

Semi-Automatic Classification of Power Lines by Using Airborne Lidar

Dragana Popović, Vladimir Pajić, Dušan Jovanović, Filip Sabo and Jovana Radović (Serbia)

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SUMMARY

Keywords: LIDAR, electricity distribution infrastructure, cadastre, classification

Abstract: Electricity distribution infrastructure is one of the most important part of a country infrastructure. The main function of electrical power distribution network is to provide power to consumers. LIDAR data can produce highly detailed topographic maps with high accuracy. This data can be used in many cases, but mainly for the purpose of cadastral information system and management of electricity distribution infrastructure. The crucial elements which had to be extracted in this work are poles, wires, power lines, substations and nearby objects. It is necessary to process recorded data with certain operations that enable right amount of information. Problem with LIDAR 3D data is classification of points. It is noticed that using automatic classification some data can not be derived. For example, wires can not be detected if there was vegetation nearby. Also the same problem is with street furniture and other small objects. Every single point that belongs to specific object in point cloud has to be in appropriate point class. Automatic classification of 3D point cloud can not detect all points of one object, so it is necessary to use semi-automatic classification. This paper describes the method how to use semi-automatic and manual classification in order to extract valid 2D/3D data. The paper also analyses how to combine orthophoto and oblique images with LIDAR 3D data for the area of interest. By using the combination of the two datasets, it is possible to detect more details. After 2D/3D vectorization and point classification derived data is used to create DTM (Digital Terrain Model), longitudinal profiles, cadastral maps.