



CLOMMUNITY

## A Self Contained Community Cloud

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INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS

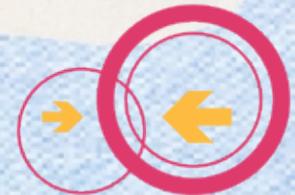
Wireless.ictp.it [clommunity-project.eu](http://clommunity-project.eu)



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# Community Networks. CNs

What is it? Geographical communities or community of Interest that have **access to information and IT applications and services stored online in a a cloud system.**



freifunk.net

guifi.net

Users? You and your neighbours,

OXFF FUNKFEUER  
FREE NET

Managers? CNs users.

AWMN

Benefits? Privacy, faster access, open source less dependent of external resources, managed by citizens for citizens users.

ninud.org



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# Built and managed by users

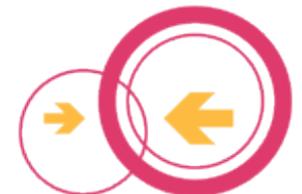


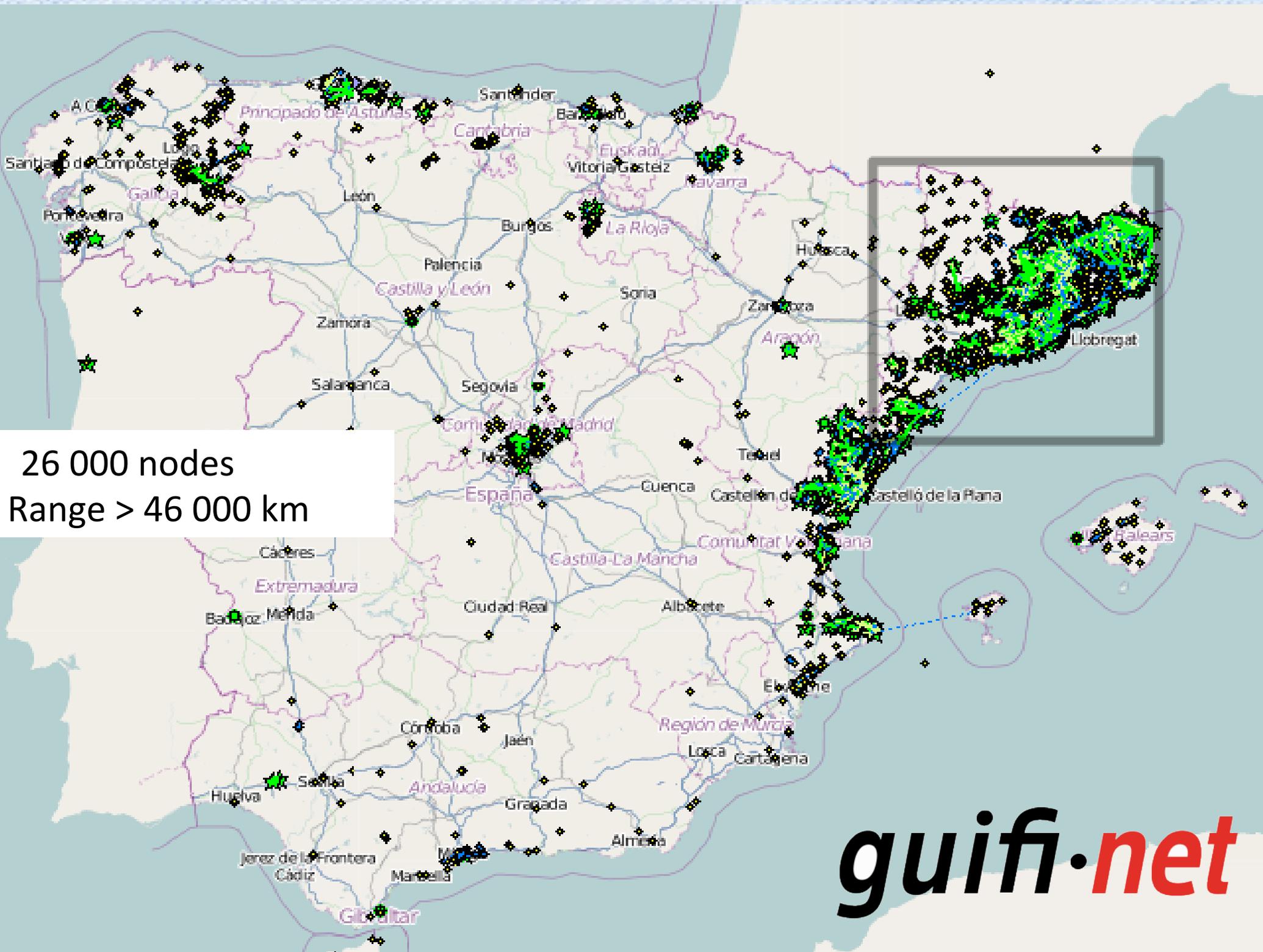
# Examples of CNs



**BuenosAiresLibre.org**  
red digital comunitaria de la Ciudad de Buenos Aires y Alrededores.

[BuenosAiresLibre](#) [Wiki](#) [Mapa](#) [Galeria](#) [Chat](#)





26 000 nodes  
Range > 46 000 km

**guifi**·net

# RESEARCH ON COMMUNITY NETWORKS

European Union financed many projects related on CNs under within the fame of “Framework Program 7”.

Among them CONFINE and CLOMMUNITY projects dedicated to the implementation of services and applications for the Cloud in a CN.

<https://vimeo.com/80353472>

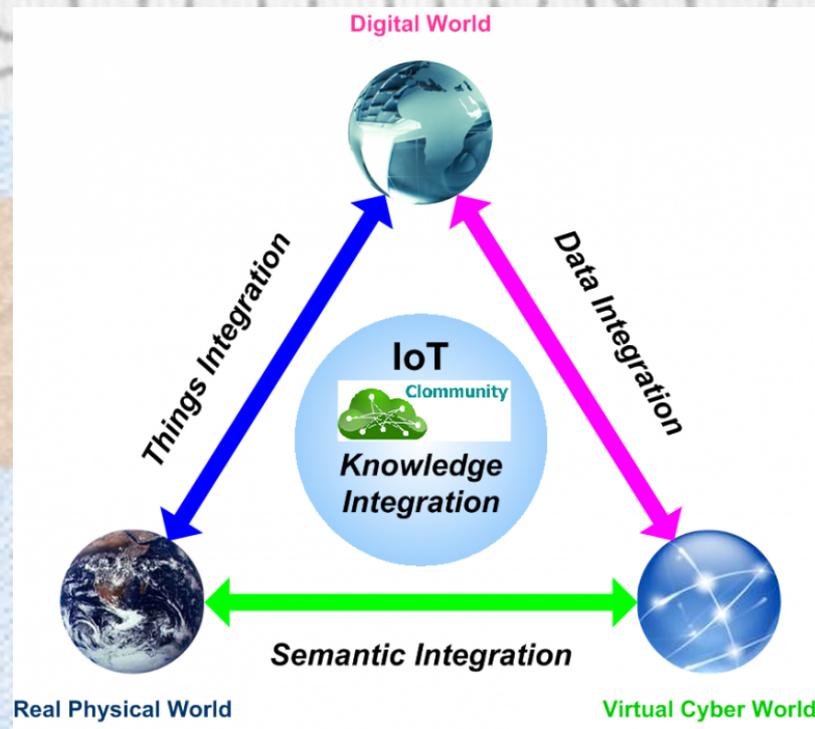
# IMPLEMENTATION

## Partners:

- Universitat Politecnica de Catalunya (UPC)
- Guifinet
- Royal Institute of Technology (KTH)
- Swedish Institute of Computer Science (SICS)
- International Centre for Theoretical Physics (ICTP)

# Internet of Things in CNs

IoT aims at studying the technical feasibility of deploying wireless sensors to measure air quality and weather conditions in a community and share data in the cloud in a private way.



# Internet of Things in CNs

## Goals

- Better weather prediction in the future.
- Detect high level of pollutants in the community and pinpoint the location.
- Share data among users
- Control of who can access the information gathered. It is important to have privacy in the information because it could affect users. For example a contaminated area could decrease the value of a property.

# Internet of Things in CNs

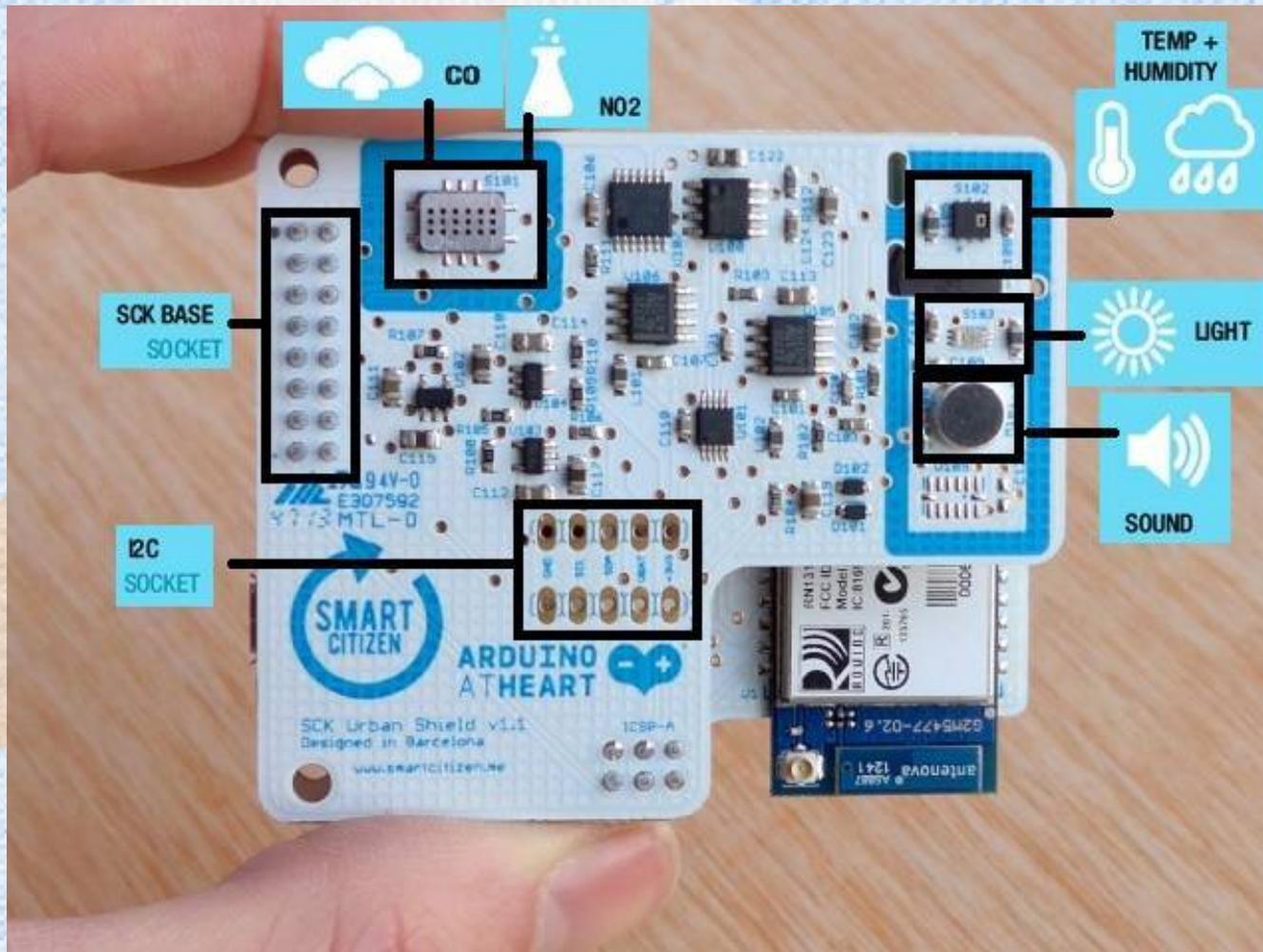
The Smart Citizen Kit (SCK) is an electronic board based on Arduino, equipped with the following sensors:

- Air Quality (CO & NO2)
- Temperature
- Sound
- Humidity
- Light Intensity

SCK can be battery and solar powered. The board is equipped with a WiFi radio that allows to upload data from the sensors to an online platform.

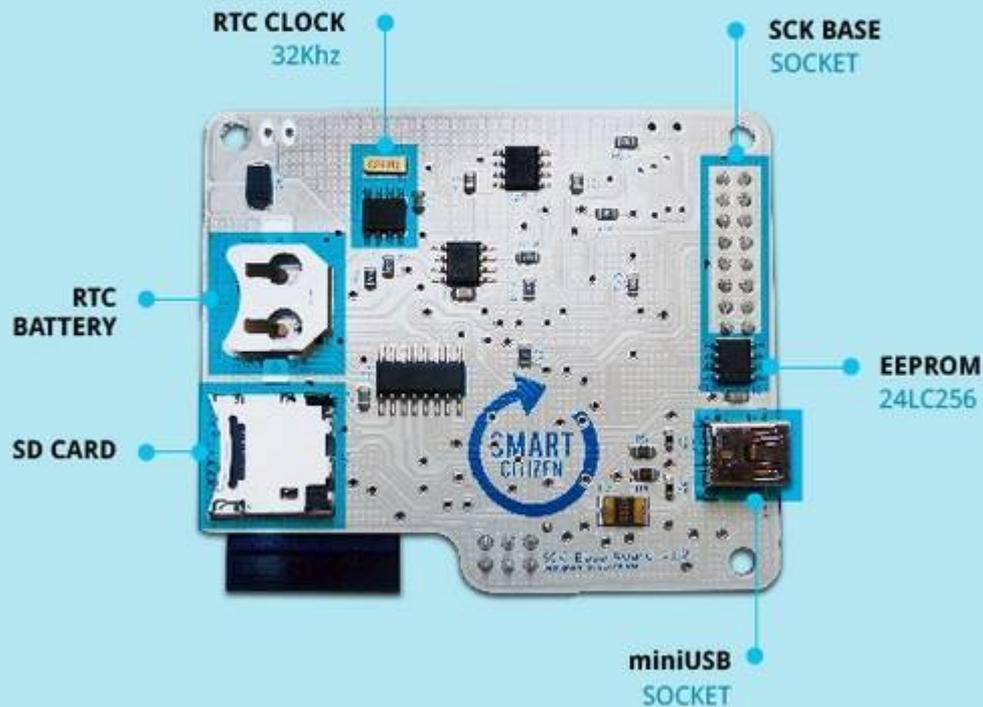
<https://smartcitizen.me/>

# Internet of Things in CNs

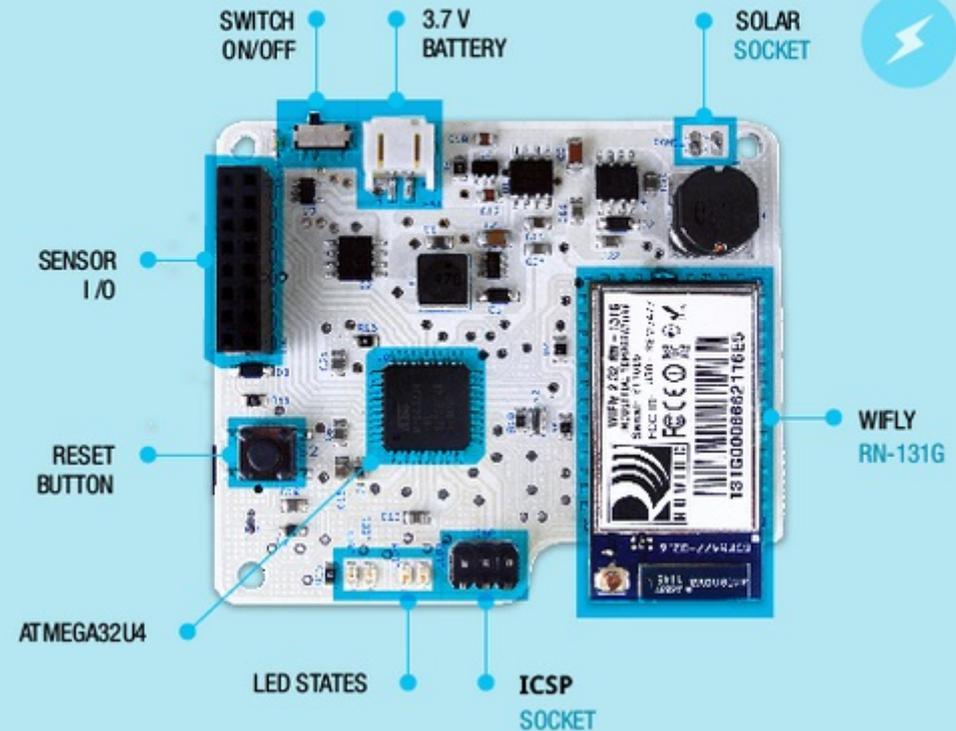


# Internet of Things in CNs

FIRST LAYER - BOTTOM VIEW



FIRST LAYER - TOP VIEW



Open source Code:

<https://github.com/fablabbcn/Smart-Citizen-Kit>

<https://github.com/MarconiLab/SCK-GuifiTS>

# ThingSpeak on CNs

ThingSpeak (TS) middleware allows developers to interact with devices using standard Web technologies.

Features of the TS platform include data logging, data processing, data distribution, location-based services, status updates, social network integration, apps, and plugins.

**TS can be run via its free hosted service or on personal servers. It can be installed on a personal computer and even on Single Boards Computers like Rpi, BeagleBone.**

# ThingSpeak on CNs

The screenshot shows the ThingSpeak interface for a channel named 'HWErmitaBellvitge16-SCK'. The channel is in 'Public View' and was created by 'rogerpueyo'. It is described as 'A Smart Citizen Kit connected to HWErmitaBellvitge16'. The channel location is Barcelona, Spain. The main chart, titled 'Field 1 Chart', displays temperature data over a three-day period from March 17th to 19th. The y-axis is labeled 'Temperature' and ranges from 22.5k to 30k. The x-axis is labeled 'Date' and shows the days 17. Mar, 18. Mar, and 19. Mar. The data is represented by a red line with circular markers, showing a clear diurnal cycle with peaks around 27.5k and troughs around 23k. The channel location map shows Barcelona, Spain, with a red pin. The map includes labels for France, Italy, Spain, Portugal, and Tunisia, as well as major cities like Madrid, Milan, Rome, and Barcelona. The map data is attributed to Google and ORION-ME.

ThingSpeak Channels / Channel 18

Watch Tweet Like

Public View

## HWErmitaBellvitge16-SCK

SCK

Developer Info

by [rogerpueyo](#)

A Smart Citizen Kit connected to HWErmitaBellvitge16

### Field 1 Chart

HWErmitaBellvitge16-SCK

Date	Temperature (k)
17. Mar	24.5
17. Mar	27.0
17. Mar	25.0
17. Mar	24.0
17. Mar	23.5
17. Mar	23.0
18. Mar	27.5
18. Mar	25.5
18. Mar	24.5
18. Mar	24.0
18. Mar	23.5
18. Mar	23.0
19. Mar	27.0
19. Mar	25.0
19. Mar	24.5
19. Mar	24.0
19. Mar	23.5
19. Mar	23.0

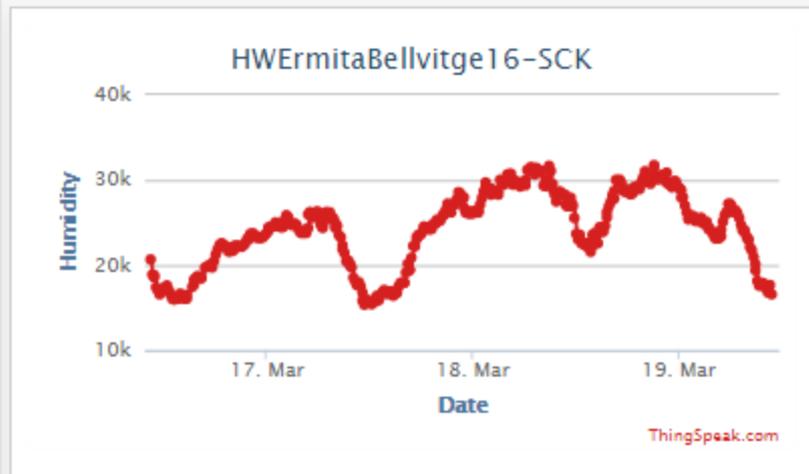
### Channel Location

Barcelona, Spain

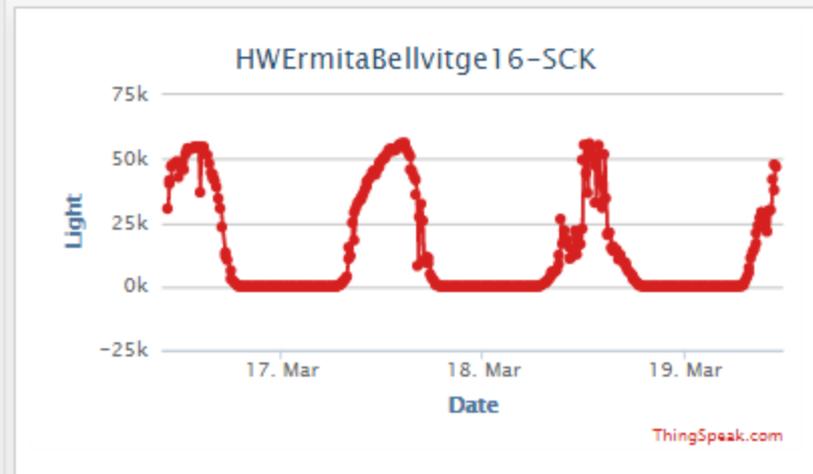
Map data ©2015 Basarsoft, Google, ORION-ME Terms of Use

# ThingSpeak on CNs

Field 2 Chart



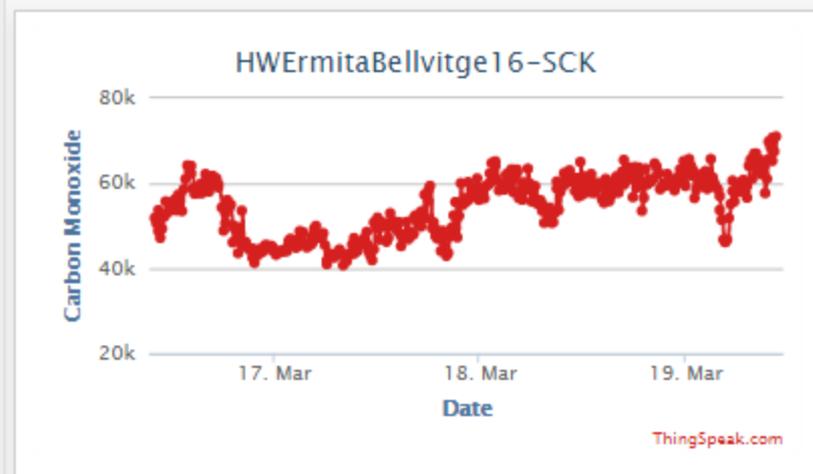
Field 3 Chart



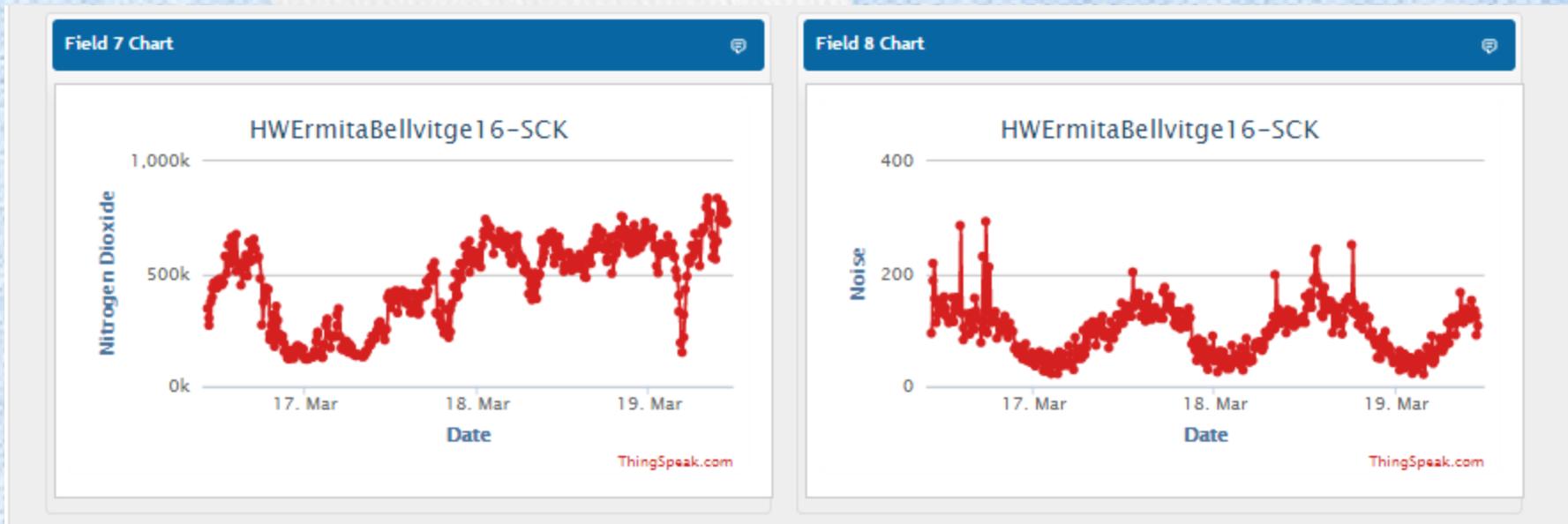
Field 4 Chart



Field 6 Chart



# ThingSpeak on CNs



# A Self Contained Community Cloud

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CLOMMUNITY

**Thank you!**

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Wireless.ictp.it [clommunity-project.eu](http://clommunity-project.eu)

