



Remote monitoring: New cost-effective, self-sufficient and versatile systems will change the way bridges are monitored

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Topic: #5. Check Engineering and Monitoring - International Review on Quality Control Systems

Sub-topic: "Design" and "Construction"

Summary

Remote monitoring of bridges and other structures can serve a wide range of purposes, providing continuous records of almost any variable in a bridge's condition. In particular it has a large part to play in the maintenance of older structures, and in many cases could potentially be used to allow costly and disruptive bridge renewal works to be postponed or even deemed unnecessary. Modern automated monitoring systems can be configured to analyse the data gathered, present it in graphic or tabular format, and make it available to an authorised user anywhere in the world via the internet. Automatic notification by e-mail or SMS of the reaching of predefined alarm values of any measured variable can also be provided. Further potential uses, such as provision of engineering and bridge usage data, also contribute to ensure that automated remote monitoring of structures will continue to become more widely used in the development and maintenance of structures around the world.

Keywords: Monitoring, bridges, structures, measurement, forces, movements, safety, transmission of data, early warning

1. Introduction

Monitoring of bridge structures has developed in a short period of time from the time-consuming, labour-intensive manual exercise it once was, to benefit from the technologies of the Information Age. Monitoring systems are now available which are highly automated, independent and versatile, and which can be tailored to provide almost any type of information that may be required on the condition of a bridge and the environment and loading to which it is subjected. This paper describes some of the uses such monitoring systems can serve and the benefits they can offer, and the development of a typical solution, from identification of need and desired benefits to installation of the system on a structure. Some sample projects are then described to demonstrate the great range of purposes such remote monitoring systems can serve.