



[Volume XL-5](#)

Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-5, 211-216, 2014
www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XL-5/211/2014/
doi: 10.5194/isprsarchives-XL-5-211-2014

Potentials of small, lightweight and low cost Multi-Echo Laser Scanners for detecting Grape Berries

A. Djuricic, M. Weinmann, and B. Jutzi

Institute of Photogrammetry and Remote Sensing (IPF), Karlsruhe Institute of Technology (KIT), Germany

Keywords: Laser scanning, low-cost, lightweight, multi-echo, segmentation, grape berries

Abstract. Mobile sensor devices offer great opportunities for automatic scene analysis and object recognition. Nowadays a new generation of ranging devices is available, like laser scanners which are small and light weighted. Concerning these improvements specific applications can be tackled. In this contribution we focus on vineyard monitoring for detecting and counting grape berries with a small, lightweight and low cost multi-echo laser scanner. Therefore a Hokuyo UTM-30LX-EW laser range finder is utilized for capturing the data in close range up to 1m. In order to process the data the following methodology is proposed: after smoothing and morphological techniques are applied on the laserscanning intensity and range images the number of visible grape berries is determined from the resulting segments. The approach performs with a detection accuracy of above 84%. The results reveal the high potential of such close range ranging devices for locating and counting grape berries. Thus, the methodology provides practical support for viticulture applications.

[Conference Paper](#) (PDF, 655 KB)

Citation: Djuricic, A., Weinmann, M., and Jutzi, B.: Potentials of small, lightweight and low cost Multi-Echo Laser Scanners for detecting Grape Berries, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-5, 211-216, doi:10.5194/isprsarchives-XL-5-211-2014, 2014.

[Bibtex](#) [EndNote](#) [Reference Manager](#) [XML](#)

