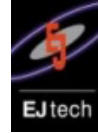


# Case Study

Structural Health Monitoring  
Yeongjong & Banghwa Bridges  
South Korea

**GeoSIG**  
swiss made to measure

In Cooperation With  
GeoSIG Partner



## Background

The Yeongjong and Banghwa Bridges are part of the Incheon International Airport Expressway in South Korea. Yeongjong Bridge is a double-deck, self-anchored suspension bridge that has a high-speed railway on the lower deck; it measures 4,420 m. Banghwa Bridge is mostly a girder bridge with an arch truss; it crosses the Han River and measures over 2.5 km in length. Both bridges were completed in 2000. They employ a monitoring system to oversee traffic, structural integrity, weather conditions, seismic conditions, etc – things that would affect the usability of the bridges and the safety of the users.

## Challenge

The bridges are used extensively as key transport hubs for the airport. Over time, the Bridge Health Monitoring System has needed to be updated due to age. In 2018, a third management system was reconstructed due to the aging of the second monitoring system built in 2008. Advancements in technology and the benefit of experience in managing the monitoring of these bridges helped determine which improvements were needed.

## Solution

Our Partner in South Korea, EJtech Co. Ltd. ([www.ejtech.net](http://www.ejtech.net)), has successfully delivered projects for its clients since it was founded in 1994. EJtech specialises in soft-ground monitoring, structural behavior monitoring, civil engineering, ground investigation, geotomography, measurement automation and network systems, among others.

Their bridge health monitoring system upgrade included replacements of GeoSIG instruments (22 x AC-7x accelerometers and a GMSplus seismic recorder), as well as tension meters, thermometers, anemometers, tiltmeters, joint meters and strain gauges for a total of 235 instruments.

They also added 159 instruments that were new technology, including PZT sensors, eddy current sensors, a snowfall meter, corrosion sensors, hygrometers, cable band bolt tension meter, BWIM, and GNSS — marking the first time Global Navigation Satellite System was used in Korea.

The system was rebuilt using the operation guidance of special facility monitoring system of Korea Facility Safety Corporation.

The monitoring system comprises four different screens that show 1) separate on-going management, 2) disaster management, 3) configuration management, and 4) damage management systems for efficient integrated management.

Another solution using GeoSIG instruments and a capable Partner effectively showing that quality and reliability can also be cost-effective.



Banghwa Bridge crosses the Han River and measures over 2.5 km.

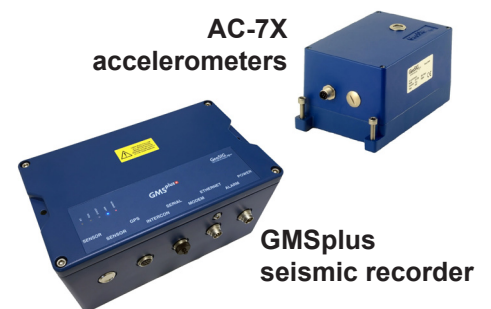


The Yeongjong Bridge and Banghwa Bridge make up part of the Incheon International Airport Expressway.

## Product links

[AC-7x accelerometer](#)

[GMSplus seismic recorder](#)



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