Details of Technology

Name of Technology	3D Shape Measurement Technology	IT
Name/Post/Faculty	Kouichi Konno / Associate Professor / Faculty of Engineering / Department of Computer and Information Science	
Key words	range sensor, 3D model recovery, relics (stone tools, unglazed earthenware), buildings	

What kind of technology is this?

Outline

The technology to recover 3D computer graphic models from point clouds measured by a range sensor

This is a fundamental technology for configuring 3D models from 3D coordinate point clouds of range sensor data. This technology provides a positioning technology that measures small objects (relics) and large buildings, for instance, and then places the obtained 3D coordinate point clouds in the same space. For example, in the case of a building, the target object is measured from multiple directions, [1] feature lines are extracted from a point cloud, and [2] multiple point clouds are placed in the same space based on the feature lines. By repeatedly applying these two processes to each point cloud, it becomes possible to integrate point clouds.

What are its applications?

Applicable to measurement technologies used in digital archive, civil engineering and construction fields

Related patents	Japanese laid-open NO. 2006-214893
Related materials	Tetsuji Konno, and Kouichi Konno: "Column Form Recognition and Shaft Estimation Using Point Cloud by 3D Measurement: Trial Reconstruction of the South Gate, Outer Perimeter of Shiwa Castle", The Journal of the Japan Society for Archaeological Information, Vol.13, No.2, pp.1-9, (2008). Tetsuji Konno, Kouichi Konno, and Norishige Chiba: "Ridge Line Extraction by Planar-Layered Region Segmentation of Measured Point Clouds" , The Journal of the Society for Art and Science, Vol.6, No.4, pp.197-206, (2007). Tetsuji Konno, Kouichi Konno, Tadahiro Fujimoto, and Norishige Chiba: "Feature Line Extraction and Matching for Modeling Buildings Using Measured Point Clouds", The Journal of the Society for Art and Science, Vol.5, No.3, pp.80-91, (2006). Tetsuhisa Nita, Kouichi Konno, Fumito Chiba, Yoshimasa Tokuyama: "A Method to Generate a Solid Model from Front and Back Surface Models of a Stone Tool", Papers in the Journal of the Japan Society for Archaeological Information, Vol. 11, No.1, pp. 1-8, (2005).

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