Importance of Image and Point Cloud Matching of Road Infrastructure Feature Extraction

Mehmed Batilović, Dejan Vasić, Tatjana Kuzmić and Marina Davidović (Serbia)

Key words: Deformation measurement; Engineering survey; Geoinformation/GI; Laser scanning; Spatial planning; Urban renewal

SUMMARY

Nowadays, collection procedures are getting faster and simpler, so the requirements of data processing are higher. This paper will show some of realized projects using the methodology of mobile laser scanning (MLS). The paper will also cover best practices for working with the large data sets and creation of final product. Reliable feature extraction from 3D point cloud data is an important phase in many application domains, such as traffic managing, object recognition, autonomous navigation, civil engineering and architectural projects, and so on. All those projects need to rely on quality data for existing conditions in order to be successful, so the used methodology for data processing has been analyzed in details. Point cloud, as a main surveying result has to be matched in order to obtain high-quality data. This paper deals with problems and methodology of matching of point cloud, as well as matching of images and emphasize the importance of this step at the multiple scans of the same corridors. All the future work, for example-classification of point cloud, extraction of selected features and creation of the final product depends on the point cloud matching. The importance of the integration of images and point cloud in the process of extraction of 3D structural elements of the space of the road infrastructure, as well as in the process of visualization and presentation of the same, was emphasized. After this part, the whole process of extraction of road infrastructure data is done. As there are different solutions for extraction, in this paper is chosen Orbit application. The usage of Orbit feature extraction and Orbit publisher is explained with all its advantages. At the end, ideas about further work and conclusions are presented.

Importance of Image and Point Cloud Matching of Road Infrastructure Feature Extraction (10184)
Mehmed Batilović, Dejan Vasić, Tatjana Kuzmić and Marina Davidović (Serbia)

FIG Working Week 2019
Geospatial information for a smarter life and environmental resilience
Hanoi, Vietnam, April 22–26, 2019