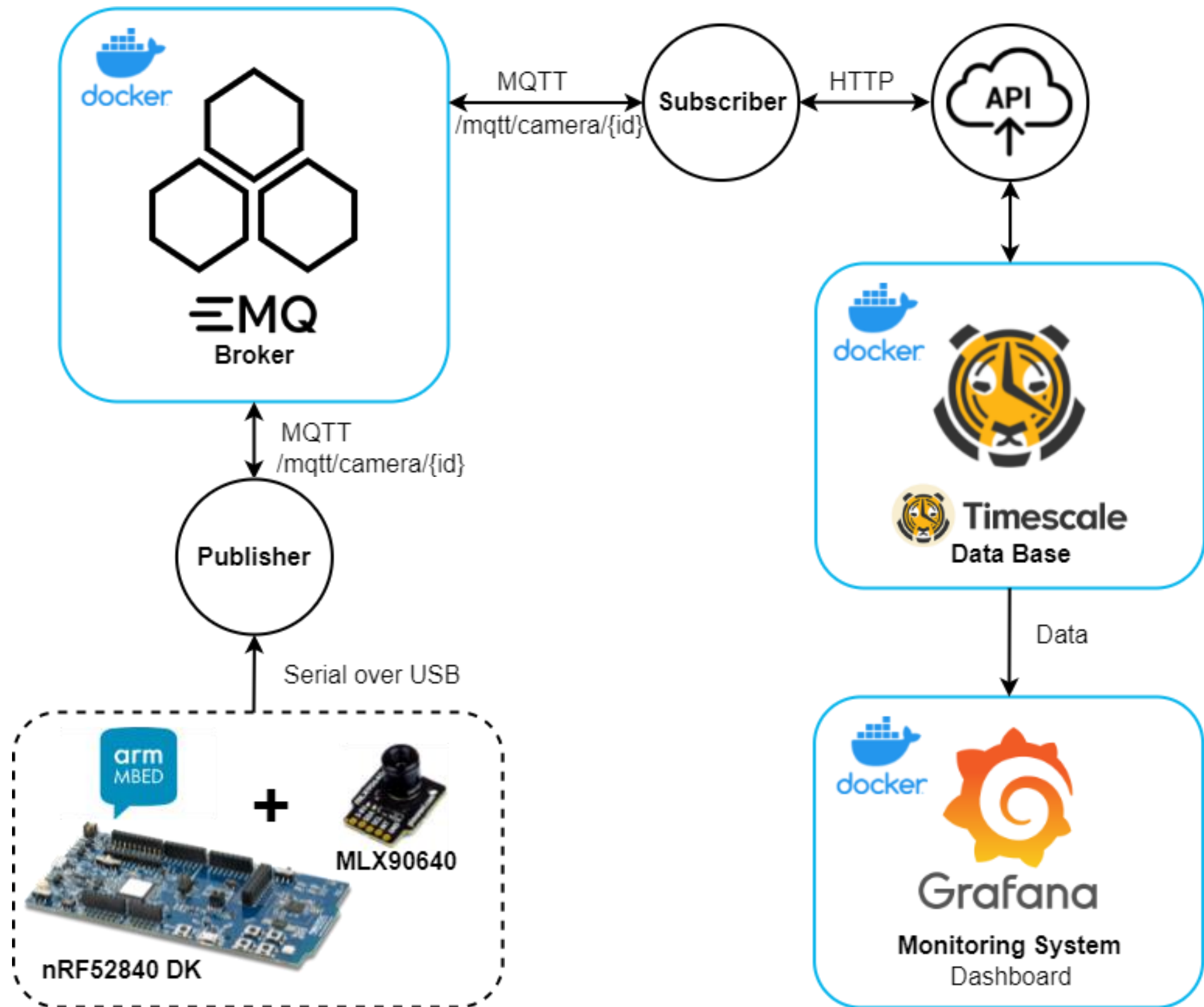
Development Environment
Limitations:

- 244 bytes per notification.



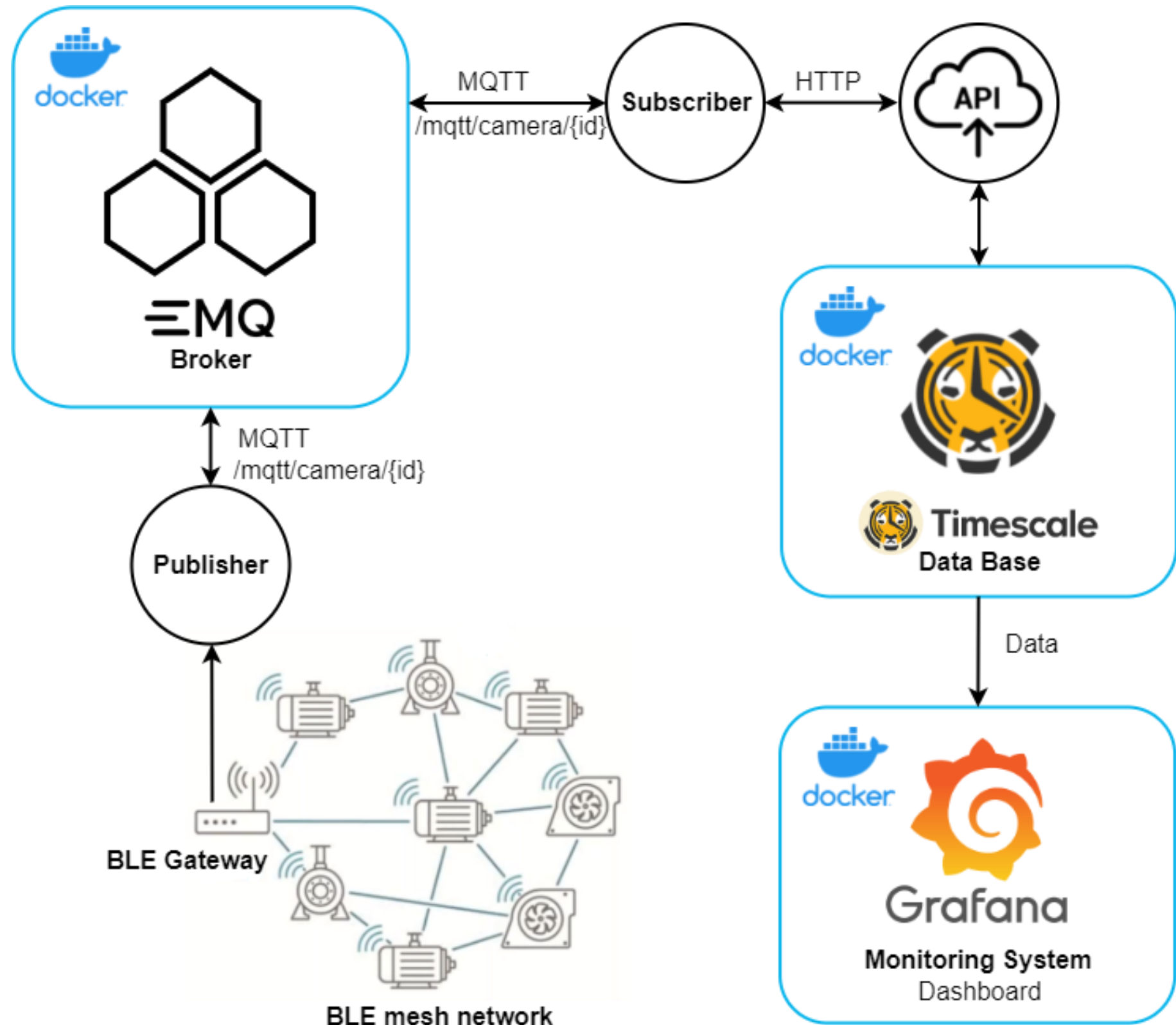
- Due to time limitation.

What was done:



Future Improvements:

BLE and Mesh Network



Future Improvements:

BLE and Mesh Network

Another improvements:

- Camera calibration.
- Field testing.
- New types of dashboards.
- Data Analysis / Alerts

