

Case Study

AUTONOMOUS FLYING SCANNER



Executive Summary

The client is a Switzerland-based leader in surveying and geographical measurement products.

Leveraging their parent company's expertise in sensors, software and autonomous technologies, the client wanted to develop a one-of-a-kind fully integrated autonomous LiDAR UAV. The scanner is designed to independently capture and digitize the exterior and interior of buildings, creating precise 3D digital replicas. To ensure ease of use and versatility, the scanner needed to be compact, easily transportable, and capable of accommodating various camera configurations.

The client was looking for a partner with strong experience in developing complex multi-processor designs and in-house labs and infrastructure to enable complete product development. This included hardware design, embedded software, camera sensor integration, and image sensor tuning.

Leveraging our exhaustive platform experience and in-house hardware and image tuning labs, eInfochips took complete responsibility for the design and development of the scanner.



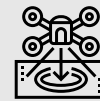
World's first LiDAR Unmanned Aerial Vehicle (UAV)



Based on Qualcomm Snapdragon 845, iMX8MQ and Microsemi FPGA



Stringent size, weight & power constraint



5 Cameras, sensor integration, ISP tuning



TIME Best of Innovation 2022 for productivity



Client

Revolutionizing the world of measurement and survey for 200 years, the Europe-based client is known for premium products and innovative solution development. Professionals from various industries, such as aerospace and defense, safety and security, construction, and manufacturing, our client trust us for all their geospatial needs.



Challenge

The client's product had stringent weight, form-factor, and power consumption requirement. They needed a technology partner with strong expertise in various platforms, complex hardware and camera design, to help with their one-of-the kind multi-camera LiDAR-based product.



Solution

eInfochips helped develop autonomous LiDAR UAV based on Qualcomm Snapdragon 845 processor. The light-weight portable device incorporated multiple cameras, GrandSLAM sensor fusion of LiDAR, radar, and GNSS for complete scan coverage, optimized flight paths, and advanced obstacle avoidance system.



Key Highlights

- Schematic, layout design, prototyping
- Bring-up, functional, integration, EDVT
- Firmware and BSP development
- Support for 5 Cameras, sensor integration, ISP tuning
- Hot swap battery system



Benefits

eInfochips successfully helped client in launching world's first fully integrated autonomous LiDAR UAV and was awarded the TIME Best of Innovation 2022 for Productivity.



About eInfochips

eInfochips, an Arrow Electronics company, is a leading provider of digital transformation and product engineering services. eInfochips accelerates time to market for its customers with its expertise in the areas of IoT, AI/ML, security, sensors, wireless, cloud, and power. eInfochips has been recognized as a leader in Engineering R&D services by many top analysts and industry bodies, including Gartner, Zinnov, ISG, IDC, Nasscom and others.

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