



DEVELOPMENT OF PROTOTYPE SYSTEM FOR STRUCTURAL HEALTH MONITORING AIMED AT PRACTICAL APPLICATION

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ABSTRACT: The structural health monitoring (SHM) is a key technology for visualizing structural health. In this paper, a prototype system for SHM aimed at practical application was proposed and developed. In order to implement a database system into the prototype, a database model for SHM was also proposed. As a key unit for the system, a smart sensor system that has automated data acquisition and communication with the server was developed. We verified good and stable performance of the SHM system. The prototype SHM system could continue functioning for 53 days. The system identification algorithm based on ARX modeling implemented into the SHM system could estimate the first natural frequency of wooden buildings and steel buildings successfully from free vibration as well as micro tremors. We expect the developed SHM system would be our platform for future SHM systems.

Key Words: Structural Health Monitoring System, Data Model, Sensor Network, WEB System