Web Based Structural Health Monitoring Located at Remote Locations Collaborating Computer and Electronics

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Abstract - **Structures usually are designed to perform desired tasks underneath completely different operation conditions. During the operation, loads that act on these structures are in several cases unknown. Learning the response of the structures and machine parts the in operation these forces will be determined. It's best-known from basics of vibrations and modal analysis that the structures have natural frequencies and associated mode shapes. This paper demonstrates the identification of the particular operating load on a cantilever beam and how its behavior is monitored when it is located a remote location. The integration of computers and electronics help in structural health monitoring. The acceleration response is employed as input for load prediction. The in operation load cannot be directly measured whereas acceleration response signals are directly obtained employing transducers like accelerometers or strain gauges. In several structural analysis tests, the dynamic response isn't spare information; one could really want an outline of the input force. A most well-liked approach to deal with this downside is to see the Frequency Response Function (FRF) matrix and live structural responses, and calculate the dynamic forces by using method of least squares. The forces obtained by this approach are at risk of errors. These arise owing to a mixture of errors within the measurements and high condition numbers within the matrix of transfer functions to be inverted. Unwell acquisition of the FRF matrix causes activity errors to be exaggerated considerably. The acceleration response is employed as input for force prediction. The impact force history prediction rule is developed in frequency domain to see the impact force amplitude. The force estimation downside is thereby made and is then resolved for crucial the amplitude of the in operation load. Considering this data of in operation load on the structures located remotely the improvement in the design of the structures will be administrated with aid of internet. In non-real-time simulation of structure's behavior some examples can be framed aiding the students to learn through e-learning and collaborative learning on how structural health is monitored.**

Keywords - **Force Identification, Frequency Response Function, Inverse Problem, Operating Force, Optimization, Internet, E-Learning, Collaborative Learning**

Remark: The full paper may be found in www.eLearn2015.siamtechu.net