LinksNews



Volume XXXIX-B3

Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XXXIX-B3, 281-284, 2012 www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XXXIX-B3/281/2012/ doi:10.5194/isprsarchives-XXXIX-B3-281-2012 © Author(s) 2012. This work is distributed under the Creative Commons Attribution 3.0 License.

lomeThe SocietyMembersCommissionsDocumentsPublicationsEducationCalendar

MANHOLE COVER DETECTION USING VEHICLE-BASED MULTI-SENSOR DATA

S. Ji¹, Y. Shi², and Z. Shi³

¹School of Remote Sensing and Information Engineering, Wuhan University, Wuhan 430049, China ²CSIS, the University of Tokyo, Tokyo, Japan

³Dept. of Environmental and Information Studies, Tokyo City University, Yokohama, Japan

Keywords: cover detection, matching, edge detection, manhole cover, multi-sensor

Abstract. A new method combined wit multi-view matching and feature extraction technique is developed to detect manhole covers on the streets using close-range images combined with GPS/IMU and LINDAR data. The covers are an important target on the road traffic as same as transport signs, traffic lights and zebra crossing but with more unified shapes. However, the different shoot angle and distance, ground material, complex street scene especially its shadow, and cars in the road have a great impact on the cover detection rate. The paper introduces a new method in edge detection and feature extraction in order to overcome these difficulties and greatly improve the detection rate. The LIDAR data are used to do scene segmentation and the street scene and cars are excluded from the roads. And edge detection method base on canny which sensitive to arcs and ellipses is applied on the segmented road scene and the interesting areas contain arcs are extracted and fitted to ellipse. The ellipse are then resampled for invariance to shooting angle and distance and then are matched to adjacent images for further checking if covers and . More than 1000 images with different scenes are used in our tests and the detection rate is analyzed. The results verified our method have its advantages in correct covers detection in the complex street scene.

Conference Paper (PDF, 1569 KB)

Citation: Ji, S., Shi, Y., and Shi, Z.: MANHOLE COVER DETECTION USING VEHICLE-BASED MULTI-SENSOR DATA, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XXXIX-B3, 281-284, doi:10.5194/isprsarchives-XXXIX-B3-281-2012, 2012.

Bibtex EndNote Reference Manager XML