

Lab 6

*School of Architecture, Civil and
Environmental Engineering*

EPFL, WS 2021-2022

http://disal.epfl.ch/teaching/signals_instruments_systems/

What you will learn today

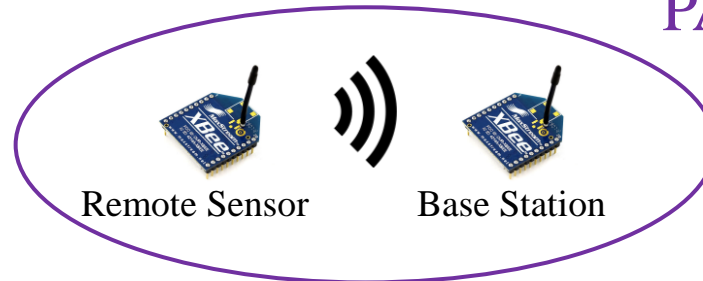
- Control of a remote sensor
- Interrupts
- Programming of your own step counter

This lab uses a lot of concepts from Lab 5. If you do not remember how to use the Arduino boards, go back to lab 5 for a refresher.

Control of a remote sensor

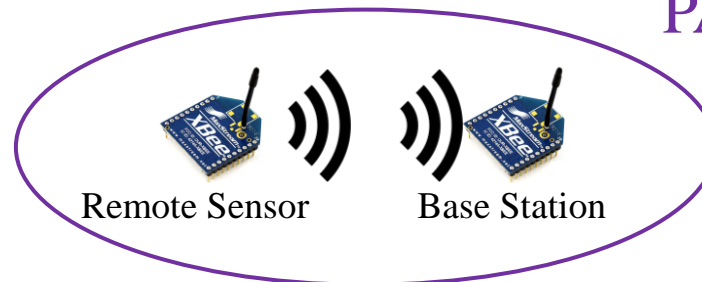
- In Lab 5: Remote node gets data, sends it to base station, which sends to the PC.

PAN ID: Y



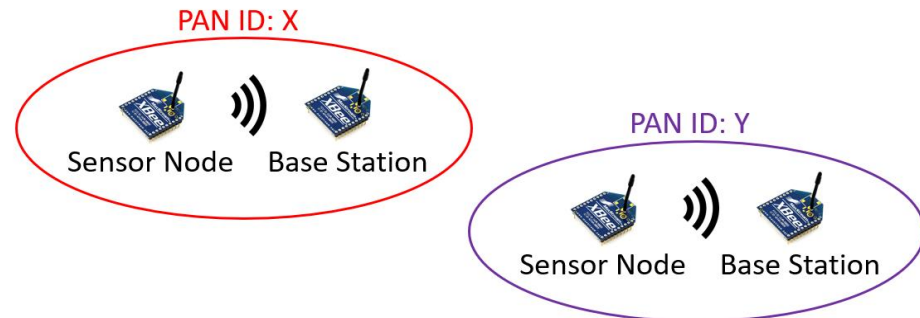
- In Lab 6: Base station requests different types of data from remote sensor

PAN ID: Y



Reminder!!!!

- In part 1, set the same PAN ID in the transmitter and in the receiver to create a network (**use the number of your computer as PAN ID**)



Interrupts

- Used to alert the processor that an event needs attention
- An event triggers a response -> execution of an Interrupt Service Routine (ISR)
- Hardware VS Software interrupts
- Pin configured as interrupt on Arduino by writing to some registers (temporary storage places in the microprocessor)

Step Counter

- Use accelerometer data to determine if a person holding the Arduino is moving or not
- Gait model: acceleration while moving forward followed by a deceleration
- Importance of sensor calibration

Please fill in the feedback form for Lab 6!

Thank you!