

MONITORING INSECTS

We monitor insects with sensors to ensure sustainable crop management and to improve tools for pest control and biodiversity for the benefit of mankind. See more at www.Faunaphotonics.com.

Field work

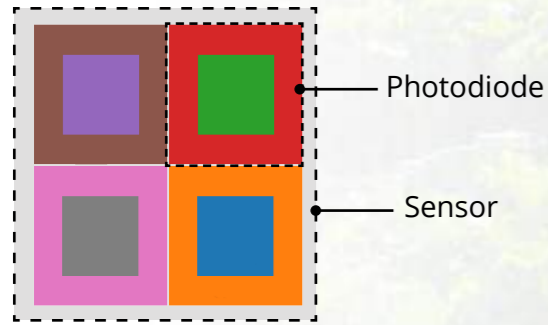
In the spring season of 2019 we proved the system could detect and recognise pollen beetles in oil seed rape. We are working on detecting many other species in the field.



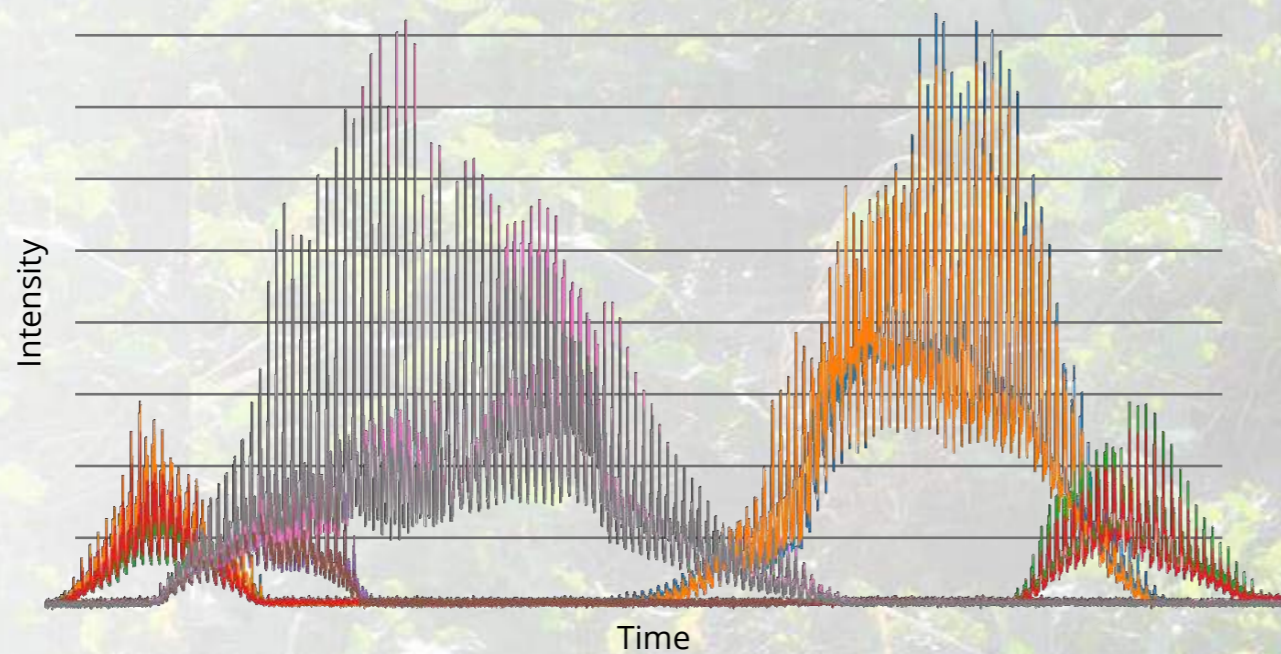
1 An LED-module illuminates an air volume in front of the instrument with infrared light at two wavelengths (808 nm and 975 nm).

2 The infrared light hits the insects and is reflected and detected by the sensor. The detection volume is determined by the overlap of the illuminated volume and the detector field of view. Size: approximately 0.5 m³.

3 The sensor detects identifying data from the insects, like wingbeat frequency, wing to body ratio and colour. The collected data is unique to each insect species.



The sensor consists of four photodiodes in a grid. The reflection of the infrared light from the passing insects is detected here. This data plot is from a honeybee and shows how the insect will pass through the detection volume of the four diodes at different times and in different measure.



In the data insect events are automatically extracted and transmitted to our cloud. This ensures real time monitoring of insect activity in the field with a day-to-day, hour-to-hour or even second-to-second resolution. Using machine learning networks, the data is processed to determine insect species or more general insect activity during the day. Results are made available in an app.

The sensor consists of 4 photodiodes placed in a grid (4 quadrants) for detection of reflected light.

A lens collects and focuses the reflected light.

Power supply can come from the power grid or other sources such as solar panels, a windmill or large batteries.

LEDs are an advancement from earlier products based on lasers. This makes the device much safer to work with, the detection volume is wider and it lowers the production price of the unit significantly.

Approximate size is 18x22x33 and weight 5 kg.

