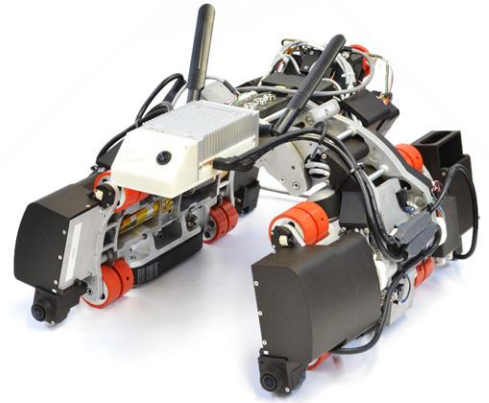# Robotic Pipe Inspection System

Gather more data, more often, more safely with robotic pipe inspection

The Robotic Pipe Inspection System is a lightweight, low-profile, untethered, automated prototype that gathers visual data and NDT readings from process pipes. This system helps asset owners detect general corrosion and localized pitting better than manual-based methods by enabling collection of more data, more often, more efficiently.

In addition to the near-term value of automated scans, the system localizes data to specific locations on the pipe, so inspectors can detect changes over time and correlate readings from a variety of NDT sensors.

Key Performance Specifications

Mobility
- Travel straight sections of pipe, vertical and horizontal, both bare and insulated
- Travel over common pipe supports and in crowded pipe racks
- Position sensors anywhere axially or circumferentially
- Mount/dismount on pipe in less than 30 seconds

NDT Inspection
- Gen 1 system equipped with phased array UT probe for full coverage of bare pipe
- Multiple visual cameras to provide detailed view of pipes and pipe supports
- Future modular NDT payloads to support a range of inspection/screening applications

Data Localization
- Correlate NDT data to specific places on pipe
- Compare sequential scans for change detection and NDT data validation

Additional Performance Highlights
- Low profile: Requires just 3.5" radial clearance around target pipe
- Fast crawling: Mobility speed of 17 feet/minute (non scanning mode)
- Lightweight: Weighs 23 pounds, sensor and battery included
- Long-lasting: 60 minutes continuous operation, with fast battery swap
- High-Temp Tolerant: Surface temperatures up to 400° F

Target Applications

- **Full coverage scans of process pipes** using a suite of NDT sensors
- **More efficient data collection** by reducing scaffold and rope access
- **Visual inspection** of pipe supports and other support infrastructure
- **Change detection** over time through comparison of geo-mapped data

Robot prototype on 6" pipe

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