COMPARATIVE ANALYSIS OF CLASICAL MEASUREMENTS RESPECTIVELY SCANNING

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Abstract. *The scientific work is based on a land area studied in Olteni, Clinceni village, Ilfov County. Measurements were carried out on the land with the laser scanner having the point of interest the comparative analysis performed by classical measurements respectively scanning.*

Key words: *3D laser scanning, information, topography, results*

INTRODUCTION

This study aims the analysis between 3D laser scanning measurements and those of classical measuring. The paper contains measurements performed with laser scanner, data accuracy and how to make measurements.

The object of this work involves the benefits brought by using this method of measurement using the 3D scanner.

Fig.1 Stonnex laser scanner

Using the 3D scanner allows viewing of all buildings and detail available in the land at the time of measurement, being able to view their state from that moment. Classical measurements do not allow this, only by performing photographs at these constructions/works using a normal camera.

MATERIALS AND METHODS USED

3D laser scanning technology is relatively new in topography. Essentially, it performs fast and accurate data capture space (X, Y, Z) signals using laser beams reflected by objects or surfaces scanned.

The technology of 3D laser scanning brings an exact 3D copy of objects and surfaces scanned in PCs of architects and designers with exceptional accuracy never before seen and in

our case, at a price equal to that of classical topographical works performed with the total station.

These 3D laser scanners can scan in static areas targeted by specialists in the field, the device remains in this situation in a fixed position, delivering high accuracy results. Static laser scanners are also called terrestrial laser scanners. There is the possibility of installing a 3D laser scanner on a moving platform and even an aircraft.

RESULTS

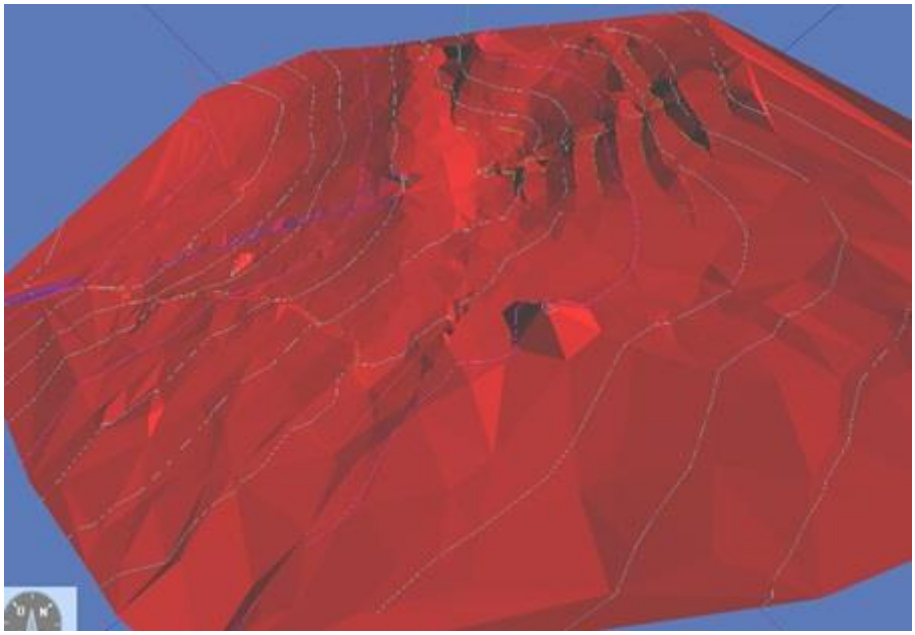


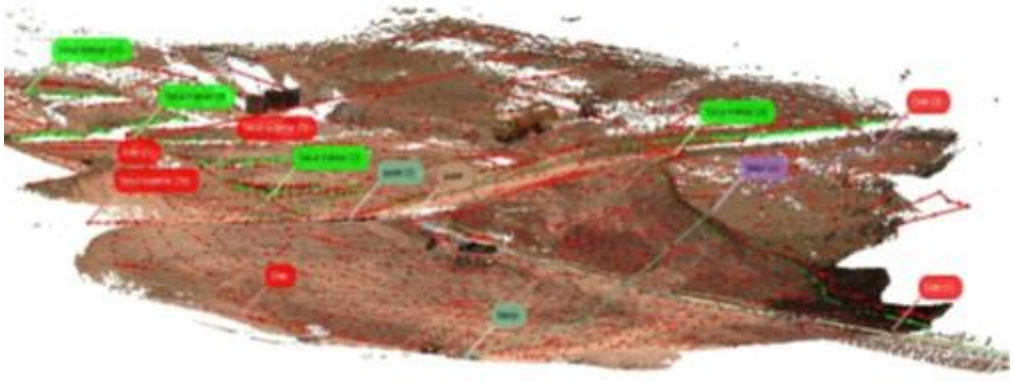
Fig. 2 "Dimensional model of the terrain using the scanner 3"

Fig 3."Photo of the studies with scanner"

Analyzing the images above, there is an abundance of information compared to the existing 3D scanning classic topographic plan used today and obtained by classical surveying.

DISCUSSIONS

The final project obrained throughs scanning.



For my paper I considered that 3D laser scanning method is the most complex method in developing the reclamation thus far and beyond.

In the future I propose that in addition to the classical method of measurement a 3D scanning to also be done in parallel.

CONCLUSION

Compared to conventional 3D measurement systems, optical systems have meny advantages such as:

- The measurement of rapid and complete parts of landmarks regardless of size form or material;
- High prescision and resolution;
- Auto-control;
- Dynamic referencing;
- Multiple automation solutions;
- flexibilitate and adaptability to working conditions.

BIBLIOGRAPHY

GEORGE HERITAGE, ANDY LARGE Laser scanning for the environmental sciences;
JIE SHAN, CHARLES K. TOTH Topographic Laser Ranging and Scanning: Principles and Processing,
CHRISTOPHER RYAN MACK, A Simple Low Complexity and Cost Effective 3D Laser Scanning System,