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Lidar-equipped uav for building information modelling

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Abstract. The trend to minimize electronic devices in the last decades accounts for Unmanned Airborne Vehicles (UAVs) as well as for sensor technologies and imaging devices, resulting in a strong revolution in the surveying and mapping industries. However, only within the last few years the LIDAR sensor technology has achieved sufficiently reduction in terms of size and weight to be considered for UAV platforms. This paper presents an innovative solution to capture point cloud data from a Lidar-equipped UAV and further perform the 3D modelling of the whole envelope of buildings in BIM format. A mini-UAV platform is used (weigh less than 5 kg and up to 1.5 kg of sensor payload), and data from two different acquisition methodologies is processed and compared with the aim at finding the optimal configuration for the generation of 3D models of buildings for energy studies

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