

Giusnè bridge (Switzerland)



Project description

The Giusnè bridge in Mesocco is part of the National Road N13, an important-north-south connection in Switzerland.

The owner of the viaduct wishes to rely on a Structural Health Monitoring (SHM) system that provides real-time information and valuable data of the structure's behavior for maintenance purposes and future planning of refurbishment works.

Therefore, longitudinal and transverse movements at both expansion joints shall be monitored by a wireless permanent SHM system.

mageba scope

Based on the client's requirements, mageba proposed a wireless LongRange (LoRa) system with low power consumption. The system consists of battery-sourced sensors and a gateway powered by a solar panel. Robust draw wire displacement sensors have been chosen to measure longitudinal and transverse movements at both abutments. A temperature sensor allows correlation between joint movements and environmental factors.

The LoRa SHM system enables a low-power wireless network to connect the sensors with the gateway and transmit data via mobile network to the data cloud. There, data are graphically presented on a web user interface as interactive charts or as download for further considerations or analysis – a real IoT (Internet of Things) application in the civil engineering world.

Highlights & Facts

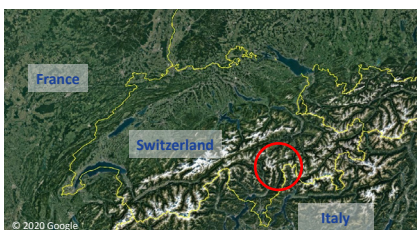
mageba Products:

Type: ROBO®SMART IoT for Joints
 Feature: LoRa system
 Installation: 2020

Structure:

City: Mesocco
 Country: Switzerland
 Type: Road bridge
 Main span: 44 m
 Length: 334 m
 Owner: Ufficio federale delle strade USTRA
 Engineer: EZIO TARCHINI Ingegneria SA

The bridge is located in Mesocco, in Canton Graubünden



Temperature, displacement sensors and LoRa data logger at the north abutment



Data presentation on the web page showing charts for movements and temperature

