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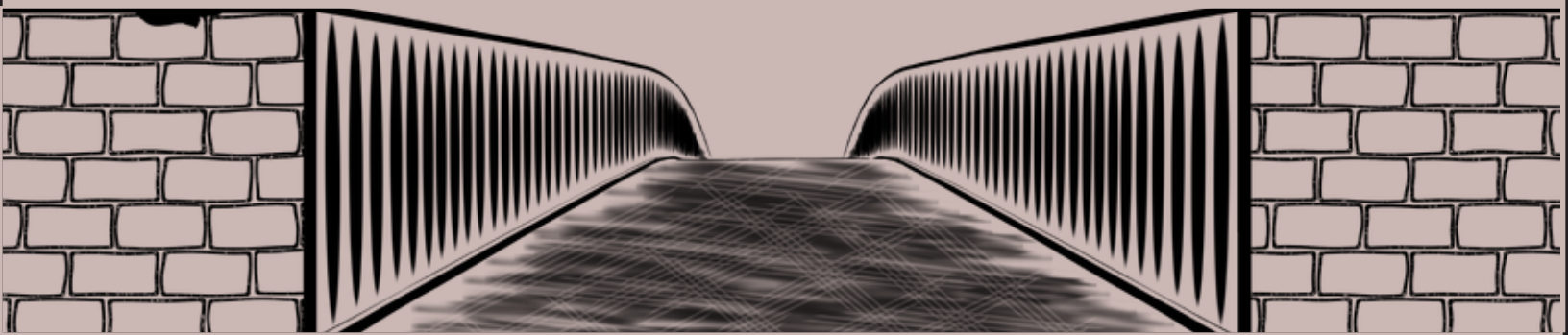


Cellular Bridge Health Monitoring System

Some structural failures are catastrophic, and some just take their time. According to statistics natural hazards cause 19% of bridge failures, 13% of them are caused by accidents and 5% are over loading. Structural Health Monitoring (SHM) can be very helpful in serving as an alarm system to prevent any type of failures.

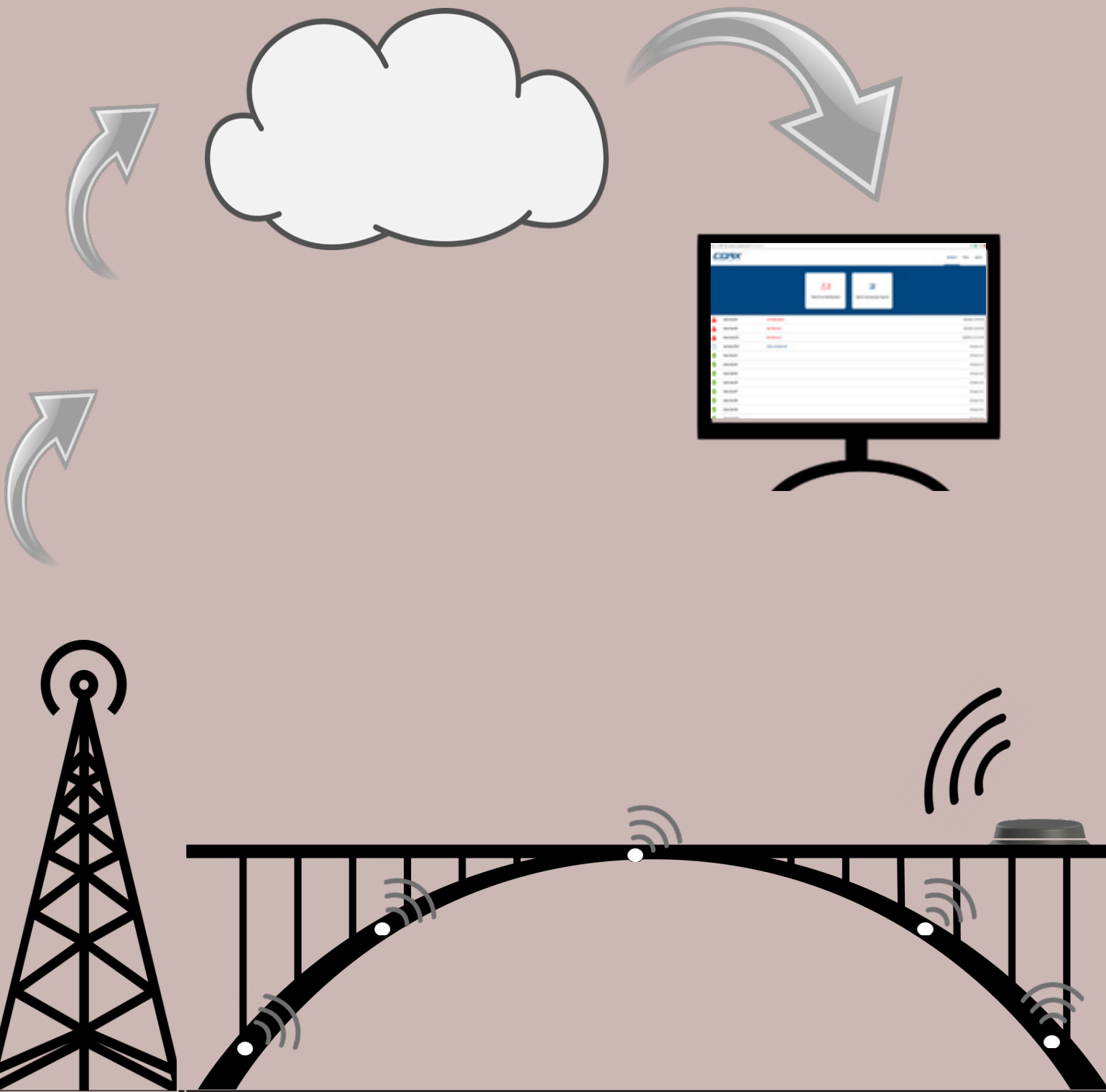
What is the structural Health Monitoring (SHM)?

Structural Health Monitoring is the process of adding damage or distortion detection strategy to the structure, which plays a major role in public safety. Usually SHM systems consist of an array of sensors connected to a monitoring device with a periodically updated output.



What is The Smart Antenna?

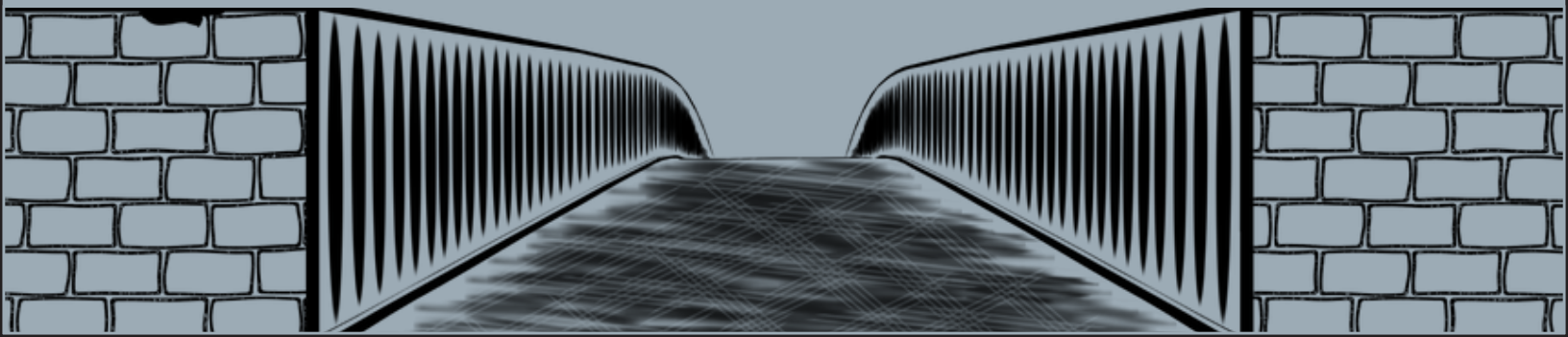
The smart antenna is a programmable cloud -based device, which can be connected to any electrical system as a control or monitor device. It has digital input channel, digital output channel, and a Modbus/Can bus channel.



How does our Smart Antenna work in bridge health monitoring system?

The Smart Antenna consists basically of an antenna with a Cat. 5 cable, which has four colored twisted pairs of wires. Each pair of these four has its own function. Input voltage, digital input channel, digital output channel and a Modbus/Can Bus channel.

The Smart Antenna can be connected to a wireless sensors network, which detects the tilt of the bridge, the weight carried by the bridge, the temperature of the bridge and the wind speed . The smart antenna sends data periodically to the nearest cellular tower, which transmits data to our control center, and it sends the data to the cellular devices of the concerned party.



Which cellular technology is used in our system?

Our system is based on the latest technology of Narrow Band IoT (NB-IoT), which provides excellent coverage. It's ideal for things that run on batteries and only occasionally send data via the network, so it's best suited to mobile sensors or those that send data more frequently.

Conclusion :

The Smart Antenna is a cellular control and monitor device, that can be installed in any electrical system. Bridge health monitoring is one of the important applications on the Smart Antenna that provides public safety with a reasonable cost.

