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ABSTRACTS

The pre-calibration of digital cameras mounted on Unmanned Aerial Systems

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Abstract

Because of the many advantages and technological developments in recent years, UAV systems are used within projects with high precision demand. These unmanned systems are usually equipped with an automatic pilot device and a digital camera whose lens has distortions, but which can be determined after the calibration process. Currently, for the calibration of the digital cameras mounted on UAVs the method of "Self-calibration" is used, but in order to improve the accuracy of the products automatically obtained by processing the UAV images the calibration process is mandatory. Thus, this paper aims to establish a field calibration and a testing field for the digital cameras mounted on UAVs in terms of accuracy. The content is informative and practical enough to enable effective testing and calibration of digital cameras installed on UAV systems, to transform them into a safe and precise measurement tools as the traditional one (total stations or terrestrial laser scanners). In this context, it is necessary to conduct accurate measurements of the calibration and testing field using UAV systems and we proposed a structural approach to address this issue.