

## Libelium takes care of the rivers' health with IoT water technology

The goal of the “Ríos Ciudadanos” project is to involve citizens in the analysis of the water quality in Aragonese rivers



### The Challenge

Inland regions of Spain, such as Aragón, encourage active tourism to boost the economy of the region. In this adventure tourism, rivers have great importance since many of the activities are carried out in areas of natural waters, such as canyoning, freediving, or rafting. In this way, monitoring water can indicate which areas are cleanest and safest for adventurers. Thus, the good health of the rivers has a direct impact on the local economy.

### The Solution

The Pyrenean Institute of Ecology of the CSIC (Higher Council for Scientific Research) has launched the citizen science project “Ríos Ciudadanos” (Citizen rivers) in Aragón, Spain. The main objective is to improve knowledge of the water quality of the rivers through open participation. Along these lines, citizen volunteers together with professional participation have created a complete map of the rivers health is being updated constantly.

Project volunteers are using a very simple water quality assessment kit to detect pollution of agricultural and livestock origin (nitrates) and urban origin (coliforms). Contamination kits, delivered for free by the

CSIC, consist of colorimetric strips and small containers for sampling. These strips, through color changes and colony counts, detect bacterial populations of fecal origin. The kit is very easy to use and quite intuitive so the project is easily scalable.



## Smart Water Technology

“It is important to raise awareness among citizens and the industry of the impact that productive activity and our daily life have on the water that we later consume,” says Libelium CEO, Alicia Asín. “After the experience we have been living through this pandemic, we must put technology at the service of people’s health.” She adds, “this involves automating the surveillance and control processes of sanitation networks to the maximum to optimize and detect potential infections through the development of an alert system”.



## The Open Project

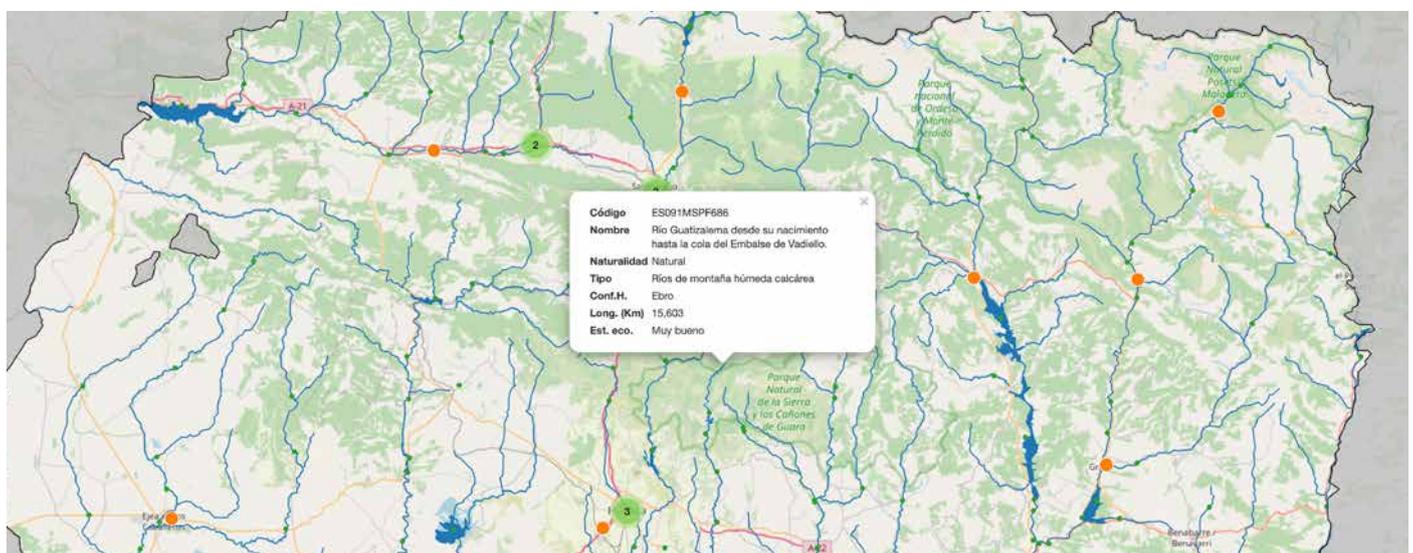
Students from more than a hundred schools and high schools in the region have participated in the process of collecting and analyzing water. And dozens of naturalist associations for the defense of the environment and private individuals have also collaborated.

The volunteers have received a series of instructions so that the samples are suitable. The use of gloves is mandatory in order to avoid contaminating the liquid collected. The water must be gathered in the center of the river's course, since mud, plants and other elements can contaminate the banks. Finally, the volunteers must put the closed sampling bottle in the water and open and close it, so the sample does not make contact with the air and get polluted.



Once the analysis has been carried out, the results are shared through the app “CitMapp” (Citizen Science Mapping Application), developed by the Zaragoza Collaborative Mapping / Geoinquietos group and the Ibercivis Foundation.

All the information and the map is publicly accessible here: <https://riosciudadanos.csic.es/map/#7/41.800/-0.450>



**More info:**

- For technical details on Waspote Plug & Sense! Smart Water Xtreme: [Waspote Plug & Sense! Smart Water Xtreme Technical Guide](#).
- For technical details on Waspote Plug & Sense! Smart Water Ions: [Waspote Plug & Sense! Smart Water Ions Technical Guide](#).
- Read more about [Libelium Smart Water solution](#).
- Read more about Libelium sensor product lines in the [Waspote](#), [Waspote Plug & Sense! Sensor Platform](#) and [Meshium Gateway](#) websites.

**References:**

- Map “Ríos ciudadanos”: <https://riosciudadanos.csic.es/map>
- CSIC “Ríos ciudadanos”: <https://riosciudadanos.csic.es>

Discover [Smart Water](#) in [The IoT Marketplace](#).

More success stories at: [libelium.com/resources/case-studies](http://libelium.com/resources/case-studies)

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