

## ***Abstract: Structural Health Monitoring Based on Wireless Sensor Networks***

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### **Abstract**

Structural health monitoring (SHM) is an active area of research and practice in recent years, since it could increase the safety and reduce the maintenance costs of engineering structures. This paper introduces the most promising technology, wireless sensor network (WSN) and its use in the structural health monitoring. A miniature, high-precision, and shock-proof wireless sensor node is designed for multi-channel strain gauge signal conditioning and monitoring. An artificial intelligence routing schemes is used to monitor the strain distribution or the bolt loosening position successfully. The evaluation experiment results show the efficiency of the artificial intelligence routing schemes for WSN based the SHM applications on the large aircraft structures.

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