Sapgyo Grand Bridge

Long term monitoring of a bridge structure

South Korea, July 2008

Long-term health monitoring of a bridge structure

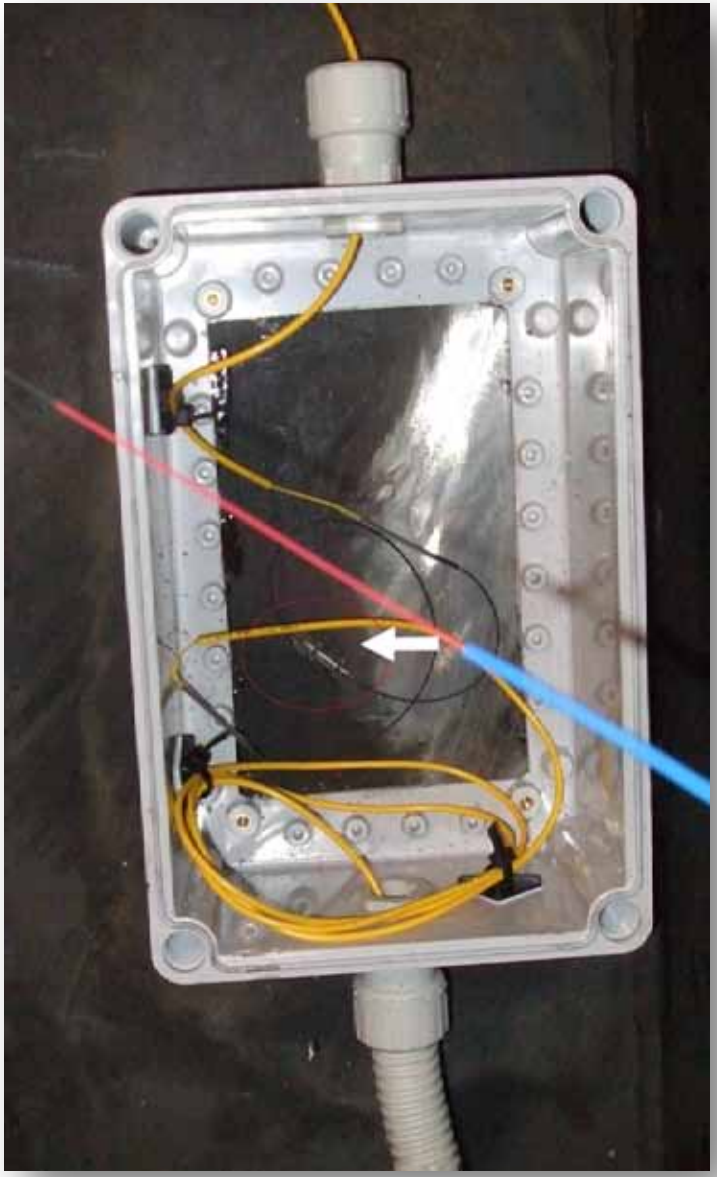
Aim	Building of test bed for the continuous remote health monitoring system for bridge structures employing FBG sensors to provide real-time quantitative information on a bridge's response to live loading and environmental changes, and fast prediction of the structure's integrity. FBG sensors installed to monitor the behavior of a bridge under live loading and environmental changes
Location	Shinpyeong-myun, Dangjin-shi, Chungnam, Korea
System Integrator	Ki-Tae Park (ktpark@kict.re.kr)
Customer	Korea Institute of Construction Technology
Date	July 2008
Instrumentation	Micron Optics sp130-500 Sensing process module Micron Optics sm130 Optical sensing interrogator
Sensors	(12) Micron Optics, os310 0 FBG Optical strain gage (2) Micron Optics, os410 FBG Optical temperature compensation sensor
Software	Customer designed
FBG Technology Benefit	FBG sensors to provide real-time quantitative information.

Long-term health monitoring of a bridge structure

View under the bridge

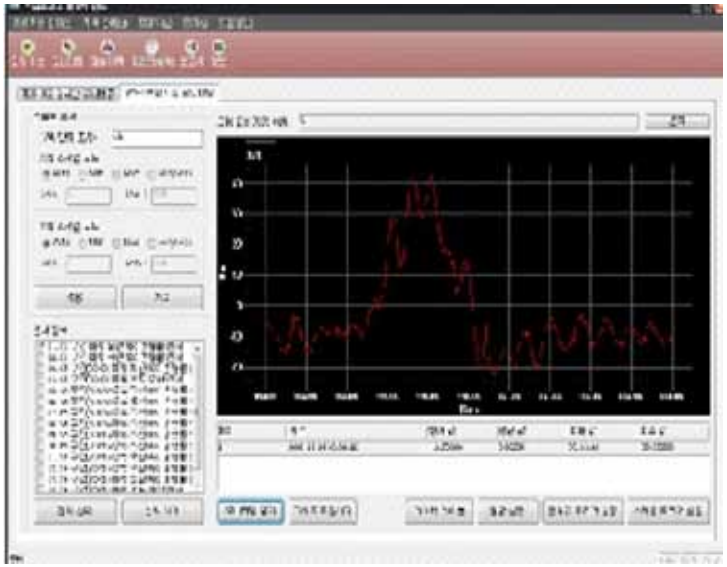
Sensor installation on a steel box girder

Sensors installed



Sensor and data acquisition system

Remote health monitoring system



Results and Acknowledgements

- Results
  - Strain and temperature measurements by the attached FBG sensors placed in conduits to be protected from the environment were transmitted to the data acquisition system.
  - Continuous measurements were performed to monitor the long-term structural behavior of the bridge under live loading and environmental changes
  - The data acquisition system connected through a fiber optic cable to the internet transmitted the data, and remote web-based monitoring of the structure was then carried out based on the measurements of the FBG sensors

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