



Ouster New Supplier of Digital Lidar Sensors for Drone Inspections

by Joy Finnegan | Jan 27, 2021 | Innovation, MRO IT



Lidar has become one of the most important tools in the commercial drone industry. Mainblades reports they have recently established a new partnership with Ouster, a provider of digital lidar technology. Headquartered in San Francisco, the company designs and manufactures high-performance lidar sensors used in industrial automation applications across various segments. Mainblades says they will benefit from the high quality and reliability of the new sensors through radically improved data accuracy for aircraft drone inspections.

"The output from Ouster's sensors is outstanding. Integrating their technology into our drone setup means being able to achieve the highest degree of precision for mapping and navigation," said Dejan Borota, CEO at Mainblades.

Lidar stands for Light Detection and Ranging, a sensing method that uses light to measure the position and distance of objects. Using lasers and detectors, lidar sensors quickly emit light pulses and measure the reflected pulses to generate accurate range and positioning data. This technology is designed to create highly detailed 3D maps and models of landscapes, buildings, and other human-made objects to enable safe navigation and precise positioning. Additionally, lidar sensors are ideal for obstacle detection and avoidance because they can cover a wide field of view.

Traditional lidar systems typically have thousands of independent elements, including lasers and detectors, packed into a single device. Ouster's patented digital lidar technology integrates these components into a simple two-chip architecture. This reduces the number of components and leads to lower costs, a more compact and lighter sensor and improved reliability due to less points of failure. This combination of performance, precision, lightweight, and reliability is particularly critical for moving applications like drones.

Ouster's technology can also be found across a wide range of key industries. MechaSpin, for example, deploys machine learning algorithms to Ouster's lidar output to classify, identify and track objects of interest within the agriculture industry. Another example is Unikie which integrates Ouster lidar sensors with artificial intelligence to make progress in the area of autonomous vehicles.

When surveying crowded and dynamic environments such as airports where many different maintenance operations take place simultaneously, the drone needs to ensure that a safe and reliable flight plan is developed. Lidar helps to achieve that. Through the module that is attached to the drone the aircraft and the surrounding environment is measured. There are many different factors that need to be considered, including the altitude, speed, and line spacing, as well as other things such as weather conditions and structures present within the area. Mainblades developed an algorithm that processes all the accumulated data to map the hangar environment and localize the drone precisely to make sure it flies around the aircraft safely.



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Mainblades says using new lidar sensors is only one aspect of their continued effort to improve our overall drone solution in the past months. "When it comes to software we worked hard to make outdoor inspections possible, allowing aircraft operators to make quick visual assessments outside of hangars. Our partnership with Ouster on the other hand reflects our ambitions to also stay on top of the latest hardware developments," the company says. While Lidar technology has been around since the 1960s when it was mounted to aircraft, its capabilities and use cases have expanded dramatically now that Lidar is used with commercial drones. Mainblades says their decision to partner with Ouster was a result of their digital lidar sensors large field of view, powerful built-in signal processing and multi-segment measurements, that can generate critical distance data, efficient obstacle detection and industry-proven reliability.

"With our new hardware we have higher density and higher resolution. The detail of information we receive now provides us with more flexibility to run the data through our dent classification algorithm. Additionally, the new components tie in great with our approach to a modular hardware solution," says Jochem Verboom, CTO at Mainblades.

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