Proposal of Non-Destructive Inspection Function Based on Internet of Things Technology Using Drone

Authors : Byoungjoon Yu, Jihwan Park, Sujung Sin, Junghyun Im, Minsoo Park, Sehwan Park, Seunghee Park

Abstract : In this paper, we propose a technology to monitor the soundness of an Internet-based bridge using a non-conductive inspection function. There has been a collapse accident due to the aging of the bridge structure, and it is necessary to prepare for the deterioration of the bridge. The NDT/SHM system for maintenance of existing bridge structures requires a large number of inspection personnel and expensive inspection costs, and access of expensive and large equipment to measurement points is required. Because current drone inspection equipment can only be inspected through camera, it is difficult to inspect inside damage accurately, and the results of an internal damage evaluation are subjective, and it is difficult for non-specialists to recognize the evaluation results. Therefore, it is necessary to develop NDT/SHM techniques for maintenance of new-concept bridge structures that allow for free movement and real-time evaluation of measurement results. This work is financially supported by Korea Ministry of Land, Infrastructure, and Transport (MOLIT) as 'Smart City Master and Doctor Course Grant Program' and a grant (14SCIP-B088624-01) from Construction Technology Research Program funded by Ministry of Land, Infrastructure and Transport of Korean government.

Keywords : Structural Health Monitoring, SHM, non-contact sensing, nondestructive testing, NDT, Internet of Things, autonomous self-driving drone

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