

Application of LiDAR Technique for the 3D Digital Documentation of Cultural Heritage Sites

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Now a day's remote sensing and geospatial techniques are gaining popularity as they offer correct and precise information of any object situated at a distant place. Advanced remote sensing techniques like terrestrial laser scanning (TLS), mobile laser scanner (MLS), close range photogrammetry (CRP), smart total station (STS) and GNSS are the useful techniques for creating a 3D (three-dimensional) documentation of complex engineering structures or cultural heritage sites. The integration of these techniques with other methods like topographic survey or physical measurement method also offer the potential to the user to perform a complete 3D documentation of any structure.

This paper presents a methodological framework for the 3D digital documentation of cultural heritage sites from laser scanned datasets. The framework includes acquisition of point cloud datasets through laser scanners and their conversion to 3D models. 3D models are useful for planning and surface detail measurements. Detailed planimetric and elevation information or plans could be easily extracted from developed 3D models. These planimetric informations and elevation plans are useful for the conservation and preservation of structure, and can help in restoration of these structures in case of any damage due to natural disasters or other seismic activities.

Keywords: TERRESTRIAL LASER SCANNER, 3D DIGITAL DOCUMENTATION, ELEVATION PLAN, POINT CLOUD, SOLID 3D MODEL