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ACCURACY EVALUATION FOR A PRECISE INDOOR MULTI-CAMERA POSE ESTIMATION SYSTEM

C. Götz, S. Tuttas, L. Hoegner, K. Eder, and U. Stilla

Photogrammetry and Remote Sensing, Technische Universität München, Arcisstraße 21, 80333 Munich, Germany

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Abstract. Pose estimation is used for different applications like indoor positioning, simultaneous localization and mapping (SLAM), industrial measurement and robot calibration. For industrial applications several approaches dealing with the subject of pose estimation employ photogrammetric methods. Cameras which observe an object from a given point of view are utilized as well as cameras which are firmly mounted on the object that is to be oriented. Since it is not always possible to create an environment that the camera can observe the object, we concentrate on the latter option. A camera system shall be developed which is flexibly applicable in an indoor environment, and can cope with different occlusion situations, varying distances and density of reference marks. For this purpose in a first step a concept has been designed and a test scenario was created to evaluate different camera configurations and reference mark distributions. Both issues, the theoretical concept as well as the experimental setup are subject of this document

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