

Monitoring the integrity of a pipeline in Colombia

Country
Colombia

Project type:
Oil & Gas

Sector:
Pipeline Monitoring

Main product:
Monitoring Solution

Challenge

In Casanare, Colombia, a civil engineering project is building a road connection aimed at enhancing travel times and distances in the region. The project involved the construction of a cut-and-cover tunnel, requiring the removal and backfilling of substantial soil. Other significant challenges were encountered, primarily centered around the impact of construction on an existing pipeline situated in the construction area.

A section of the pipeline needed to be temporarily supported overhead by two towers and king posts, demanding meticulous monitoring to ensure structural integrity. Instrumentation was crucial to assess and manage the impact of construction works on the pipeline's stability.



Solution

To address these challenges, together with its technology partner Worldensing, [Insercor](#) implemented a remote monitoring solution.

45 strain sensors connected to [Vibrating Wire data loggers](#) were strategically installed along the pipeline. The infrastructure was segmented into 14 rings, each equipped with a data logger, while 4 clinometers [Tilt90-X](#) were positioned in the supporting towers.

Data collected from the sensors was transmitted remotely via the MQTT protocol to the GIACore IoT visualization software, developed by Insercor.



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"Together with Worldsensing, we successfully addressed the demanding monitoring needs of a complex project. Continuous monitoring has mitigated potential negative impacts on the environment and neighbouring communities, and been instrumental in ensuring uninterrupted pipeline service during construction, thereby effectively managing operational costs"

Jorge Gutiérrez

Technology Team Lead
Insercor

Benefits



Check the [video](#) to discover all the benefits our IoT Monitoring Solution provided to Insercor's construction project.

Advantages

- Early detection capabilities allowed mitigation of potential structural risks during tunnel construction.
- The pipeline service remained uninterrupted, effectively managing operational costs by preventing unplanned downtime and frequent site visits.
- The remote monitoring system limited potential impacts on the environment and the surrounding community.