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## High-resolution mapping and monitoring with low-cost unmanned aerial systems

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Unmanned aerial systems (UAS) provide a flexible and low-cost solution for the acquisition of high-resolution data. The potential of high-resolution UAS imagery to create and update monitoring information is being increasingly investigated. Existing procedures generally involve substantial fieldwork and many manual processes. Arguably, multiple parts of UAS-based monitoring workflows could be automated.

Therefore, the accuracy of using this technology must be evaluated. To achieve results a small property with the limit defined by some points was chosen. First, were determined with high precision by GNSS technology, the coordinates of proper points, some of them being used as ground control points (GCP), while the remaining as check points (CP) for accuracy assessment. Then, the property 3D model was created as a point cloud which was automatically generated based on digital images acquired with a low-cost UAS, using the Structure from Motion (SFM) algorithm. Based on this point cloud, also a mesh surface was automatically created. Finally, the orthoimage of the study property was generated and analyzed. The preliminary results showed high potential of using low-cost UAVs in monitoring applications.