**OBJECTIVE**
To provide timely information to parties interested in the structural health of critical infrastructure components such as bridges, tunnels, pipelines, and buildings.

**SYSTEM DESCRIPTION**

**OPERATION OF THE SYSTEM**
MDA300 excites the transducer at regular intervals and stores its voltage output along with temperature and humidity battery voltage in local memory.

An off-site PC autonomously retrieves the data stored in the onboard memory of the motes via the Internet or phone line.

**DETAILS OF OPERATION**
Daily retrieval of one day’s readings of temperature, humidity, transducer position and mote battery voltage.

MDA300 12-bit high-precision channels provide 0.1 μm resolution for the position transducer.

Interaction between off-site PC and the remote system is provided by an automated java command-line interface.

Remote nodes utilize onboard power management to achieve an expected battery life of about two months.

**PRESENTATION OF DATA**

Each time data is retrieved from the motes, website is updated in near real time.

http://www.civildata.com/motes

**CASE STUDY: RESPONSE OF COSMETIC CRACKS IN A HOUSE TO ENVIRONMENTAL AND BLASTING EVENTS**

Case Study supplied by Professor Charles Dowding
Autonomous Crack Monitoring
Civil and Environmental Engineering
Northwestern University

- There exists a limestone quarry 1500 ft away from the structure.
- Crack displacements due to blasting events and environmental effects (temperature, humidity, and wind) are in the scope of this case study.
- Established wired benchmark system used in the same house to validate results.

![Figure 1: Crossbow MDA300 and SpaceAge Control Position Transducer](image1)

![Figure 2: MOXA NPort (left) and Crossbow MIB510 (right)](image2)

![Figure 3: Screen shots from the website](image3)

![Figure 4: Crossbow MDA300 and SpaceAge Control Position Transducer installed over crack](image4)

![Figure 5: Comparison of wireless and wired sensor data](image5)