IT.2306/IT.2406 Connected Systems Design

General information

Title: Design of IoT systems
Code: IT.2306
Responsible: Lina MROUEH or Gilles Carpentier
ECTS: 5
Average amount of work per student: 150 hours, including 42 hours supervised.
Teamwork: yes

Presentation

With more than 27 billion connected objects estimated in 2024, the Internet of Things is currently at the heart of digital evolution. The Internet of Things now makes it possible to offer secure and optimized services and daily applications. System integration corresponds to a set of activities that enable new solutions to be created from existing elements, in particular:

- Integration of different components to build a new system
- Porting software to another system or hardware
- Revamping
- Retro engineering
- Integration of a new application in an existing information system
- Creating a new solution by creating new relationships between existing services

This module gives a systemic and transverse vision of connected object systems. After an introduction of the fundamental notions, a transverse project will be carried out in a group allowing the integration of sensors and actuators, gateways, long distance networks, cloud and big data.

Content/Program

The concepts developed in this module are:

- Architecture and eco-design of connected systems
- Data processing and analysis: Cloud and edge computing and big data
- Network security and reliability
- Introduction and overview of system integration
- Open-source strategy
- Tools for integration (BPM, ETL, BI, Spring)
- Testing and validation

Software tools used in the course

Linux, Raspberry, Beaglebone, IntalioBPM, Weka, eclipse BIRT, Spring, Selenium