

Comparative Analysis of Conventional Survey Data and Point Cloud Data

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SUMMARY

The rapid evolution of geospatial technologies has introduced point cloud as a transformative alternative to conventional survey methods. This paper presents a comparative analysis of conventional survey data (GPS and Total Station Data) and point cloud data with respect to accuracy, efficiency, data density and practical applications in engineering and construction projects.

Traditional survey techniques, while reliable and widely adopted, often face limitations in terms of time, labor intensity and spatial coverage. In contrast, point cloud data offers high-resolution of spatial information and enhanced visualization capabilities but often requires advanced processing and substantial computational resources.

Through case studies and performance evaluations, this research highlights the strengths and limitations of both approaches, underscoring the scenarios in which each is most suitable. The findings aim to guide surveyors, engineers and project managers in selecting optimal methods for data acquisition and further enhancing decision-making in spatial analysis and project delivery.

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