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Large-scale WSN Installation for Pervasive Monitoring of Civil Infrastructure in London

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Wireless sensor networks (WSNs) offer potential advantages over wired monitoring systems in terms of installation times and cost, which could ultimately lead to pervasive monitoring of civil infrastructure. However, in order to determine if WSNs could be a useful tool for infrastructure managers, large-scale WSNs need to be deployed on actual infrastructure assets to determine (i) the challenges involved with installation, (ii) the practical limitations of the technology, (iii) if the currently available technology has the required robustness and (iv) whether these systems can provide infrastructure managers with the required data to evaluate critical structures. A large-scale (104 nodes) WSN was installed on two adjacent infrastructure assets in London, UK: a precast segmental, pre-tensioned concrete viaduct and a cutting containing a London Underground station. A variety of sensor nodes were deployed measuring inclination, displacement, strain, temperature and relative humidity. The installation will be described and discussed focusing on the challenges associated with the installation and the advantages over a wired system.

Ключевые слова:

Содержание.

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