

FlyGear: Accurate and Scalable System for Automatic Insect Counting

CSIC and the Miguel Hernández University have developed a robot and software that allows counting and measuring the transition time between vital phases of the fruit fly (*Drosophila melanogaster*) and other insects. Accurate measurement of the time of transition to adulthood is essential in numerous investigations on cancer and longevity, detection of therapeutically useful compounds, and scientific studies on the impact of hormones, contaminants, and environmental stressors.

Industrial partners from the pharmaceutical and laboratory equipment sectors are being sought to collaborate through a patent licence agreement for the commercialization of the device.

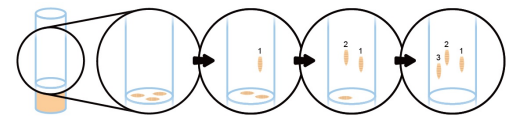
An offer for Patent Licensing

Total control over insect population samples

Drosophila is the main model organism for high-throughput scientific studies of drugs in cancer, longevity, and neurodegeneration with population and individual resolution. *Drosophila* is also widely extended in sectors such as pharmacology and biotechnology. Its use as a biofactory is gaining interest. The development time is a key factor in predicting toxicity and disease.

The FlyGear robot consists of a motorized rotating platform that houses sample containers, a camera, and control and recording software for data processing. In this way, it is possible to take 360° images of the sample, process them automatically and generate graphs and statistics with results in minutes in the cloud.

Due to its robust and compact design, the device can be housed in most incubators and compatible with other temperature and humidity sensors, achieving absolute precision and performance.



The number of individuals in samples can be counted automatically with this technology.

Main innovations and advantages

- It incorporates a light source (visible and infrared LEDs) to obtain high-quality images and for studies of the circadian cycle.
- Allows custom configuration of the time for taking images and the lighting conditions, with easy-to-use software.
- Data collection is versatile and includes time, number of individuals, size, vital phase, and other data. Allows storage and processing in the cloud.
- It is a portable system compatible with most fly tubes and adaptable to other species of insects.
- The device has been designed to meet the need to scale up this task to an industrial level for the biotech and pharmaceutical industries.

Patent Status

PCT patent application filed

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