Swiss student breaks drone world speed record

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Samuele Gobbi, a student at the Fribourg School of Engineering and Architecture (HEIA-FR), has smashed the world speed record with a quadricopter drone, reaching 557.64km/h. This achievement has been entered in the Guinness World Records.

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It was a personal challenge that turned into a technical feat: in just one semester, Gobbi developed, built and tested a drone that set a speed record, HEIA-FR said in a press release on Friday.

A keen FPV (First Person View) pilot, the electrical engineering student is closely following the rapid technological developments in the field of drones. With his friends, he designed his first prototype as part of his course, with the aim of making it as fast as possible.

Given the promising results, Gobbi suggested that for his Master's thesis he should study the optimisation of high-speed flight with a quadricopter. Under the supervision of Nicolas Rouvé, and with the support of members of the HEIA-FR's Interdisciplinary UAV Research Group (GRID), Gobbi developed, built and tested the "Fastboy 2" UAV (Unmanned Aerial Vehicle).

Interdisciplinary project

Some innovative concepts set Fastboy 2 apart from the competition: its inertial water cooling system and its revolutionary aerodynamic design.

"The high thermal inertia of the water, which is contained in two tanks, enables the electronics to be cooled. In addition, the drone's arms have been designed to carry the craft at high speed. In the air, the force comes from both the engine and the arms", Gobbi explained.

"It's very much an interdisciplinary project: I dealt with the electrical aspects, but also mechanics, aerodynamics and project management," he said, adding that the knowledge and skills acquired during this Master's thesis are just as important as the final result.

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Risk analysis

Risk analysis is also a fundamental theme in ensuring the safety of people and objects. Although it complies with current regulations, the operation of this 1.6kg aircraft with a maximum power output of 10kW requires rigorous safety measures.

As the tests progressed, the possibility of beating the previous record set at 480km/h by South Africa's Luke Maximo Bell loomed large. The certification protocol was strict: the flight had to be horizontal or upwards, and 100 metres in a straight line, in two opposite directions, all within the same hour.

External experts supervised the test and confirmed the speed achieved: 557.64km/h. The record was subsequently entered in the Guinness World Records.

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