

The Feasibility Study of Automatic Extraction of Cracks in the Roadbed from Mobile Laser Scanning Data

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SUMMARY

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SUMMARY The investigation results of automatic extracting cracks in the roadbed from mobile laser scanning data are presented. All roadbed defects are visually well-identified using mobile laser scanning data. This is achieved by simultaneous analysis of laser points in display mode by the reflected signal intensity and images taken from digital cameras equipped with the mobile laser scanning system. The cracks of medium and large size are well identified by the intensity of laser points, whereas the smallest ones by images. Therefore, in technique development for automatic crack identification was used the IDIMA software as that of including automatic image decoding algorithms and TerraSolid software used for laser scanning data upload and processing. Automatic image decoding algorithms in IDIMA software are studied for the purpose of crack extraction. To extract certain groups of objects in IDIMA software, it is necessary to create a training sample using area masking. What is concerned crack extraction, all areas not relating to a roadbed should be masked. Otherwise, the result of classification will be unsatisfactory. The estimation of crack extraction accuracy from images taken by the mobile laser scanning system is described. The technique for obtaining identified crack coordinates using IDIMA software in the world coordinate system is outlined. The matter of this technique is that initial images in TerraSolid project work directory are replaced by images with detected cracks, and then laser points are painted according with colors taken from images. The laser points matching by cracks will be painted in given image classified color. Hereafter, laser point coordinates corresponding to cracks can be saved separately. Conclusions on the feasibility development of completely automated technique for crack extraction are given.