ENTOMATIC

Novel automatic and stand-alone integrated pest management tool for remote count and bioacoustic identification of the Olive Fruit Fly (Bactrocera oleae) in the field

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 605073.

Olive fruit fly

What is ENTOMATIC?

Try to improve the monitoring systems against the olive fruit *Bactrocera Oleae,* with estimated looses of 600€/ha.

What are the nowadays methods?

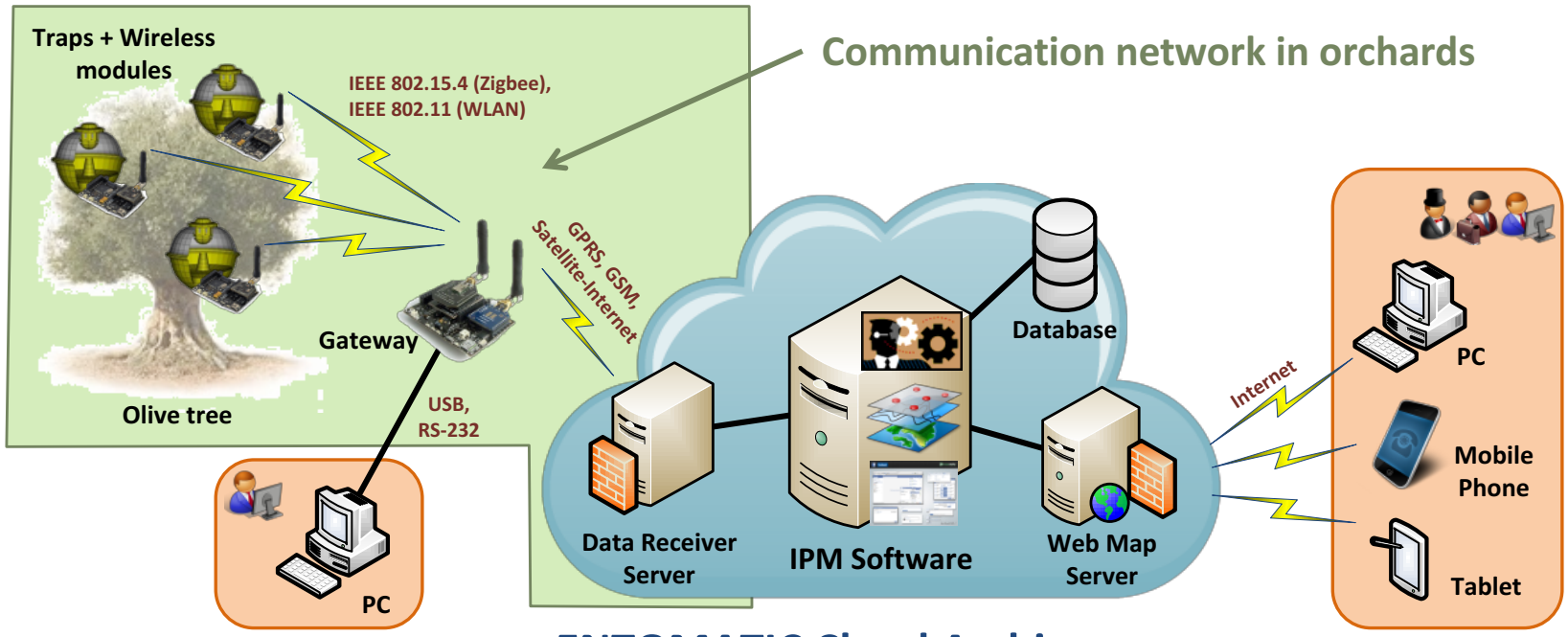
Different kind of traps and attractants with manual counting.

How ENTOMATIC will improve these systems?

ENTOMATIC wants to offer an Integrated Pest Management (IPM), based on a trap with automatic counting.

See our video in our youtube channel: https://www.youtube.com/watch?v=6ZDE3rrjtb0&t=27s

ENTOMATIC platform



IPM SOFTWARE
(Integrated Pest Management Software)

- Monitoring & Management Central
- GIS (Geographic Information System)
- GUI (Graphical User Interface)

LEVELS OF DATA ACCESS

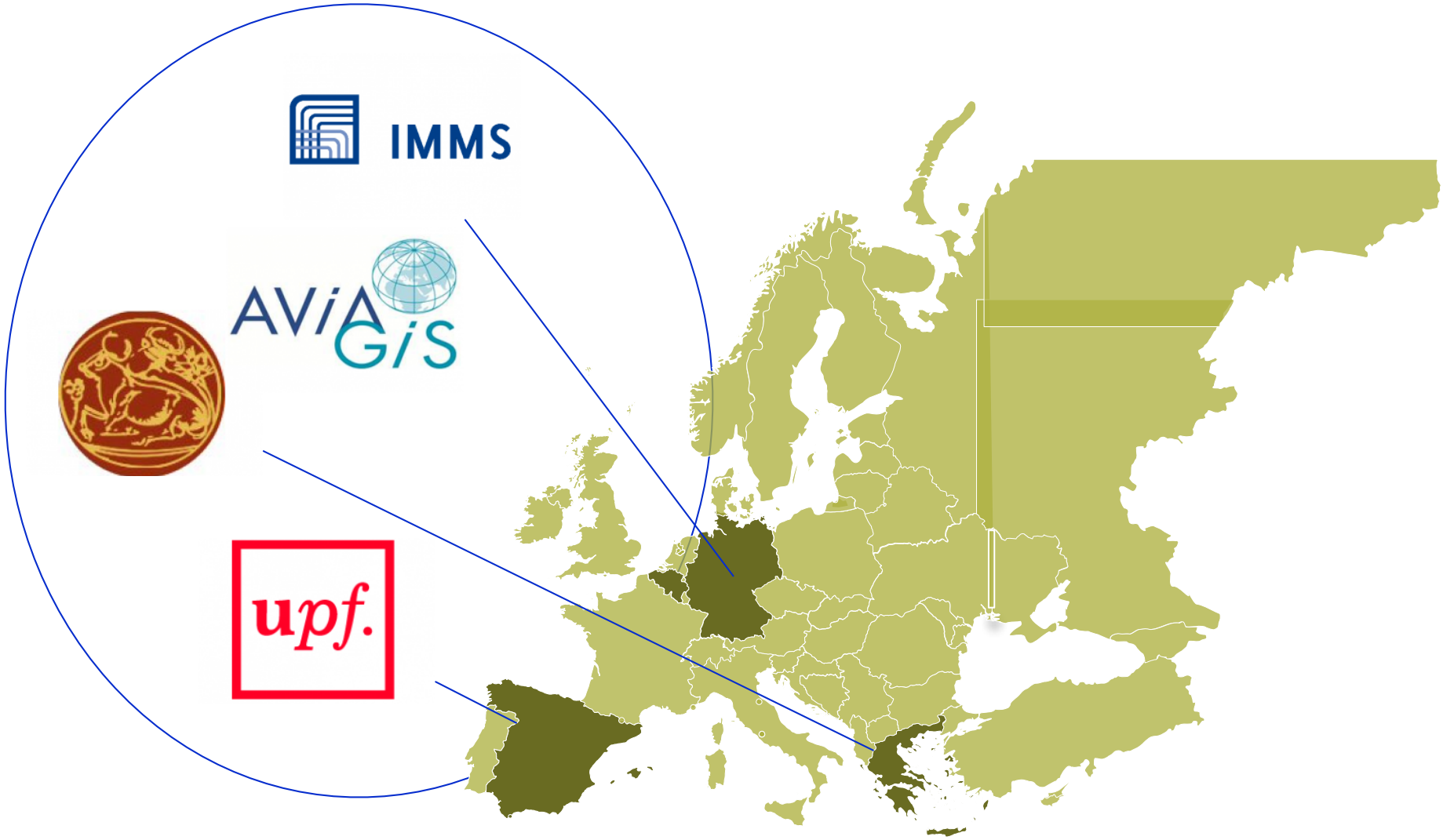
- Regional & national authorities
- Organizations from a specific region
- Single SME-AG

The trap

The consortium

The consortium

The consortium



What is ENTOMATIC offering?

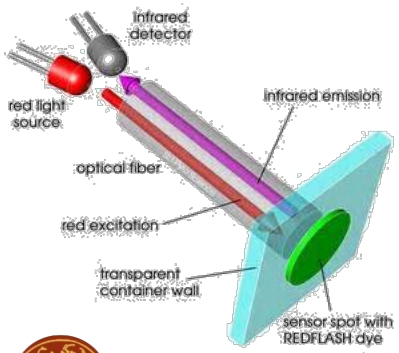
Three novelties are being developed:

- A bioacustic sensor to automatically count the olive fruit fly.
- Design of a communication wireless network
- Design fo a data base of control and management of plagues, with a recommendation and prediction system of the plague

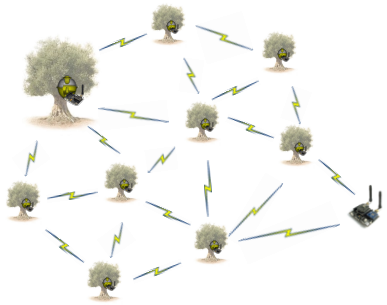
Platform elements

IMMS

Modified McPhail trap



Optoelectronic sensor

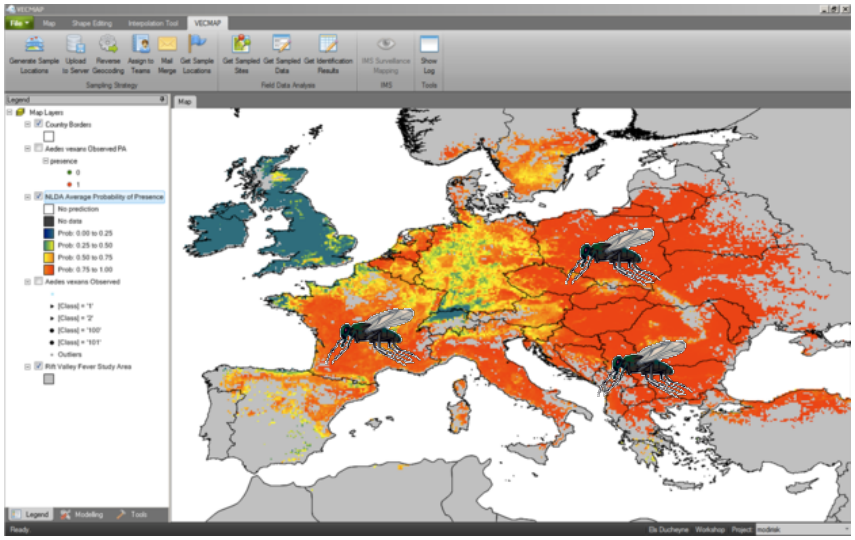


upf.

Wireless network

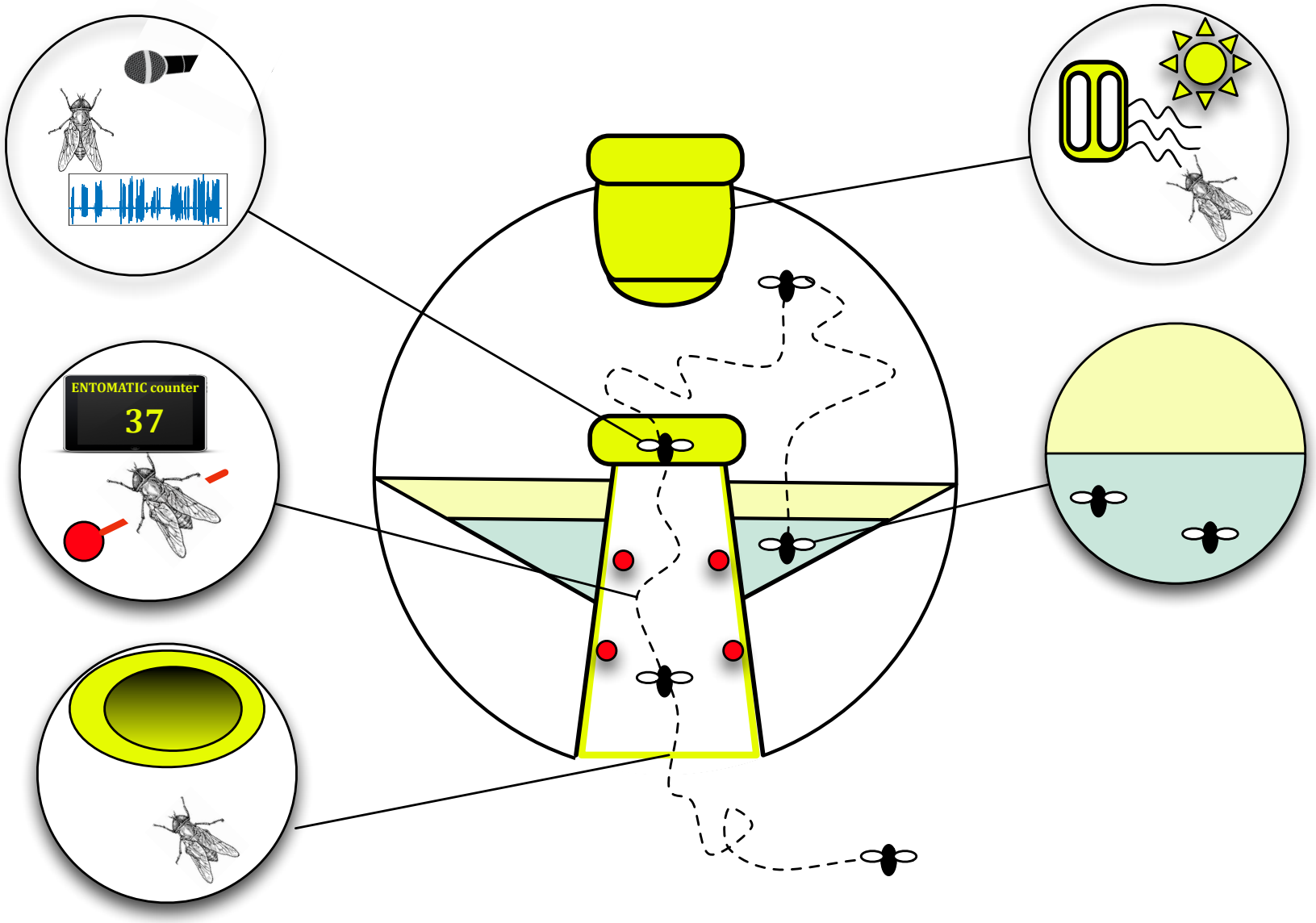
AVIA GIS

Data treatment

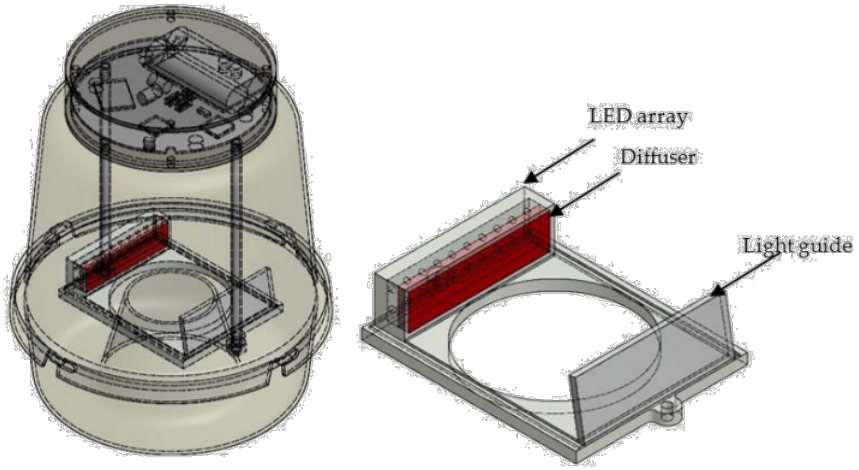


1. Real time information
2. Data base with historical data
3. Evolution estimation
4. Plague alerts

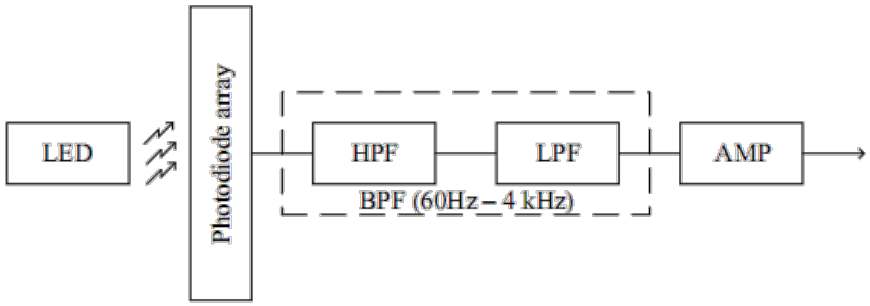
How the sensor works?



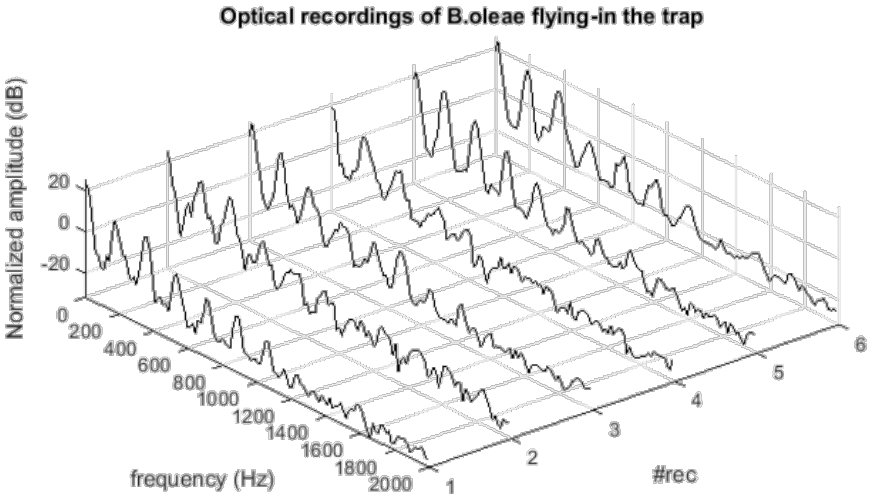
How the sensor works



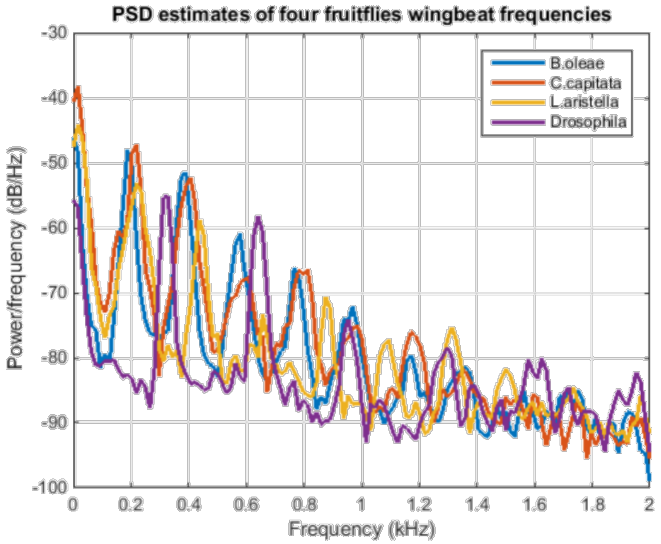
Schematic of the modified McPhail trap



Block diagram of the sensor functionalities

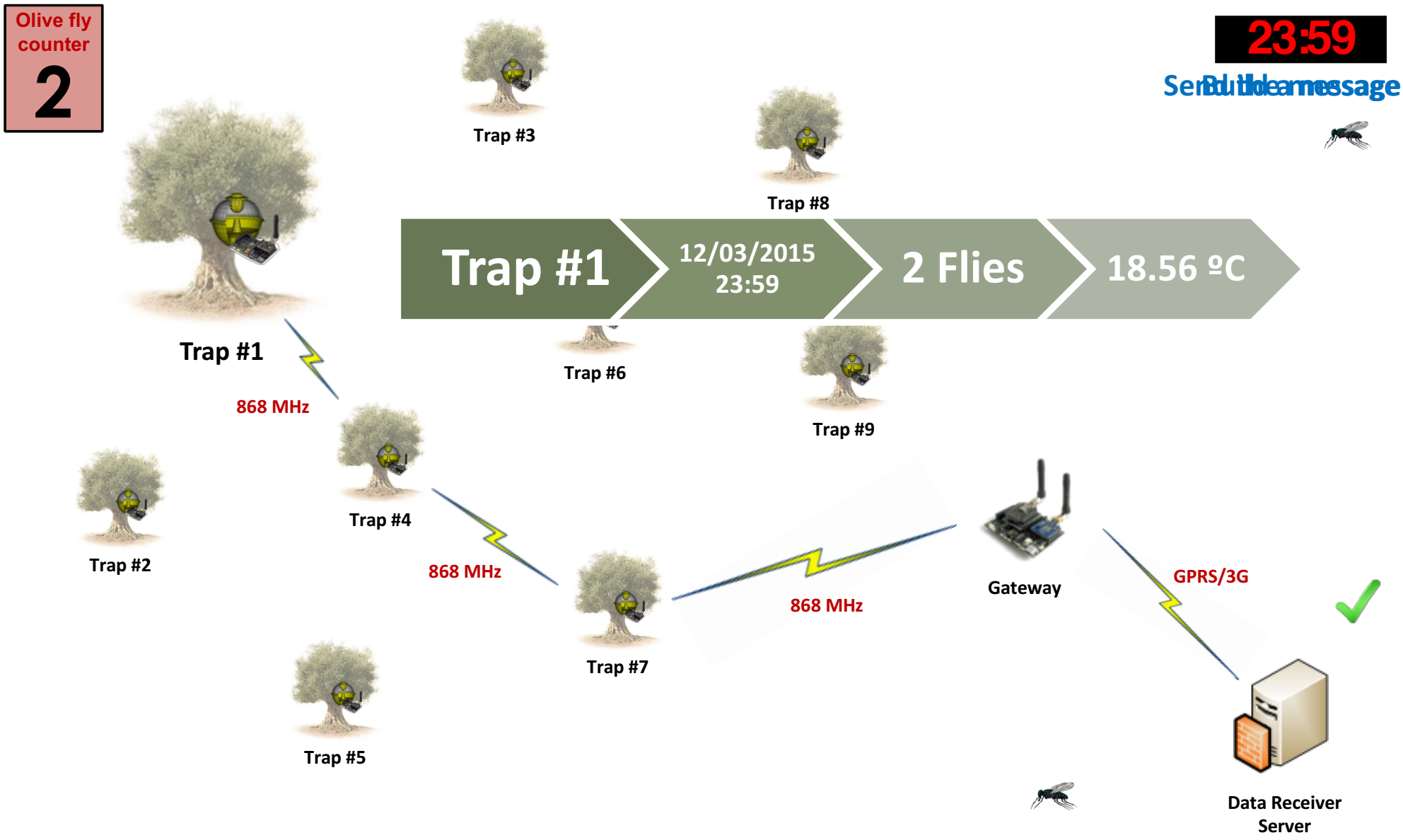


Frequency spectrum of the fly inside the trap

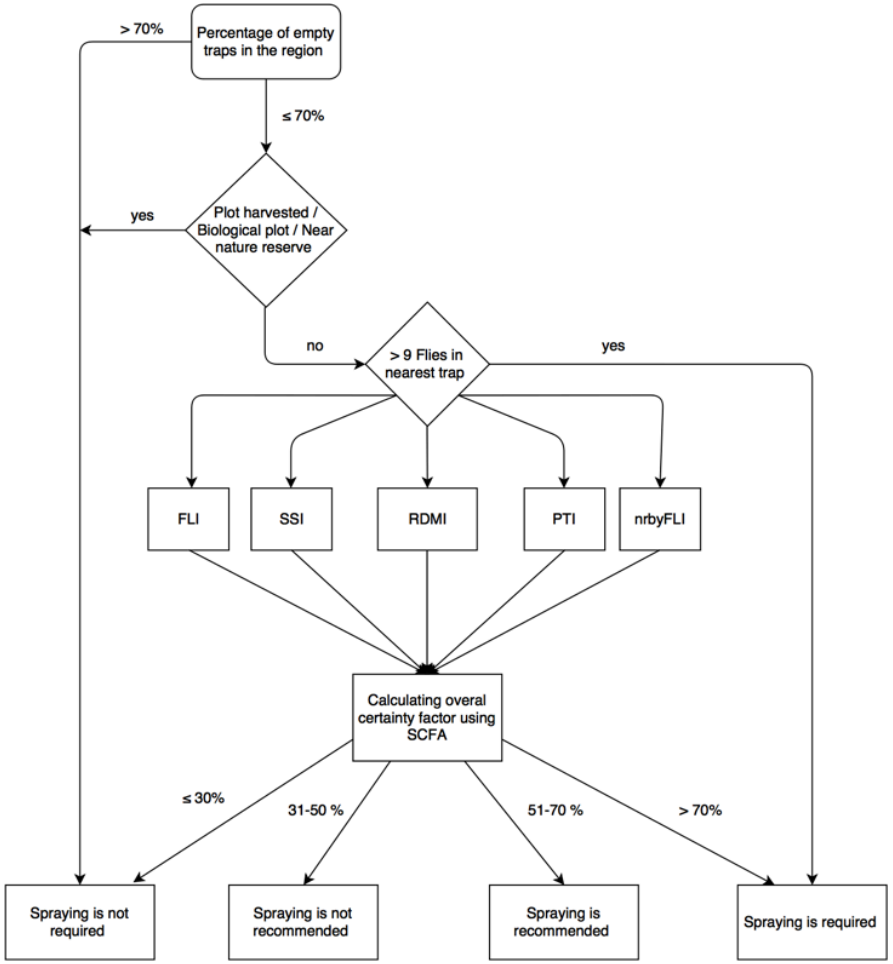


Spectral density of 4 different fruit flies

How the network works



Recommendation system



The IPM system(Integrated Pest Management) is based on es SDSS (Spatial Decision Support System).

It has three main parts:

1.- The spring onset model.

2.- The control decision tree.

3.- Analysis on the ENTOMATIC web app.

How to install the trap?

Autonomous version of the trap:

1.- Place the trap at the olive tree.

2.- Press the red button outside the trap. You will hear a beep.

3.- Wait until you hear two more beeps. This second beep indicates that the trap has established a connection with the server.

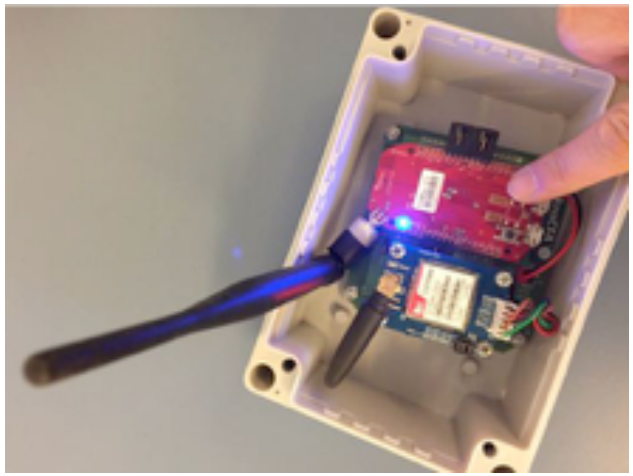
See our video in our youtube channel: https://www.youtube.com/watch?v=53-LqpSsFYU

¿Como instalar la trampa?

Meshed version:

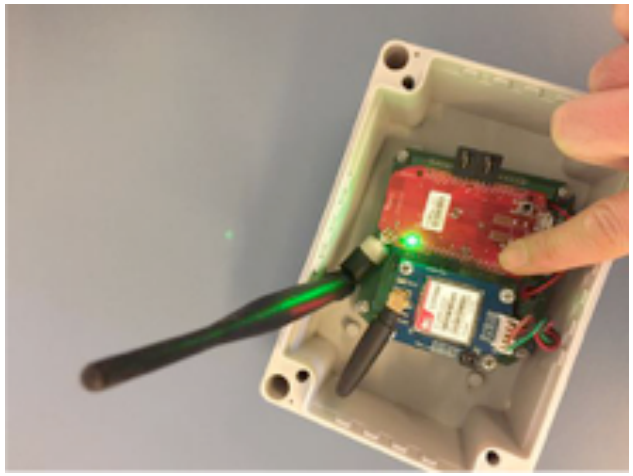
Gateway connection

1.- Press the right button and then wait until the blue led is on.



Paso 1

2.- Press the left button and then wait until the green led is on .



Paso 2

3.- The gateway is ready to look for traps.

¿Como instalar la trampa?

Meshed version:

Trap connection

1.- Place the trap at the olive tree. Press the red button outside the trap. You will hear a beep. Wait until you hear two more beeps. Now the trap is ready.

2.- Press the right button of the radio module placed inside the trap and wait until the green led is on.

3.- The trap is now ready.

Paso 1

Paso 2

See our video in our youtube channel: https://www.youtube.com/watch?v=G36KlZcOqqw

Web app

Menu

- Administration
- Pest Management
- Analysis
- Network Performance
- Configuration

Home

System Status	Download table as CSV
Active Gateways	**Active Nodes**
11	61

Latest Recommendations — Download table as CSV

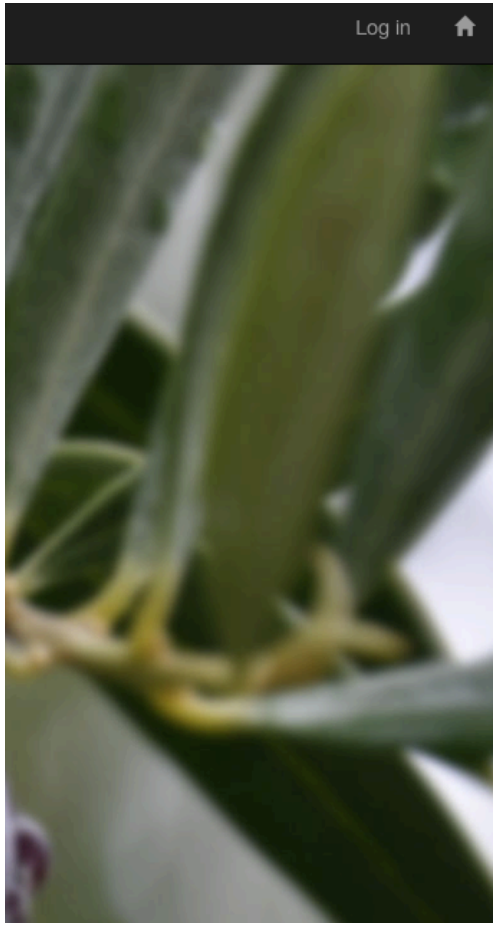
Date	Organisation	User	Type	Comment	Orchard

Latest alarms — Download table as CSV

Date	Organisation	User	Sensor	Alarm Type	Value
10-05-2017	TEI of Crete	Pot	220	Deactivated type	ofly
10-05-2017	TEI of Crete	Pot	224	Deactivated type	ofly
10-05-2017	TEI of Crete	Pot	224	Deactivated type	ofly
10-05-2017	TEI of Crete	Pot	224	Deactivated type	ofly
10-05-2017	TEI of Crete	Pot	220	Deactivated type	ofly

View more

2015 Entomatic Project
More info here.



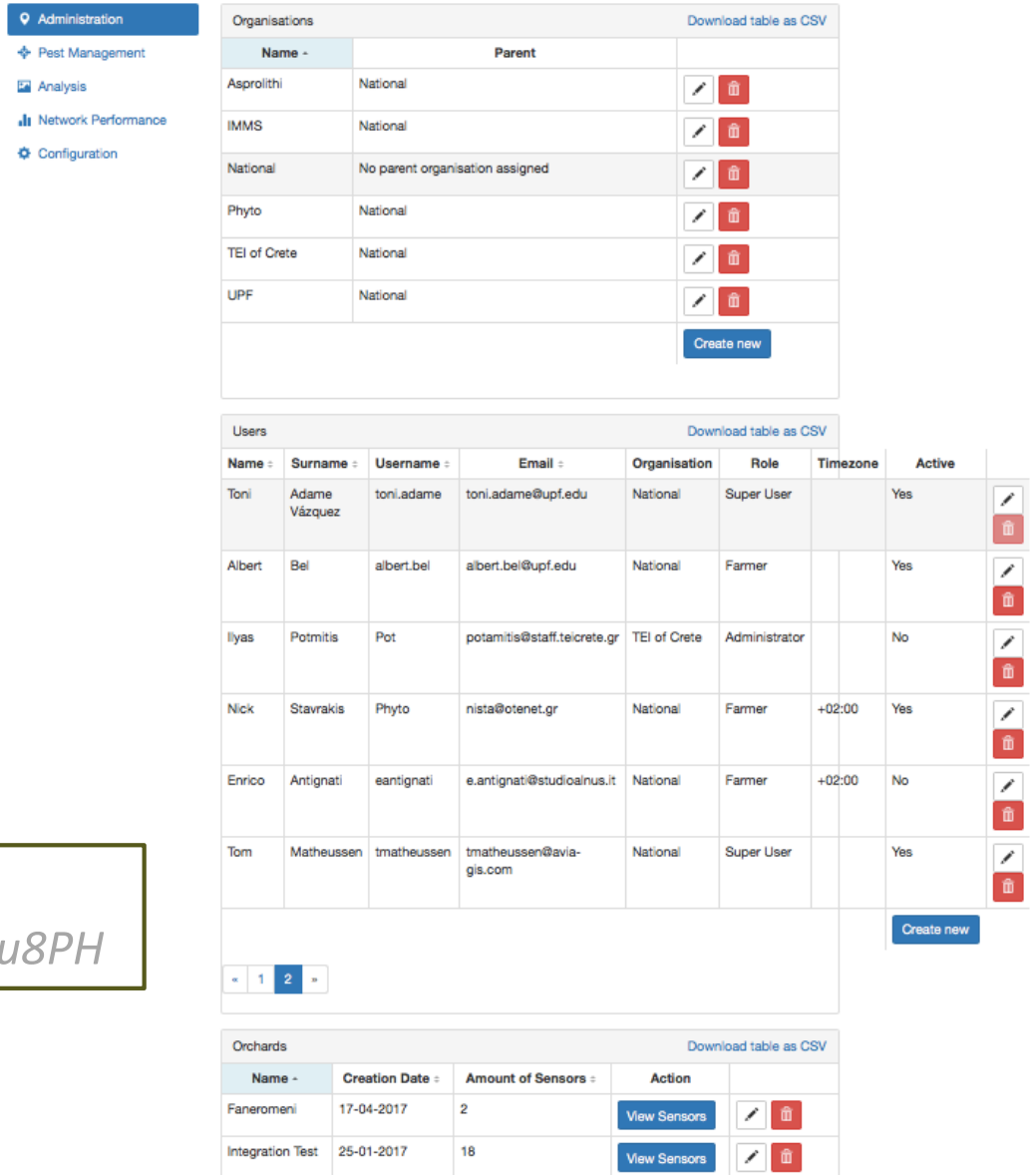
Web app

Administration

Each user is assigned to an organization.

Once a user has logged in, it can visualize its associated traps and the last data.

See our vidoe in our youtube channel: https://www.youtube.com/watch?v=Aviu8PHzoFU



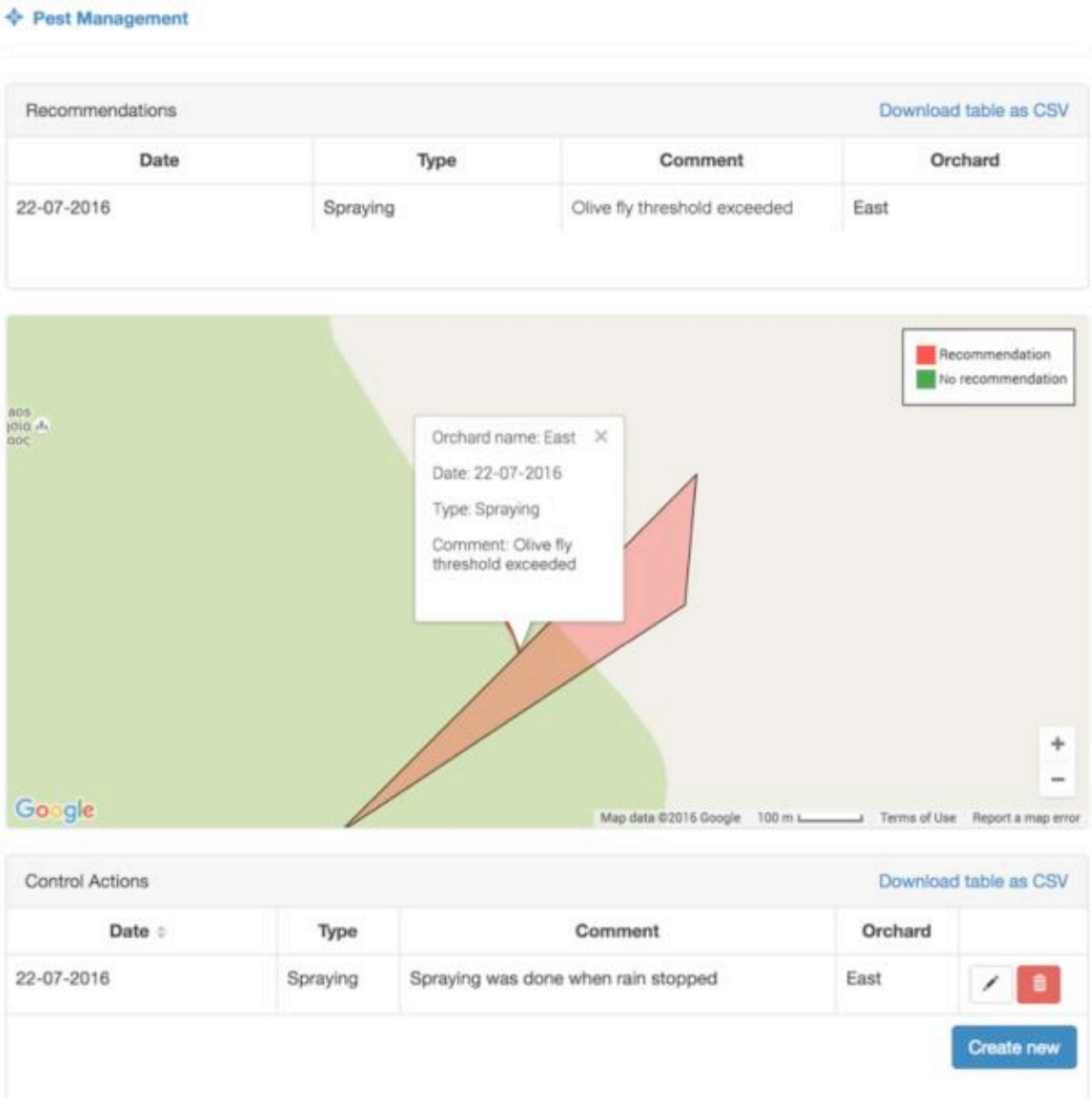
Web app

Pest Management

This section shows the recommendations generated by the designed SDSS.

The system automatically generates recommendations based on the data from the traps and the historical data.

Each user can also introduce the actions performed, such as, spraying performed.

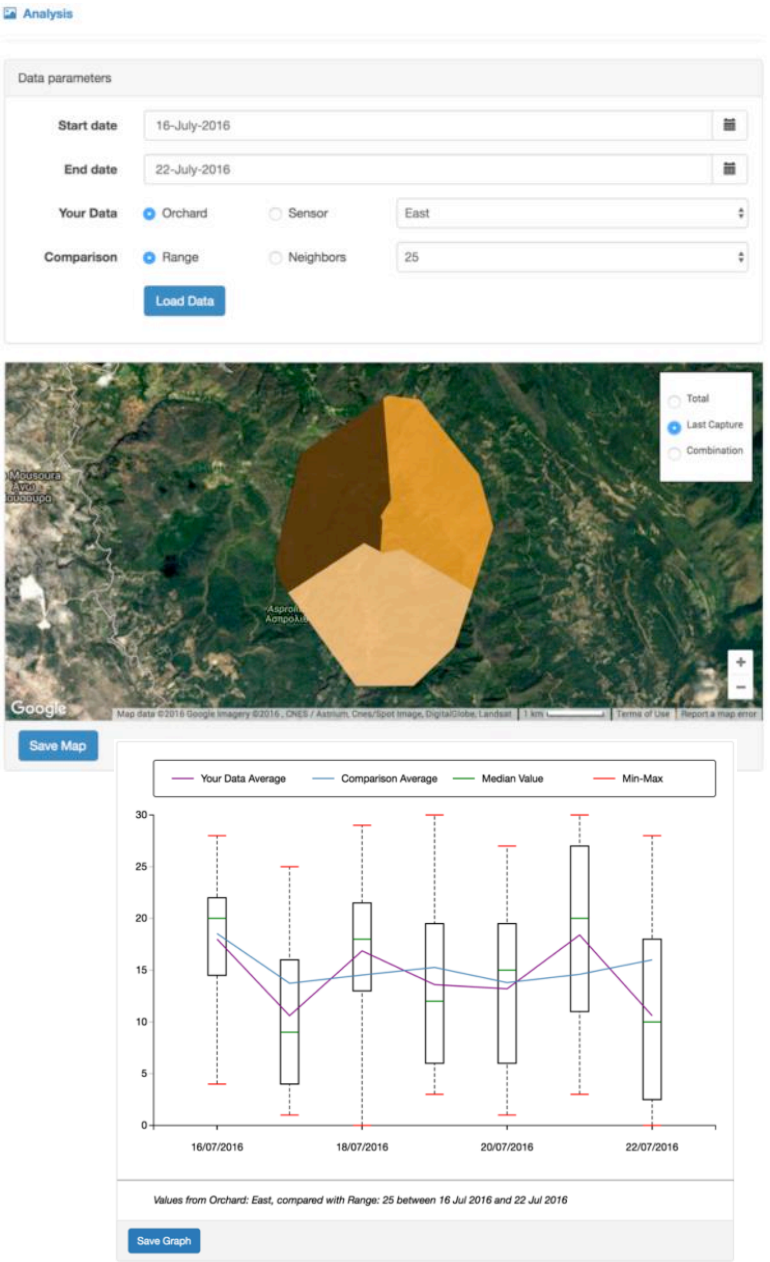


Web app

Analysis

This section offers the visualization of data during a period of time from an specific trap or an orchard. It offers the possibility of comparing data with nearest orchards.

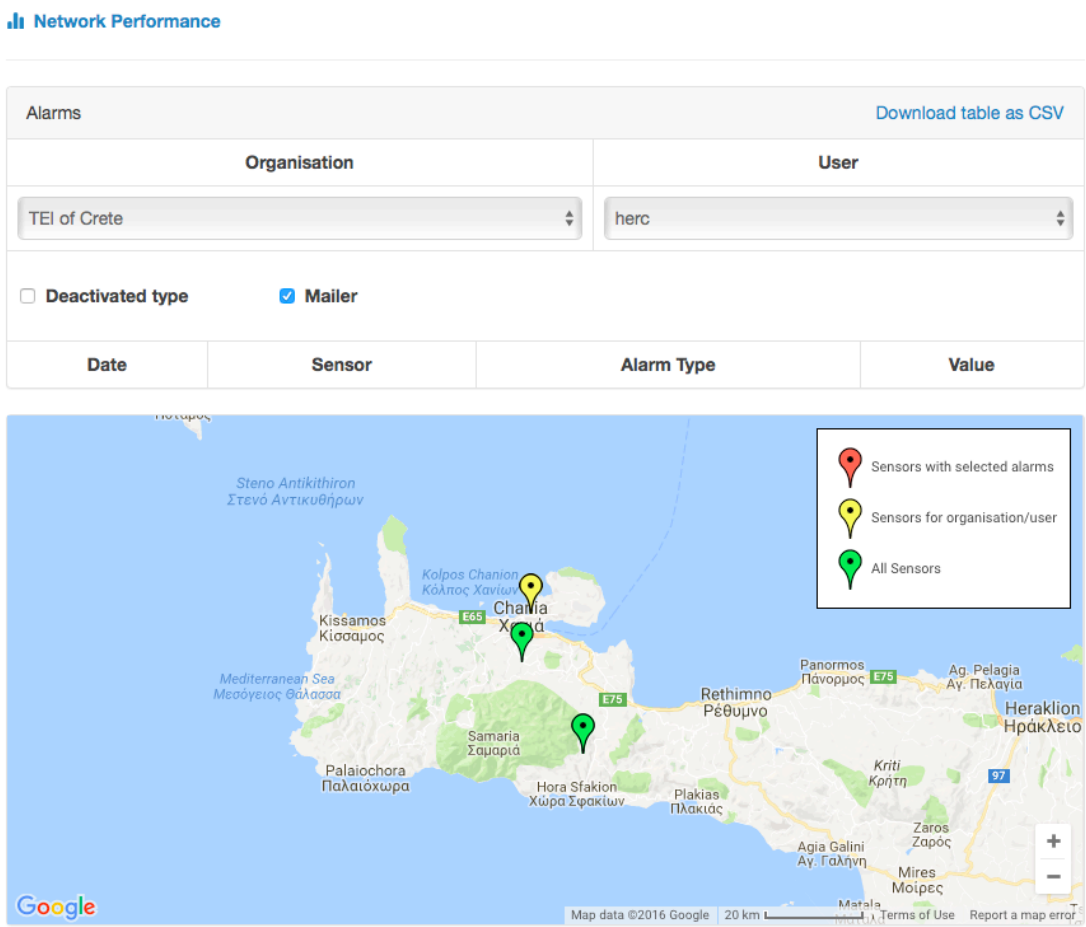
The map shows the measurements performed by sensors and the graphics shows the measurements and the comparative selected.

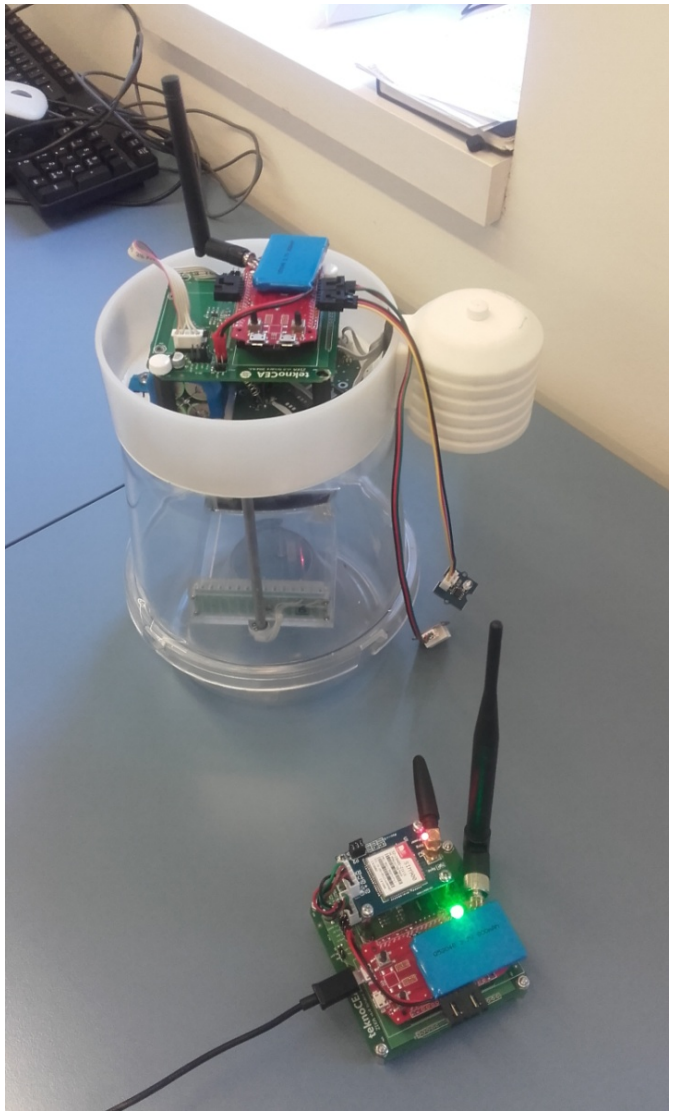


Network Performance

In the network performance page users can monitor the status of their sensors.

All the alarms that a user sets, such as, battery level, temperature level above a threshold, …





Gateway and trap

Gateway

Trap installed

upf.

eib
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IMMS

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