MASTER'S THESIS INTERNSHIP OFFER

DESCRIPTION

> **Title :** <u>Massive Access in IoT with LORA system</u>

> **Hosting organization:** ENSIL/ENSCI, SRI axis, team RESYST

> **Lab:** Xlim, SRI axis

> **Research Team:** Team RESYST: Réseaux et Systèmes Intelligents

> **Scientific pole:** Cliquez ou appuyez ici pour entrer du texte.

> **Starting date (month/date):** 1er mars 2023

> **Short description of the internship offer (up to 5 sentences):**

The context is the transmissions of wireless sensors using LPWAN (Low Power Wide Area Network) such as LORA. We want to test on a practical system some protocols that we have invented recently during a PhD thesis. Particularly, we want to know how to resolve the collisions of packets when they are transmitted on the same frequency bandwidths. Some mechanisms will be tested during this Internship using the LORA system.

> **Objectives (up to 5 sentences):**

The objectives is to confirm the efficiency of some transmission protocols we have derived recently. The goal is to validate the proposed protocols on a practical LPWAN system such as LORA. The main result is the management of the packet collisions with the use of power to discriminate the users and we want to check its efficiency with this internship.

> **Description of the internship offer:**

The topic has been described just before, the important point is that we have a PhD proposal after this internship in the field of Massive Access Machine Type Communication for the IoT (Internet of Things) deployment.

> **Photo (optional)**
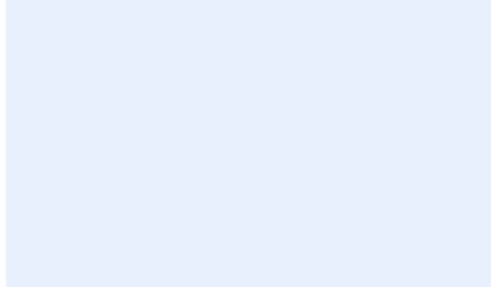
> **Description of the research team:**

The research team is RUBIH which is one of the teams of the axis SRI. This team develops new algorithms to optimize communication chains and it is particularly involved in the IoT with the problem of massive access. We are looking for a new PhD student for September 2023 and this Internship is a good way to test a potential candidate.

SKILLS

> **Expected skills of the applicant:**

Skills in programming (Arduino,C++, Python…) and in digital communications

PHD THESIS OPPORTUNITIES

> **PhD thesis opportunity after the Master course:**

☒ Yes   ☐ No

> **If yes, financing already obtained:**

☒ Yes   ☐ No

> **If yes, what kind of funds:** MESR funds plus CASI Funds

> Surname and first name of the internship supervisor(s):
Jean Pierre CANCES

> Email of the supervisor(s): jean-pierre.cances@unilim.fr

> Phone number of the supervisor(s): 0625270314

> The application shall be sent to the email: jean-pierre.cances@unilim.fr

> Closing date for applications: 31 janvier 2023