THE STUDY OF DATA PROCESSING RESULTS ACQUIRED WITH VARIOUS TERRESTRIAL LASER SCANNERS FOR QUALITY CONTROL OF ROAD REPAIR

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One of the tasks solved through the application of terrestrial laser scanning technology is the quality control of road works. With the stated accuracy of measuring distances of the order of several millimeters, terrestrial laser scanning allows conducting continuous control of the road construction or repair. Nowadays a large number of different terrestrial laser scanners have been produced, each of which allows identifying most of the roadway defects and determining its flatness due to the ability to perform high-density surveys. The reliability of determining flatness and detecting defects from scanning data can vary significantly because of the fact that almost every laser scanner has its own unique technical characteristics. To achieve the highest reliability values, it is necessary to adhere both to techniques of performing the field part of all surveying works and to data processing techniques, which consist in obtaining point clouds and constructing digital road surface models. If the main essence of these works does not depend on the used laser scanner model, then the individual stages of the applied techniques may differ. 2 models of laser scanners produced by different manufacturers are discussed to solve the task of asphalt pavement laying quality. Their comparative characteristics and peculiarities of performing all surveying works with their usage are given. The results of digital road surface model generation are analyzed, and peculiarities of processing of data obtained with various laser scanners are discussed. Based on the results of the analysis, it is shown that not all models of laser scanners can be suitable for controlling the quality of road repairs. The technique of preliminary data processing is presented, which makes it possible to increase reliability of solving this task for laser scanners with insufficient quality of obtained point clouds.

Keywords: terrestrial laser scanning, flatness, digital surface model, control points, accuracy estimation

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