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Long-Term Wireless Monitoring of Historic Structures - Lessons Learned from Practical Applications

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Monitoring of historic structures is quite a challenge. Ideally any installations have to be non-destructive and invisible for which the application of wireless monitoring systems seem to be a good solution. The situation becomes challenging if the desired monitoring focuses on acquiring and analyzing data like stress, strain, inclination, salt and moisture content inside materials that require reliable sensor technologies and adequate signal conditioning. The main challenges in this context are the power supply and reliability over longer monitoring periods. To remain cost-effective and practicable, a balance between the monitoring task adequate to the expected result from the monitoring and the time and effort to perform the monitoring must be found. This is why wireless monitoring systems frequently have to be customized. The paper discusses research results of the European project SMooHS and developments made with respect to monitor historic structures with wireless sensor systems. The focus is on wireless monitoring solutions that have found to be appropriate for long-term monitoring (periods larger 1 year) of historic structures.

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Ключевые слова:

Содержание

Abstract

Introduction

Wireless monitoring system principles and systems

Wireless monitoring solutions developed in the SMooHS project

Steps to a practical application of Wireless monitoring systems

Conclusions

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