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Abstract

Development of a UAV-Borne LiDAR System for Surveying Applications †

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Abstract: A high-resolution UAV-borne LiDAR system with a Velodyne VLP16-Lite at its core was developed for surveying applications. The LiDAR unit was combined with a high-end IMU-GNSS solution for direct georeferencing (APX-15) and a single-board computer for data acquisition (2nd-gen. Intel NUC). Hardware and software solutions were developed for system integration. Moreover, a mechanical mount for isolating the sensitive components of the system from the UAV's high-frequency vibration was built and evaluated. System architecture and preliminary results were presented. Furthermore, a sensitivity analysis revealed the system's most important sources of error and suggested ways to overcome these.

Keywords: surveying; UAV; lidar; system integration

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