PRESS RELEASE

XSun, world's first autonomous drone

Following a first successful test flight on October 30, 2017, the world's first drone, which is autonomous in energy and decision-making, was inaugurated on Monday, November 6th. The drone was designed by a French start-up, XSun, in partnership with Centrale Nantes, Airbus and Dassault Systèmes.

Powered by solar energy, its consumes less than its capacity to recharge itself. The drone is thus **set to smash the world record for flight duration in 2018**.

"This inauguration and first flight mark the first milestone in an ambitious project. The next step will be to beat the world flight record which currently stands at 14 days, and finally to demonstrate that we can cross the Atlantic with a drone". Benjamin David, CEO of XSun

"This project draws on a combination of several advanced technologies: materials, communication, control and artificial intelligence, and energy management, and builds on work undertaken across several generations of students, teachers and researchers. This will make it a success in 2018." Bertrand Alessandrini, Director of Development at Centrale Nantes.

Applications

Drones respond to a growing need in both civilian and military fields, but their use today is limited by autonomy issues. XSun opens up new opportunities thanks to the long and continuous flights that it can provide.
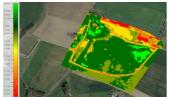

Pipeline monitoring

Ground surveillance for infrastructure and networks that require recurrent monitoring: gas and oil pipelines, railway lines, electricity lines, public safety and natural environments etc.

Fuel-tank emptying

Maritime surveillance: the high degree of autonomy means that missions beyond the reach of conventional civil drones can be envisaged: e.g. supporting species detection for fishing and maritime surveillance, maritime traffic, emptying of fuel tanks etc.

NDVI Analysis

Precision agriculture: for modern farming, precise knowledge of the state of vegetation is essential. XSun provides the necessary solutions for large areas (> 500 acres).
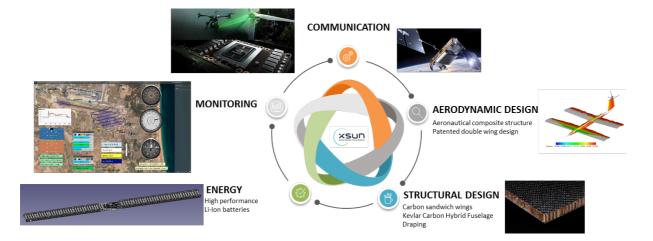

Mountain rescue

Relief and humanitarian missions: XSun will be able to operate for long search periods over large and difficult to access areas, or disaster areas in the event of natural disasters (earthquakes, fire, etc.)

The five key elements of the project

The success of the project is based on five innovative technological elements: communication, aerodynamic design, structural design, energy and monitoring. Centrale Nantes, the project's main partner, contributed to the project by providing first-rate scientific expertise in these different areas, monitoring and energy management in particular.

The drone

Made entirely of carbon composite, the drone complies with the double principle of energy and decision-making autonomy.

Energy autonomy

Thanks to its light structure and its ability to capture more solar energy than it consumes, the drone can fly day and night, whatever the weather, in total autonomy.

Decision-making autonomy

XSun incorporates an artificial intelligence system that allows it to decide on its own which paths to take to fly over an area or get to a given destination, while taking account of various factors such as weather. It can thus conduct complex missions in total autonomy.

Decision-making autonomy can be deactivated at any time by the control room, which then takes control of the drone.

Control centre

The control centre follows all the drone's flight parameters in real time as well as all the measurements it records. Long distance drone flights can only be operated by professional engineers and pilots from the control room, which was designed to work like a satellite control centre.

Centrale Nantes and XSun

Centrale Nantes participated in the research and development of the drone, particularly in the areas of materials, energy management, communication, control and artificial intelligence - key fields within the school.

XSun was created within the Centrale-Audencia-ensa Nantes incubator, and as such, benefited from economic and scientific development support.

Centrale Nantes has invested in the start-up via Centrale Innovation, and provides financial support.

About Centrale Nantes

Centrale Nantes is a French engineering school that offers academic courses based on the latest scientific and technological developments and best management practices. Beyond this renowned training, Centrale Nantes also demonstrates close links with the economic world through close research collaboration with industry. Industrial groups benefit from the experimental facilities, unique in their field, from the five research laboratories of the school to enhance their work on current and future technologies.

With 15 million euros of research contracts and a dozen industrial research and teaching chairs a year, Centrale Nantes deploys academic and applied research of the best European and international standards.

The start-up, XSun

XSun was founded on 6 June 2016 in Loire-Atlantique, France by Benjamin David.

XSun designs new types of solar drones to enable long-distance flights and continuous flights, day and night. XSun is where various innovative sectors converge: space, Formula E and competitive sailing. XSun is following the paths opened up by Bertrand Piccard and his Solar Impulse aircraft.

Main partners and backers

| Cap Atlantique | Atlanpôle | Centrale Nantes | Airbus group | Dassault Systemes | 3DExperience Lab |

Labels

| Lauréat ECO Factory | Pôle de compétitivité EMC2 | Lauréat du réseau Entreprendre | Initiative France | France Initiative Remarquable | French Tech de BPI France |

Footage of the test flight and photos of the drone available upon request

or on the Centrale Nantes website: www.ec-nantes.fr

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