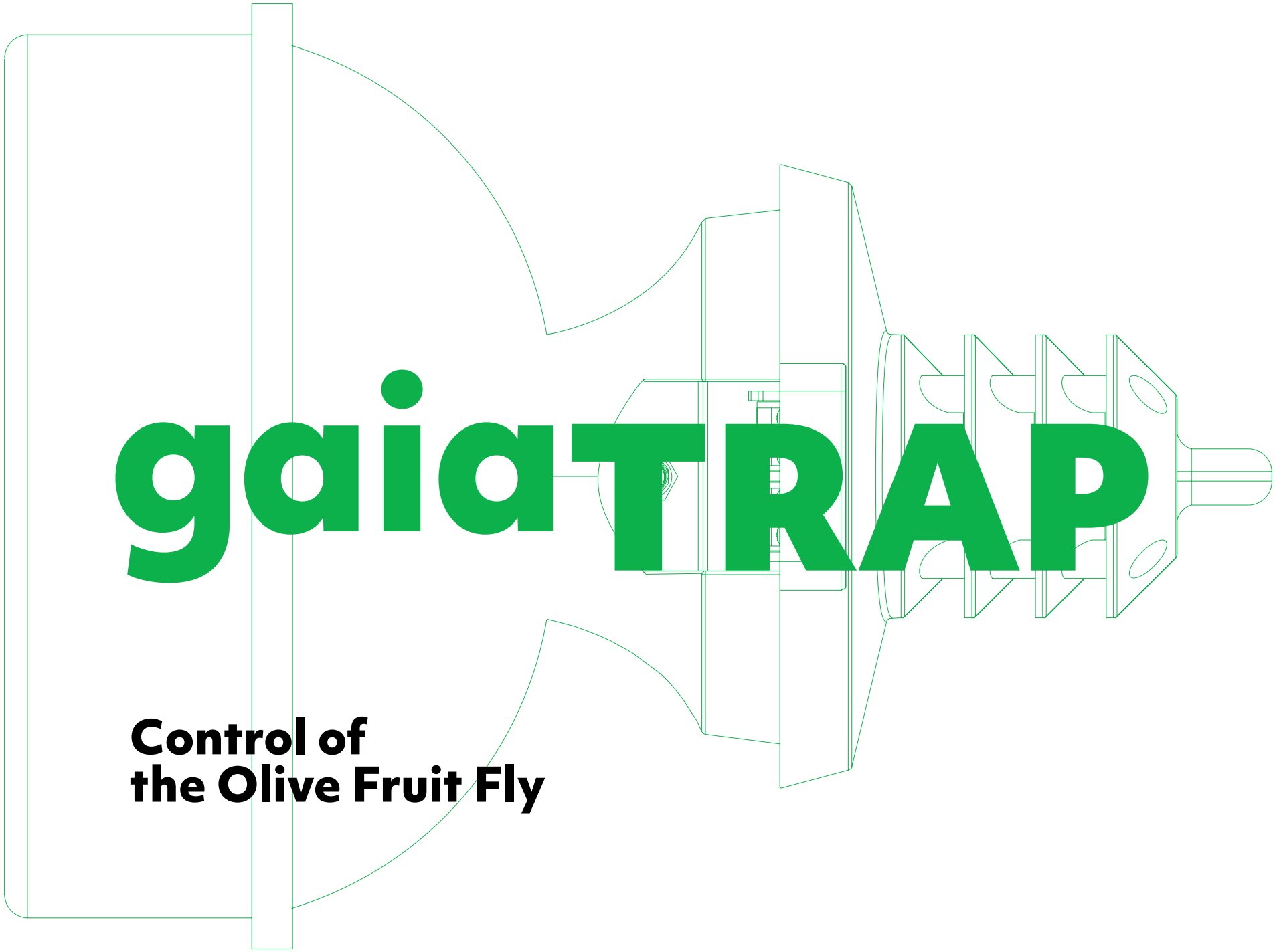
gaiaTRAP



Control of the Olive Fruit Fly

The first effective and reliable solution for the olive fruit fly, developed by NEUROPUBLIC and the Ionian University

The olive fruit fly is one of the most serious threats to olive cultivation in Mediterranean countries. Remaining true to its vision for the Digital Transformation of the Agricultural Sector, NEUROPUBLIC SA is once again innovating by presenting gaiaTRAP: an advanced system that combines Artificial Intelligence (AI) algorithms with a modern olive fruit fly trap and a decision making platform.

The technology has been developed in collaboration with Smart Sension, a spin-off of the Ionian University, and provides automated insect recognition and counting within the trap — with accuracy, speed, and reliability.

Ideal for olive fruit fly control across all types of olive cultivation, gaiaTRAP can be deployed in any climate without restrictions.

How does it work?

The **gaiaTRAP digital trap** is based on the operating principle of the **McPhail-type bait trap,** which attracts olive fruit flies through its color and bait attractant and traps them inside thanks to its distinctive geometric design.

In terms of coverage, it can be used for **every 1,000–2,000 trees** (depending on conditions such as geomorphology and microclimatic factors). The trapped insects are recorded by the trap's **digital camera** and **counted automatically using Artificial Intelligence (AI).** At the same time, **the microclimate** (temperature and relative humidity in the crop canopy) is continuously monitored over a 24-hour period. The trap is also equipped with a **GPS-based geolocation system** to log its exact installation position.

Artificial Intelligence empowering agricultural monitoring

The **gaiaTRAP Digital Olive Fruit Fly Trap** leverages advanced **Artificial Intelligence (AI) and Image Processing** technologies to automatically detect and record insect activity, enabling timely and accurate monitoring of olive fruit fly populations.

At its core, the system is built on the **TensorFlow Object Detection API,** utilizing state-of-the-art models such as **Faster R-CNN Inception v2** and **Faster R-CNN ResNet50,** achieving an impressive **91.52% mAP[76]** detection accuracy.

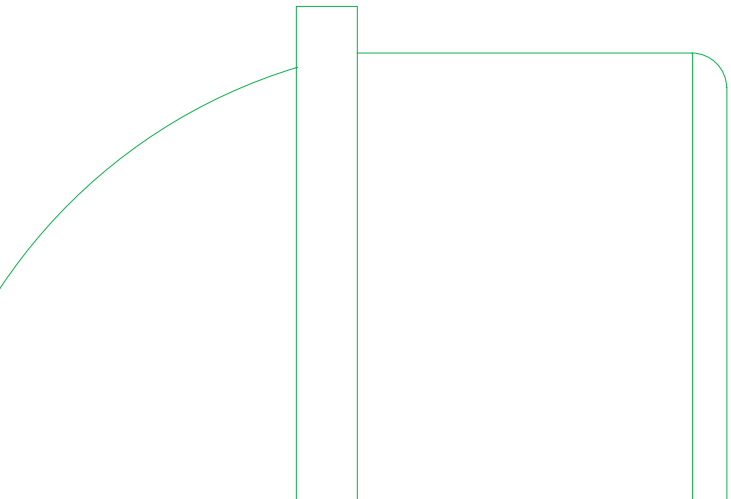
Key AI capabilities include:

-- **Multi-species recognition:** The system can distinguish between various insect species. The current implementation is specifically trained to identify the olive fruit fly (Bactrocera oleae).

-- **Continuous improvement:** The system supports ongoing learning, through training.

-- **Automated data collection:** By eliminating the need for manual inspection, **gaiaTRAP** enhances precision and reduces operational overhead in pest monitoring.

The integration of AI in **gaiaTRAP** is not just a technological advancement—it's a powerful tool for sustainable agriculture and the protection of olive production.



What do you need to do?

The **gaiaTRAP system** operates with a **rechargeable battery,** which provides up to **30 days of autonomy** on a single charge. The **gaiaTRAP** package includes **2 battery packs and a charger,** with charging completed within a maximum of 4 hours. Regarding the bait, you can **schedule its replenishment during the same visit** when changing the battery. This **Digital Olive Fruit Fly Trap** operates like a conventional McPhail insect trap and is simple to use.

Easy Installation

This **Digital Olive Fruit Fly Trap** is easy to install and does not require technical support. It requires no additional knowledge beyond that needed for installing conventional McPhail-type olive fruit fly traps. Hanging the trap on the tree is done with a rope or horticultural cord in less than one minute! It is also important that **gaiaTRAP** comes with a **2-year warranty** covering proper functioning (repair or replacement) from the date of purchase.

Data Collection & Transmission for the Olive Fruit Fly

Data from the temperature and relative humidity sensor are collected every 30 minutes and transmitted to a specially designed platform via a mobile network connection (2G/4G/LBE-M/NB-IoT). Photos of the trapped insects are taken twice daily and sent to the platform for analysis using AI. The factory default setting is to capture and send photos at 1 PM and 3 PM, twice a day, through the same mobile network connection (2G/4G/LBE-M/NB-IoT).

Is it affected by weather conditions?

The **gaiaTRAP Digital Olive Fruit Fly Trap** is completely sealed against the entry of particles (e.g., dust) and is fully waterproof (it can be submerged in water up to 1 meter deep for up to 30 minutes). It is certified with **IP67 protection class.** Its plastic parts are made from highly durable **polycarbonate(PC)** material, molded by NEUROPUBLIC, with additives to enhance resistance against degradation from solar radiation. The transparent and yellow plastic components of the McPhail olive fruit fly trap are available as replacement parts.

What is the accuracy of GPS?

The GPS has a **CEP (Circular Error Probable) of less than 2.5 meters,** meaning that out of 100 measurements, 50 will fall within a circle with a diameter of 2.5 meters from the actual point. Practically, this means that **gaiaTRAP** can pinpoint the exact tree within the olive grove.

What does it offer you?

The most important benefit you get is the **speed at which you receive the data.** Within one day, you are updated and able to act immediately in case of a possible olive fruit fly outbreak in the orchard, thereby protecting your production.

How can you acquire gaiaTRAP?

-- Purchase the digital olive fruit fly trap with **a 2-year warranty**

-- Subscribe to the platform with a **monthly/annual fee** (1st year for free)

Who is it intended for?

-- Regional Agricultural Offices

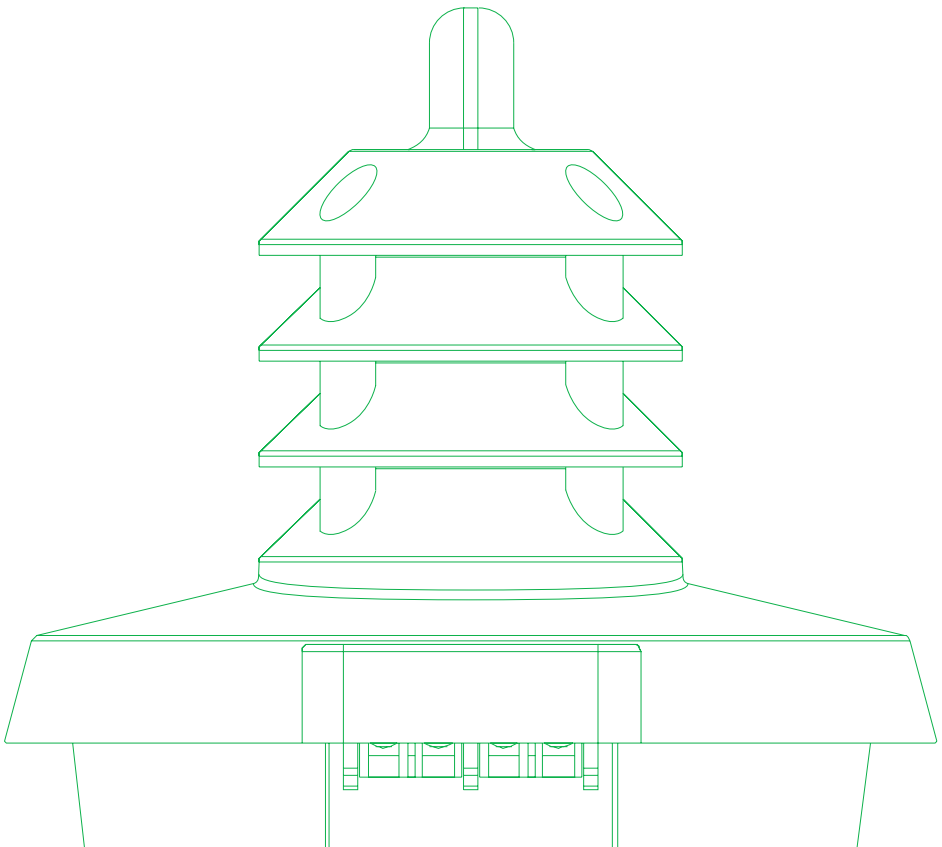
-- Agrifood businesses

-- Cooperatives

-- Agricultural consultants

-- Agronomists

-- Producers



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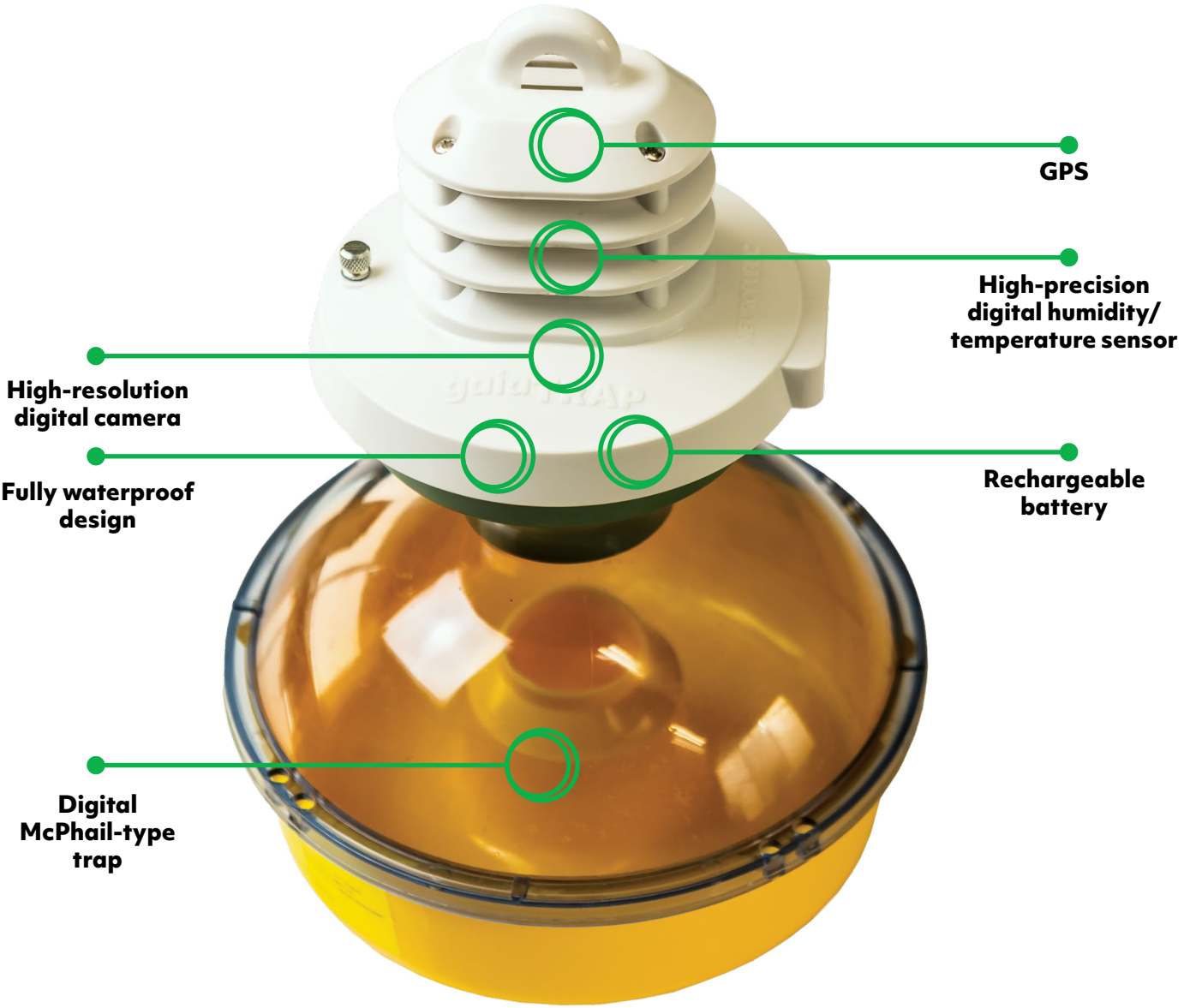

DC 7.4V-0.1A IP67

Certifications

Laboratory tests and certifications include:

-- CE (Declaration of Conformity)
-- IP67 (Fully waterproof)
-- Radio Equipment Directive (R.E.D., for wireless devices)
-- Low Voltage Directive (L.V.D., for battery-powered devices)
-- Electromagnetic Compatibility (E.M.C., for devices that can operate within an electromagnetic field without causing or suffering interference)
-- Type approval and certification for EU compliance (2014/53/EU)

Find out more here