

AVIACIÓN

The 'spider' who supervises the mills



Un aracnocóptero inspecciona la cola de una aeronave militar. | ARBÓREA INTELLBIRD

- The company Arbórea Intellbird develops a drone that radiographs the internal structure of the wind turbine blades
- Iberdrola, REE, Endesa, Gas Natural Fenosa or Enel are some of its clients
- Integrates a 'software' that identifies defects and generates automatic reports

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For Don Quijote they were giants that threatened the neighbors of that place in La Mancha. For Sancho Panza, his faithful squire, they were simple windmills, whose blades provided the energy needed to get going. That image was created and described by the genius of Miguel de Cervantes's pen. At present, if someone had to draw a wind turbine, surely, he would paint it like **a large mast with three huge blades rotating** at its tip around a horizontal axis and perched on a hill or a mountain.

However, it would get uglier if someone had to explain how to fix one of these devices quickly, efficiently, safely and cheaply. Some time ago, **when a mill broke down, a group of experts had to be dispatched** to check the faults in situ. Now it's no longer necessary. Why? The answer lies with the Salamanca-based company Arbórea Intellbird.

The members of this team with Carlos Bernabéu at the head have created a remotely piloted air system (SARP), better known as drone, which **analyzes the internal structure of the blades by means of images in different spectra, in the form of radiography**. This new tool, presented with great acceptance at a symposium of the **Spanish Wind Association** after its testing on **Iberdrola** machines, also integrates software for the identification and determination of defects generating automatic reports.



Iberdrola wind farm. ALBERTO CUÉLLAR

This procedure, he explains, is "totally innovative". **It is operated with a single pilot who controls the aircraft while it performs an automatic mapping of the blades** in record time. "It takes **seven minutes** to scan the surface of a standard 55-meter-long shovel to the millimeter", he says. Subsequently, in the cabinet, with the help of a specific software, a full radiography is generated in high resolution and various spectra, measuring and positioning the damage accurately. The last step is to carry out the inspection and the delivery of a "very fast" report, and above all, it indicates, without having to move inspectors on the ground.

It also **allows you to keep one hundred percent of the information "impossible" to obtain by other methods**. "This implies increases in efficiency, safety and cost savings." It also helps, in his opinion, to schedule a predictive maintenance of the blades, extending its life, minimizing inspection costs and generating repairs in its early stages.

In addition to Iberdrola itself, this Salamanca company also supplies its inspection systems and services in several companies in the energy sector, such as **Red Eléctrica Española, Endesa, Enel Green Power** or **Gas Natural Fenosa**, among others.

Currently Arbórea, says Bernabéu, designs and manufactures all the pieces. In addition, **it is a pioneer in the training of drone pilots in Spain at a civil and even military level**, collaborating with the UAS school of the **Air Force** since its inception.



Carlos Bernabéu, founder of Arbórea, together with the company's engineers. ARBÓREA INTELLBIRD

These flying robots are used on a daily basis successfully for various tasks around the world. However, Bernabéu indicates that there are a number of keys for the operation of these systems to occur in a sustainable way from the business point of view. "Beyond the legal restrictions, **its implementation requires to be cheaper, more efficient and safer** than the traditional inspection tools that it intends to replace".

For the CEO of this company, these premises imply practices such as logistic reduction, simple learning, minimum maintenance, reliability, simplification of operational aspects, cheap repair and rapid collection of accurate information, automated data management, adequate security procedures or capacity rapid implementation of improvements.

Among its future projects, Arbórea has its sights set on internationalization. According to his founding partner, **he works on additional projects focused on the agricultural sector, the**

improvement in the inspection of electrical transport infrastructure, the diagnosis of large concrete structures, the application of robust aircraft to emergency support tasks or cartography to Spanish military units.

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