Facade Measurement of Building Along the Roadway Based on TLS and GIS of Project Supervision

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二. 成果简介：

This project combines low-altitude drone aerial photography technology and GIS platform development technology to carry out research on indoor and outdoor engineering application of 3D laser scanning technology. Use the eBee drone aerial photography to orthographic image along the main road of the main road. Develop a GIS platform management system for large-scale 2D elevation line drawing and high-volume point cloud data, and archive the results into the database to provide a reliable data source for improving urban and rural landscapes.

三. 主要研究内容及创新点：

In this study, the FARO focus 3D×130 scanner was used for data acquisition, and the bricks of the original point cloud were accurately positioned (Fig1), and the CAD was drawn to draw a two-dimensional line graph (Fig2), according to the line drawn. Figure, using the accurate stakeout of the bricks after the wall painting in the actual building decoration (Fig3), provides effective control of material cost, materials, construction period, etc. in the blank stage and hardcover stage of the residential building. Building original point cloud data (Fig4) and denoised point cloud data (Fig5). The GIS management system was developed for high-volume point cloud and elevation line drawing, and the GIS platform was compared before and after the real-time supervision of the facade (Fig6).

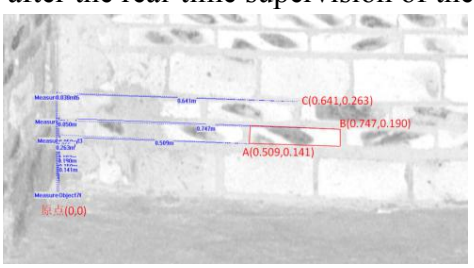


Fig 1 Precise positioning

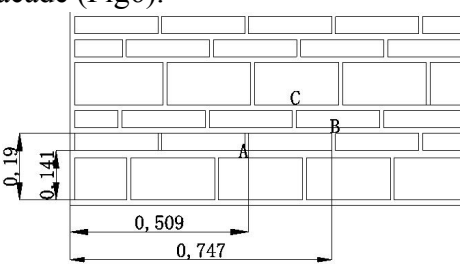


Fig 2 Line drawing

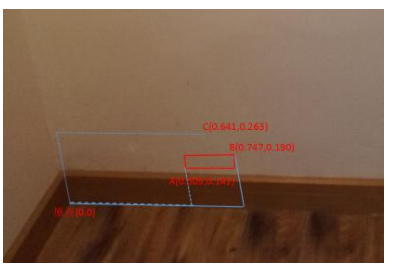


Fig 3 Precise stakeout

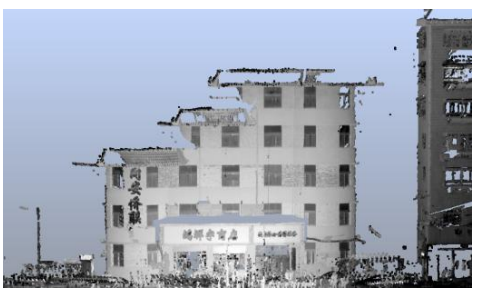


Fig 4 Original point cloud data



Fig 5 Point cloud data after denoising



Fig 6 Comparison of GIS platform before and after transformation

四. 主要研究成果及应用情况

在 2018 年第二届环境与能源工程国际会议（IC3E2018）上发表 EI 论文一篇

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