



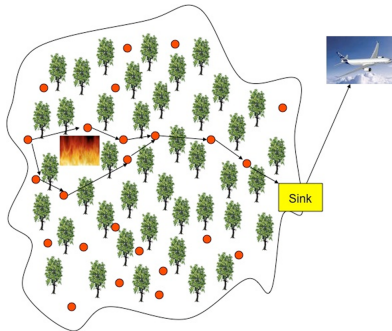
Institut  
Mines-Telecom

## **Projet fil conducteur filierre Telecom**

# **Performance Analysis of a realistic Cloud Radio Access Network**

C. Ware, P. Ciblat, G. Rekaya, G. Pham,  
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TELECOM205

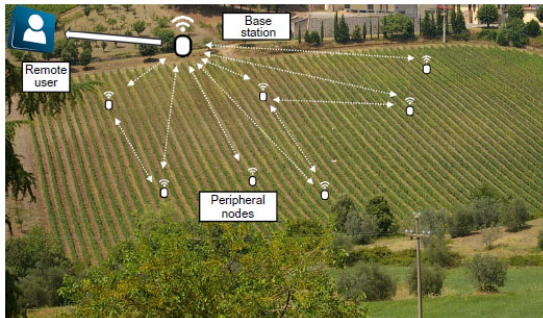


Source: MDPI

## Objectives

Design, model and size a complete Wireless Network

# Context -Wireless Sensor Network

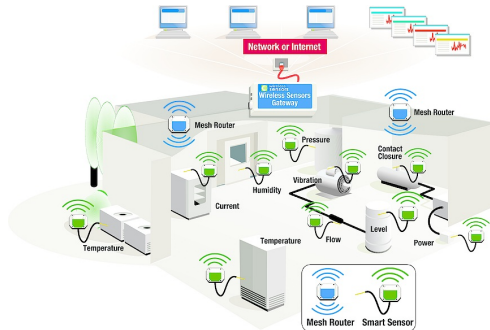


Source: Dovepress

## Objectives

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# Context -Wireless Sensor Network

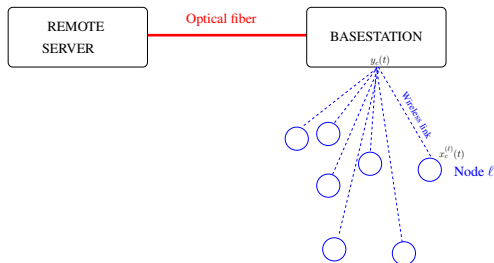


Source: Insight Tech.

## Objectives

Design, model and size a complete Wireless Network

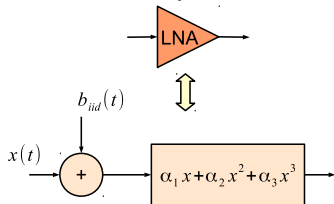
# The project



- ▶ The communication between the nodes and the basestation is wireless.
- ▶ The communication between the basestation and the remote server is optical.

# What is designing, modeling and sizing

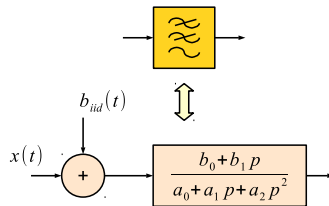
## ► Low Noise Amplifier



## ► Metrics

- Linearity, noise, power consumption ...

## ► Filter

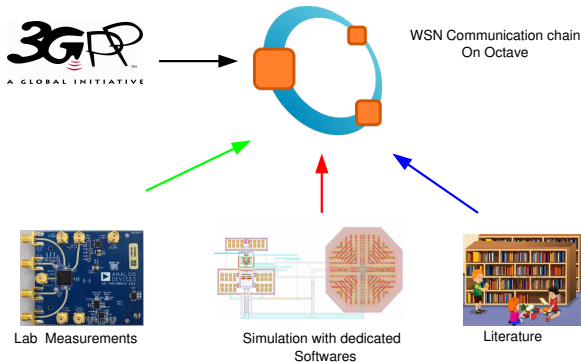


## ► Metrics

- Order, Cut-off frequency ...

Create a simulator program to estimate performance

# How will we build the simulator?



# Project Objectives

- ▶ Design a communication system end-to-end against performance requirements (such as error rates) taking into account realistic models of physical signal transmission (in electrical, radio and optical forms).
- ▶ Explain the mathematical techniques and models used for data communication in general (modulation, coding) and as a physical signal over specific devices (radio channel, optical fiber...)
- ▶ The project is meant to help you create links between the different fields of the specialty and have the vision of a system engineer. You will be highly evaluated on this point



# Project Organization

- ▶ The project module is scheduled in the second semester but all the modules have courses/labs that are linked to the project.
- ▶ The project groups will be composed of 2-3 students.
- ▶ Several milestones/delivrables are expected from you before the final defense
- ▶ The project is composed of 26 THs during which professors will be present and of many many many hours (ok not this many) of personal work.