



VITTAMAP - INTERACTIVE MAP OF THE EDUCATIONAL COMMUNITY

Interactive mapping platform for sharing educational projects in programming, electronics and science

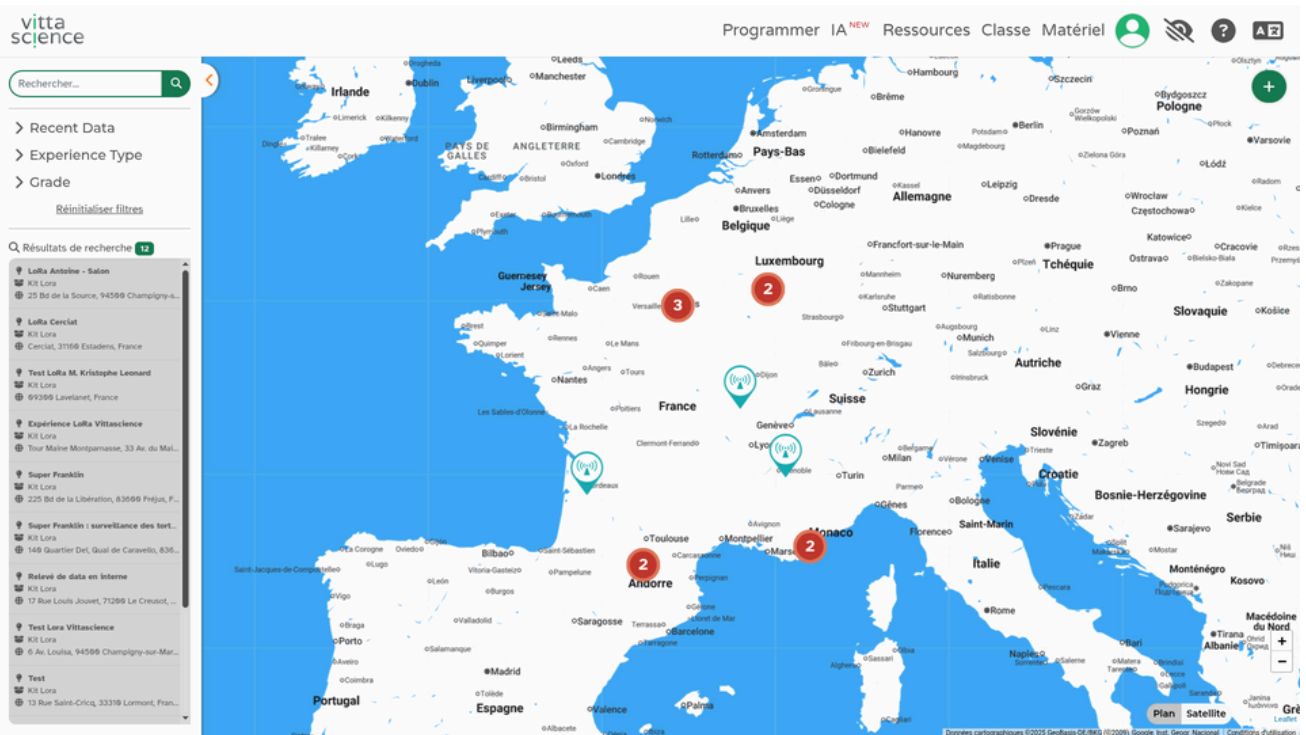


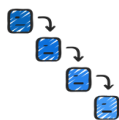
Welcome to Vittamap, an interactive mapping platform developed by Vittascience that allows the educational community to share and discover educational projects in the fields of programming, robotics, electronics and science.

This collaborative map provides valuable inspiration for teachers and students looking to explore new educational experiences or showcase their own achievements.

The tool is part of SteamCity's philosophy of democratizing digital and science education by offering free and accessible resources to all. Vittamap thus transforms geography into a shared educational space, where each point on the map represents a concrete experience carried out by a member of the community.

To begin exploring Vittamap, head over to the dedicated page at <https://fr.vittascience.com/vittamap/>. The interface opens directly onto an interactive map displaying the various projects shared by the community. Navigation is intuitive and requires no prior installation since the application runs entirely in your web browser. The map displays a general view by default, giving you an overview of the available projects. The colored markers represent the different shared experiences, and their geographical distribution gives you an immediate idea of the scope of the Vittascience community.





PROCEDURE AND FIRST STEPS WITH VITAMAP

Create your user account

To take full advantage of VittaMap's features, including adding your own experiments, you must create a Vittascience account. This free registration gives you access not only to VittaMap but also to all the tools on the Vittascience platform, including programming interfaces and educational resources.

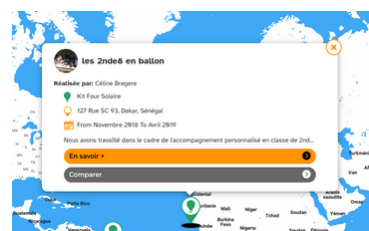
The registration process is quick and easy. For teachers, it is recommended that you use your work email address, which will facilitate access to specific teaching features, including the classroom management module.

Once your account is created and validated, you'll be able to log in and access all of VittaMap's sharing and contribution features. Your profile will allow you to manage your published projects and track the community's progress.

Map navigation

VittaMap's exploration relies on a fluid map interface that makes it easy to navigate between different projects. You can zoom in and out using your mouse wheel or the zoom buttons on the interface. Moving around the map is simply done by clicking and holding the mouse button while moving the cursor.

Each marker on the map represents a project or shared experience. Clicking on a marker gives you an overview of the project, along with its title and a short description. The density of markers in certain areas reflects the community's activity in those regions. Feel free to explore different geographic areas to discover a variety of projects and draw inspiration from the teaching practices of other schools or teachers.



To make it easier to explore the many projects available, VittaMap offers filtering and search tools. These features allow you to precisely target projects that match your educational needs or interests.

Filters can be based on various criteria, such as grade level (elementary, middle, high school), type of experiment (solar balloon, solar oven, air quality, Mars rover, etc.), or whether a project has recently reported data. These filters help you quickly identify projects that are relevant to your teaching context.

The text search function complements these filters by allowing you to search for specific keywords in project titles and descriptions. You can search for projects on a specific theme such as "weather station," "line-following robot," or "artificial intelligence," and discover all the variations and approaches proposed by the community.

View project details

Once on a project overview, you can click on “Learn more” which gives you access to a more complete sheet, providing essential information to understand and potentially reproduce the experience.

You will generally find the title of the project, the teacher in charge, the subject taught, the description of the experience, anecdotes, advice, photos or videos, as well as - in the context of an active experience - the data collected and transmitted to the platform in real time.

From this page you can also contact the project leaders.

💡 les 2nde8 en ballon

Enseignant: Céline Bregeré

Établissement:

Matière enseignée: Numérique et sciences informatiques (NSI)

💡 Kit Ballon Solaire

👤 Aucune

📍 127 Rue SC 93, Dakar, Sénégal

📅 De Novembre 2018 à Avril 2019

✍ Description de l'expérience

Nous avons travaillé dans le cadre de l'accompagnement personnalisé en classe de 2nde.

Le projet a mobilisé 30 élèves, répartis en 2 groupes.

Des tâches différentes ont été données afin que chacun puisse s'investir: construction du ballon, construction de la nacelle, montage électrique, programmation.

📖 Anecdotes

Bien accrocher les capteurs dans la nacelle... sous peine de rechercher le capteur température, pression... avec toute la classe sur le terrain de foot. Spéciale dédicace pour Matys :)

👍 Conseils

Allez y, c'est génial.

Par contre, il faut éviter le vent... et même par une journée ensoleillée, le ballon ne s'envole pas si le vent est trop fort.

📷 Photos/Vidéos

Cliquer sur un média pour l'agrandir.



Compare experiences between projects

VittaMap offers a comparison feature that allows you to analyze two projects on the platform side by side.

To use this feature, start by clicking on the first project you're interested in on the map. In the file that opens, select the "Compare" option. The project is then saved and you're redirected to the map to choose a second project.

Then click on a second project and select "Compare with selected experiment". The comparison page opens automatically, displaying both projects side by side.

The comparison page displays the fields filled in for each project: descriptions, completion dates, data collected, photos, anecdotes, and advice. This comparative view allows you to quickly identify the similarities and differences between the two experiences.

This feature is particularly useful for analyzing how the same type of project was carried out in different contexts, comparing the results obtained with different approaches, or observing the geographical and temporal variations of the same experience.



SHARE YOUR OWN PROJECTS AND JOIN THE COMMUNITY

Prepare your project for sharing

Before publishing your project on VittaMap, a preparation phase is essential to ensure that your sharing will be useful and inspiring for the community. Start by gathering all the elements that will allow other users to understand and replicate your experience. Document your project in a structured manner by writing a clear description of the intended educational objectives. Explain the context in which the project was carried out, the necessary prerequisites in terms of knowledge and materials, as well as the pedagogical progression followed. This documentation will serve as a guide for teachers wishing to adapt your project to their own context. Take quality photographs showing the different stages of implementation and the final result. If possible, make a short demonstration video that shows the project in action. These visual elements are essential for inspiring other community members to take ownership of your project and greatly facilitate understanding of what you have achieved.

Add a project to the map

Once you're logged into your account, adding a project to VittaMap is done directly on the map. Click the add project button, represented by a "+" symbol and the words "Add an experience." A form will then open to guide you through the publishing process. Here are the fields to complete:

- The project name should be clear and descriptive. Choose a title that immediately identifies the nature of your project and that will appear on the interactive map.
- For the kit type, select the option that matches your hardware (or the closest one) from the choices offered. If your project uses LoRa modules for data transmission, you can enter the devEUI identifier to enable tracking and interconnection with other projects using this technology (see the section dedicated to LoRa communication on Vittamap).
- The project description is the central space for detailing your experience. Present your objectives, the methodology followed, the technologies used, the data collected, and the results obtained. The more complete and structured your description is, the more useful it will be to the community.
- **The location is defined by searching for an address in the search bar or by clicking directly on the map to position the marker. This geolocation allows you to visualize the geographical distribution of projects and facilitates local collaborations.**
- Start and end dates document the timeline of your project. For evolving or still-active projects, the "Ongoing Experiment" option indicates that new data or updates are regularly added.
- The "Add your experiment data" section allows you to integrate your results in the form of graphs, tables, curves, or links to data files. These quantitative elements allow other users to understand your results and possibly compare them with their own measurements.
- Photos and videos enhance your post by showcasing your work in a tangible way. Accepted formats are JPEG, JPG, and PNG for images and MP4 for videos. Be sure to obtain the necessary permissions for any content that includes people.
- The "anecdotes" field allows you to share highlights, challenges overcome, unexpected discoveries or creative solutions found during your project.
- In the advice to future users, share your feedback: pitfalls to avoid, possible improvements, optimal conditions for implementation, or particularly relevant educational uses.

Once the form is completed with the mandatory fields (marked with an asterisk), your project will appear on the VittaMap map, thus contributing to knowledge sharing with the educational community.



APPENDIX - TECHNICAL SHEET - SEND DATA OVER THE LORA NETWORK AND DISPLAY IT ON THE VITTAMAP INTERFACE

What is LoRa?

LoRaWan is a radio communication protocol (frequency 868 mHz in France) allowing the exchange of data between connected objects. It is established by the LoRa Alliance for global standardization. The signal is emitted over a wide spectral width, limiting the risk of interference and allowing data to be sent from outdoors or indoors over long distances (1 km in urban areas - up to 20 km in rural areas). The sending of messages is unlimited. However, unlike 4G and 5G networks, the amount of data in LoRaWan networks is very low, only a few kilobits per second. This type of network is therefore used in the case of the Internet of Things (IoT) or fixed sensors (e.g. temperature, humidity, etc.). Sensors using LoRa technology (radio wave modulation) connect to the internet via gateways. These can be antennas (like in France with Orange) or boxes to connect to your personal fiber/ADSL network.

List of necessary equipment

- NUCLEO-L476RG Cards
- MiniUSB cable
- NUCLEO-Shield
- NUCLEUS-IKS01A3
- Module LoRa E5 Grove

Assemblage

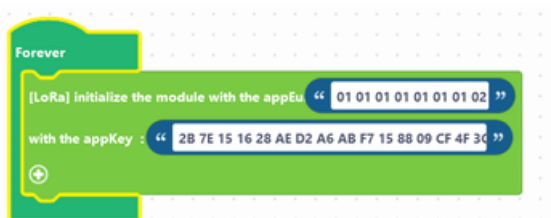
- Connect the NUCLEO-Shield to the connectors on the board.
- Connect the LoRa E5 module to the available UART port using the Grove cable.
- Fix the NUCLEO-IKS01A3 module on top.
- Connect the L476RG card to the computer using the mini-USB cable.

Programming 1 - Initialization

Two blocks are available in the Communication section of the blocks menu in the Vittascience interface:

- A block to initialize the module on first use
- A second block to send sensor data

First, it is necessary to initialize the LoRa E5 module. This will allow you to retrieve its unique identifier (called devEUI) to connect it to the network. To do this, the "[LoRa] initialize the module..." block must be placed in the "On startup" block. (Do not touch the values already entered in the block - they are configured automatically).



Next, you'll need to upload the program to the card. Use the "Upload" button and open the console at the bottom of the Vittascience interface. The devEUI identifier will appear in the console (e.g., 2CF7F1C04450AA66). You'll need to write this down; it's your module's unique identifier—like an ID card.



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Programming 2 - Sending Data

Now that we have initialized the module, you can send the sensor data.

Since the LoRa protocol supports the transmission of small amounts of information for fixed objects, we will use the NUCLEO-IKS01A3 board and its temperature, humidity and pressure sensors.

For example, to send temperature information, use the following blocks:

- "[LoRa] send data (...)" in the **Communication** section of the blocks menu
- "[STTS751 Thermometer] temperature" in the **Sensors** section



Program Configuration

1. Place the temperature reading block in the LoRa sending block
2. Add a 5-second pause to the program ("Wait" block)
3. Put the whole thing in a "Repeat forever" loop
4. Then transfer the program to the card with the "Upload" button.

Data is now transmitted every 5 seconds over the LoRa network.

Data visualization

Thanks to your program, the collected data will be automatically visible on Vittamap by creating a project that integrates your devEUI identifier.

Creating your Vittamap project

1. Access the creation interface by clicking on the plus (+) at the top right of the card
2. Configure your project by filling out the form with the mandatory information:
 - Project name: give a descriptive name to your installation (e.g.: "Living room sensor")
 - Kit type: Select "LoRa Sensors" from the drop-down list
 - **devEUI ID: Enter the unique ID previously displayed in the console without spaces between characters (e.g. 2CF7F1C04450AA66)**
 - Location: Position your sensor on the map by performing an address search or using geolocation
 - Start Date: Set the start date of your data collection
3. Finalize the configuration by completing the optional fields (description, objectives, etc.)
4. Validate the creation with the "Add experience" button at the bottom of the page

Once the project is created, your sensor data will automatically appear on the map. You can access graphs and detailed analyses by clicking "Learn more" from your location.