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**Illuminating the skies of drone innovation**

Drone Navigation Software developers [Flare Bright](https://flarebright.com/), based in the [Westcott Space Cluster](https://westcottspacecluster.org.uk/) at [Westcott Venture Park](https://www.westcottvp.com/), has been making waves in the industry with its ground breaking innovations.

The company's remarkable growth and success have caught the attention of the Government, which recently published an [article](https://www.gov.uk/government/case-studies/flare-bright-continues-to-fly-high) highlighting Flare Bright's tremendous achievements.

One of the key factors contributing to Flare Bright's success is its software-enhanced Inertial Navigation System (INS), which addresses the challenge of operating drones without GPS.

With initial funding from the [Defence And Security Accelerator](https://www.gov.uk/government/organisations/defence-and-security-accelerator) (DASA), Flare Bright has secured contracts from leading aerospace companies in the UK. The company's autonomous drones, equipped with advanced software, have proven their ability to operate without GPS or remote control while remaining immune to jamming.

Matt Peachey, Head of Enterprise Zone Development at [Buckinghamshire Local Enterprise Partnership](https://www.buckslep.co.uk/) said: **“**Flare Bright's ground breaking drone navigation technology, further demonstrates the breadth of expertise in the Westcott Space Cluster. The company’s contribution to the cluster and the Buckinghamshire economy makes it a shining example of Westcott’s potential.

“As Flare Bright continues to push boundaries and expand its expertise to other sectors, its impact on the drone industry is expected to be hugely significant.”

Flare Bright's success has been further showcased through its participation in prestigious events such as the international defence and security exhibition [DSEI](https://www.dsei.co.uk/about-dsei). The company was invited by DASA to exhibit on its stand in 2021, providing an opportunity to present its cutting-edge projects to a global audience of industry leaders and government representatives. With them returning to DSEI in 2023, but this time with its own stand at the show.

A key element of Flare Bright's success lies in its use of digital twin software, which creates a virtual replica of unmanned aircraft. This software model incorporates various variables, including aerodynamics, propulsion, and fuel usage, enabling the company to solve complex navigation and optimisation problems through machine learning algorithms.

By uploading the digital twin software into real drones, Flare Bright ensures accurate internal navigation even in GPS-denied situations, providing a significant advantage over traditional drones susceptible to spoofing.

Chris Daniels, Chief Commercial Officer of Flare Bright said: “The company models the drone by breaking it down into many small digital pieces to create a physics model - a mathematical description of a system used to make testable predictions about its behaviour.

“Whatever data is produced internally we can measure and compare to the physics model, so that it flies as close as possible to reality. When we put the software in the aircraft, it knows how fast it is flying over the ground and other parameters so that it can fix its position accurately.”

Flare Bright’s process of analysing flight data is much cheaper and quicker to achieve the same results than conducting physical tests and it can also be used for other purposes.

“As well as flying accurately in GPS-denied areas, it enables unique capabilities for drones such as, in-flight wind sensing, regulatory and safety case assurance and for test and evaluation purposes,” Chris said.

Despite being a small enterprise, Flare Bright has made a significant impact in the industry. The company is currently engaged in its fourth Sprint project with the US Department of Defence, conducting trials of its technology in challenging environments without GPS. Flare Bright has also secured contracts with Dstl and the MOD, further solidifying its position as a leading player in the field.

Flare Bright's success story extends beyond the aviation sector. The company's expertise in machine learning digital twin technology has attracted interest from the maritime and subsea sectors, as well as other industries seeking optimisation solutions. This versatility positions Flare Bright as a key player in the Generation After Next Alternative-Navigation sector.

Matt Peachey said:“Further drone innovation within the Westcott Space Cluster was announced earlier this year with the launch of the new Drone Test and Development Centre at Westcott.

“Bucks LEP provided Getting Building Funds to help establish this pioneering new facility, run by the Satellite Applications Catapult, within the [Enterprise Zone](https://www.bucksez.co.uk/) to help to shape and transform private and commercial aviation over the next decade.”

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