

Master Lab Course

Edge Computing

Lecturers

Michael Gerndt and Vladimir Podolskiy

Chair for Computer Architecture and Parallel Systems

Goals

- Familiarization with IoT Cloud concepts
- Implement a concrete use case
- Deploy Machine Learning technologies

IoT

Use sensors and actuators for decision management support and fully autonomous control tasks

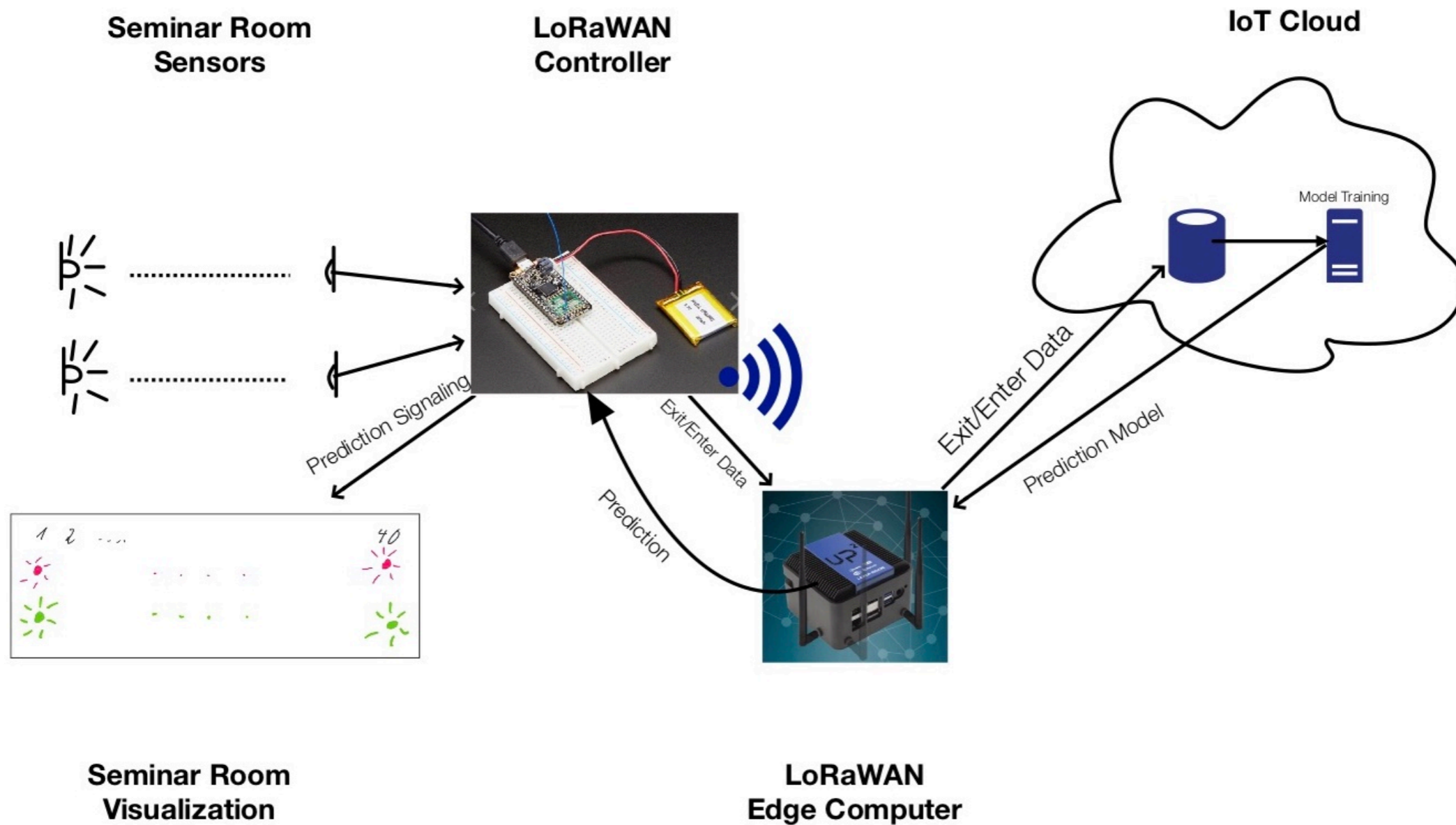
Use Case

Seminar Room Monitoring

Features

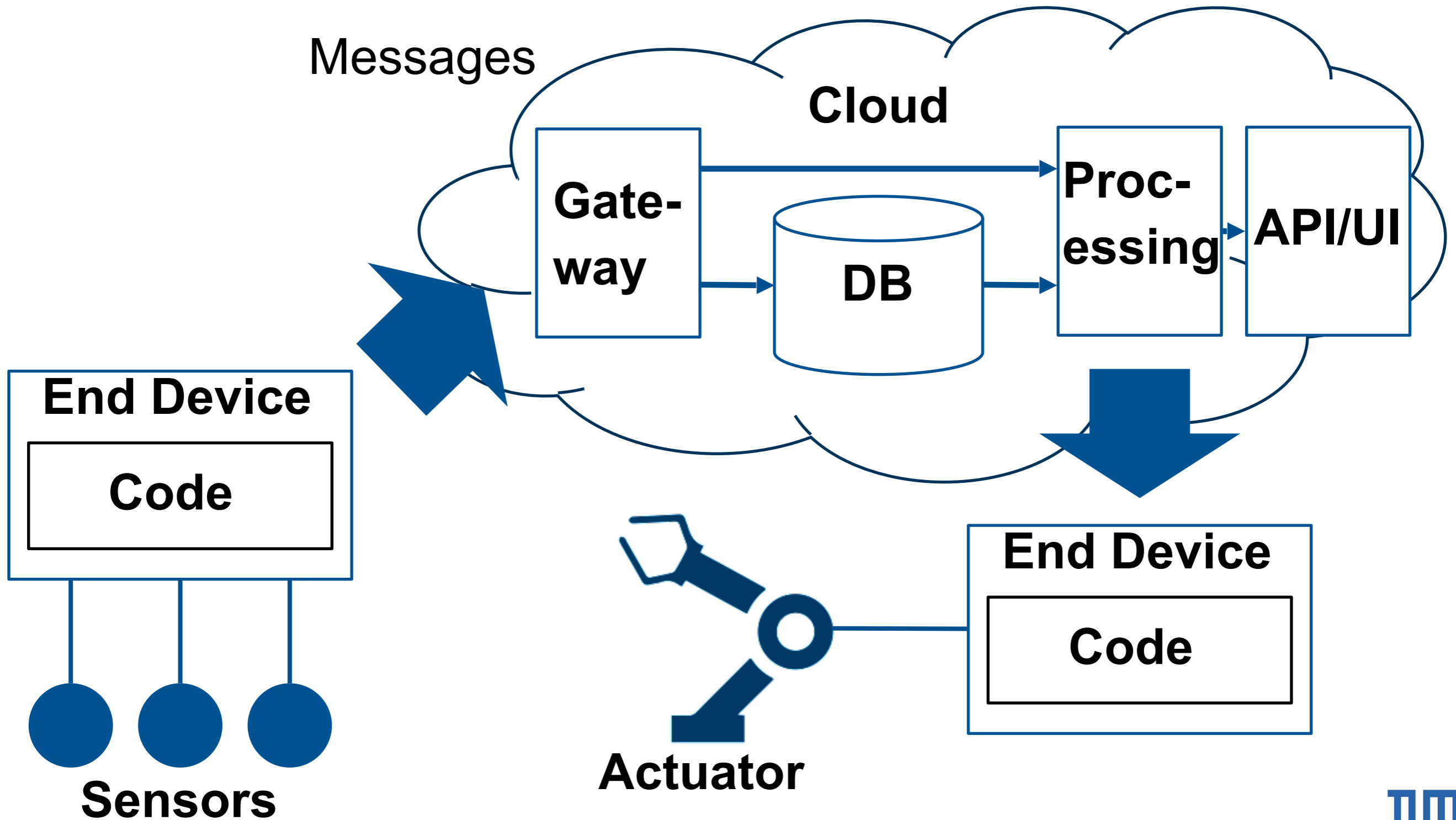
1. Room Occupancy Prediction
2. Anomaly Detection

Final Architecture

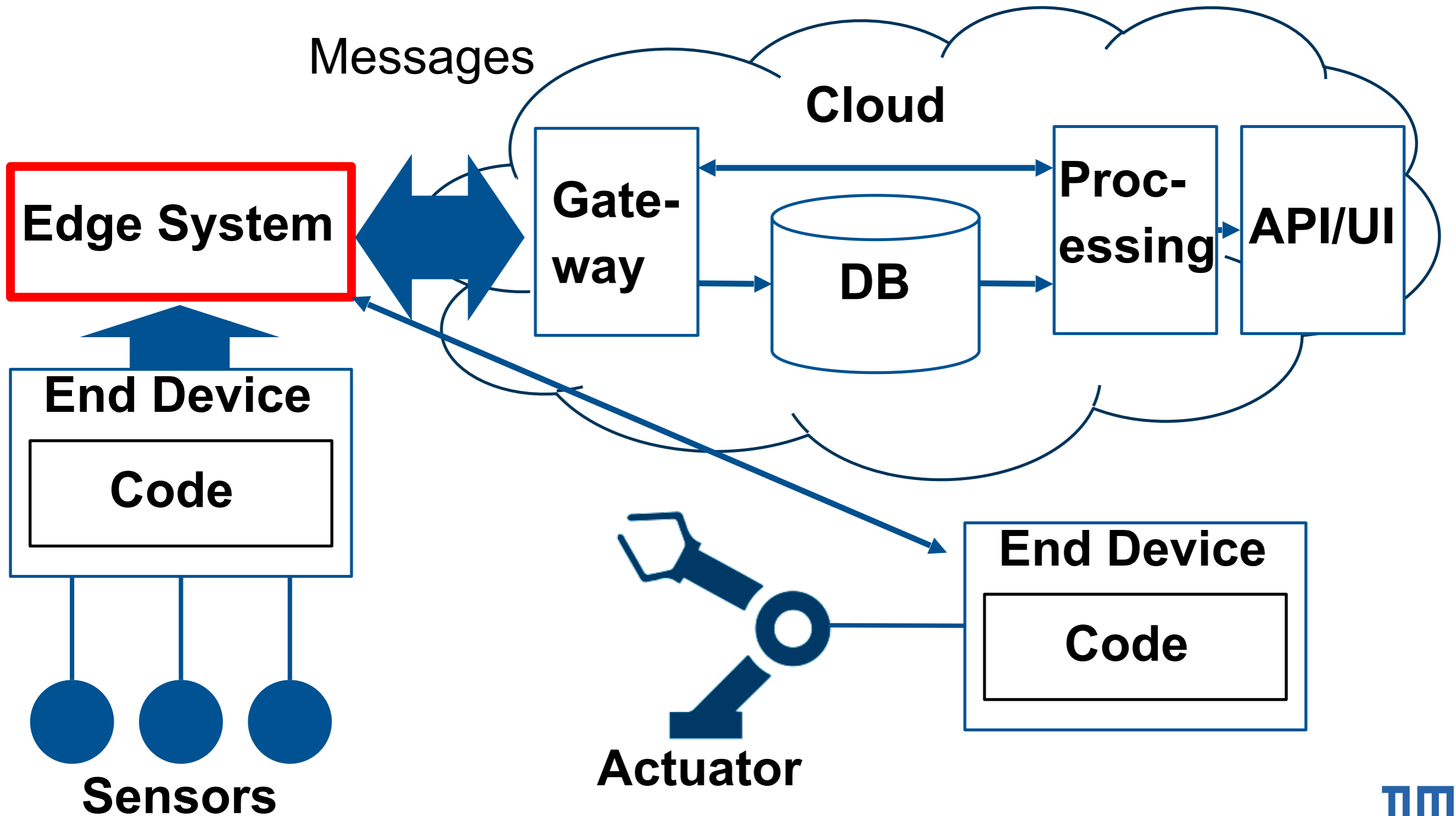


IoT Platform

IoT Platform



IoT Platform



Milestones

1. **Demonstrator** on breadboard via TTN (W3)
2. **Prototype** on room testbed via TTN/IoT Cloud (W6)
3. **Deployment** via edge computer (W10)
4. **Anomaly detection** (W14)

Grading

- Each milestone
 - Level of fulfillment of requirements based on demonstration
- Final presentation and questioning
- Equally weighted (20%)

Learning Outcomes

- You
 - ... will be familiar with micro controller programming
 - ... will be able to produce your own IoT controller
 - ... will know a typical IoT platform
 - ... will be able to master cloud deployments
 - ... will know about machine learning technologies
 - ... will be a rare specialist in these areas
- We
 - ... will learn about the challenges you faced
 - ... will be able to improve the course
 - ... will integrate the outcome into the I10 IoT Cloud

Questions