

Identification of sidewalk steepness from LIDAR data for Tsukuba University campus bicycle riders

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(1) Motivation

Bicycles are the most prominent travelling mode in many universities. Measurement of safety factors for sidewalk bicycle riders is essential for university authorities in order to concern public safety and to improve campus facility management information system. Information of sidewalk steepness is useful for daily bicycle riders inside the university campus in order to prevent unnecessary accidents while they are riding, especially at night.

(2) Data and Methods

In this study, we used very fine scale Light Detection And Ranging LIDAR data to identify the sidewalk steepness by integrating with Smart Field Data Collection System*and deliver the information through Campus Web-GIS.

(3) Results

Based on our study, LIDAR data are much promising to detect sidewalk steepness in open spaces. However, the accuracy was reduced in some areas where the sidewalk covered with trees and bridges. Intensive field investigations are required to correct them. We built a *Smart Field Data Collection System* to correct and modify the results by using Android smart phone application.

(4) Prospect

Identification of sidewalk steepness from LIDAR data is cost and time effective. Additional user friendly real-time Web-based GIS field data collection system to collect, store and modify the results by multiple users is a great benefit for data validating purposes.

(5) References

Yuji Murayama and Ko Ko Lwin, (2013). Smart Data Collection and Real-time Digital Cartography, IGU Kyoto Regional Conference 2013, August 4-9, Kyoto, Japan.

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