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A Mobile Wireless Sensor-Based Structural Health Monitoring Technique

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Mobile wireless sensor system for structural health monitoring (SHM) has been attracted attention of researchers recently. Compared with static sensors, mobile wireless sensor can provide adaptive spatial resolutions. This paper presents a mobile wireless sensing system for SHM with the aid of smart sensor and mobile robot. The remote-control robot can move on the ferromagnetic surfaces with the magnet-wheeled and place the wireless sensors on the structure accurately by mechanical arm. The structure vibration data is acquired by the wireless sensor and transmit it back to base station. After finished one point test, the robot can pick up the sensor then move to another test points. In this study, a laboratory experiment on sixteen-frame is conducted to test the performance of the mobile sensing system. The results show that the mobile wireless sensor has good potential to be used in SHM in future.

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Ключевые слова:

Содержание

Abstract

1. Introduction

2. Design of the Mobile wireless sensor system

3. Modal Testing usind Mobile Wireless Sensor

4. Conclusions

Acknowledgement

References