교량케이블 영상기반 손상탐지
A Vision-based Damage Detection for Bridge Cables

Hoai-Nam Ho[1] · 이종재[2]
Hoai-Nam Ho · Jong-Jae Lee

This study presents an effective vision-based system for cable bridge damage detection. In theory, cable bridges need to be inspected the outer as well as the inner part. Starting from August 2010, a new research project supported by Korea Ministry of Land, Transportation Maritime Affairs(MLTM) was initiated focusing on the damage detection of cable system. In this study, only the surface damage detection algorithm based on a vision-based system will be focused on, an overview of the vision-based cable damage detection is given in Fig. 1.

Basically, the algorithm combines the image enhancement technique with principal component analysis(PCA) to detect damage on cable surfaces. In more detail, the input image from a camera is processed with image enhancement technique to improve image quality, and then it is projected into PCA sub-space. Finally, the Mahalanobis square distance is used for pattern recognition. The algorithm was verified through laboratory tests on three types of cable surface. The algorithm gave very good results, and the next step of this study is to implement the algorithm for real cable bridges.

Keywords : Principal component analysis(PCA), digital image enhancement, feature classification, cable

1) 세종대학교 건설환경공학과 박사과정 · (E-mail : namhohoai@sju.ac.kr)
2) 정회원, 세종대학교 건설환경공학과 조교수