

IoT Labs: Projects Proposal

- Global Outcomes

- Analyze the constraints of an LPWAN based on LoRaWAN
- Deploy an end-to-end IoT service over LoRaWAN
- Design the different components of an end-to-end IoT chain
 - Physical interface of an IoT device
 - Control and actuation
 - Data storage, visualization, and analytics

- Requirements and Constraints

- Use the ESIB LoRaWAN platform
- Provide working code and proof of concepts
- Provide technical documentation

- [CO] Connecting the Platform

- Describe and analyze the basic steps for sending and receiving data over LoRaWAN: [IoT Labs: Exploring LoRaWAN](#)

- [PO] LoRaGreen: Smart Classroom

- Design and implement an end-to-end IoT service
 - Detect, transmit, store, and visualize
 - Classroom occupancy
 - Classroom lighting and temperature
- Analyze and correlate occupancy and lighting

- [PO] LoRaMarathon: Live GPS Tracking

- Design and implement an end-to-end IoT service
 - Detect, transmit, store, and visualize
 - GPS position of device
 - RSSI level
- Track device on a dynamic map

- [PO] LoRaBot: Device Configuration via Messenger

- Design and implement an end-to-end IoT service

- Tune radio parameters (SF, transmit period, sleep, etc.)
- Use a messenger robot to interact with device

- . [PO] LoRaPark: Parking Counters

- Detect, transmit, store, and visualize
 - Car entrance and exit of parking
- Make data available on a messenger robot

- . Assessment and Grading

Assessment 1 Common outcome 1 Personal outcome Technical tutorial on Wiki Oral presentation of achievements Accomplished Exceeded

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