

Case Study

Structural Health Monitoring Gwangan Bridge South Korea

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GeoSIG Partner



Background

The Gwangan Bridge or Diamond Bridge is a double-deck, earth-anchored, suspension bridge located in Busan, South Korea, which connects Haeundae District to Suyeong District. The bridge was completed in 2002; it spans 7,420 meters, making it the second longest bridge in the country.

The population of Busan—Korea's second city—is nearly 3.5 million people, showing the importance of the bridge in the city's traffic management. Our Partner in South Korea, EJtech, provided the first monitoring system in 2007 to 2011.

Challenge

South Korea is very conscientious when it comes to earthquake safety, with many monitored structures throughout the country. The Gwangan Bridge has a bridge structural health monitoring system, but it was deemed necessary to upgrade the aging system. The new system would measure the verticality of the main tower and the bridge shape using inclinometers and total station, perform long-span bridge GNSS (global navigation satellite system) for test bed, and update key management items through long-term management for five years, as well as introduce a hanger rope tension system.

Solution

Such a high profile project required a company with extensive background in this area. Our Partner in South Korea, EJtech, focuses on top-level civil engineering, measurement, surveying, assessment and instrument sales. They have been successfully implementing solutions for their clients since they were founded in 1994, and their previous history with this project recommended them again. They completed the project in late 2018.

The total monitoring system included anemometers, thermometers, strain meters, a laser deflection sensor, tilt meters, joint meters and more. The structural health monitoring system they implemented included instrumentation from GeoSIG: 18 x [AC-7X accelerometers](#), and a [GMSplus seismic recorder](#).

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

Product links

[AC-7x accelerometer](#)

[GMSplus seismic recorder](#)

