

Integrating Digital Cameras with Theodolites or Total Stations for Field and Building Surveys

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Key words:

ABSTRACT

This paper describes a field survey system based on the integration of a digital frame camera with a theodolite or a total station piloted from a PC. We discuss the advantages and drawbacks of this new system vs. existing ones. The calibration process is described. Two surveying strategies integrating this system are described. The first one based on classical convergent multi-view measurements and the second one based on total station tacheometric measures automatically piloted by structures automatically found in an image or a panoramic acquired by our system (with image processing techniques) and of course supervised by the field operator. This second strategy is a good compromise between photogrammetry and LASER based systems and is a very powerful tool for outer and inner building surveying.

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