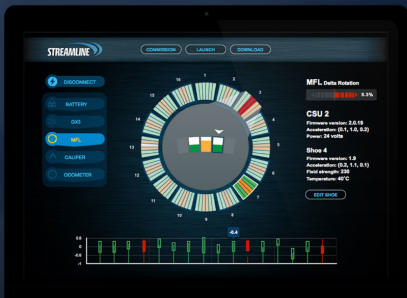


PIG Device & Windows App

Microline Technology Corp.

Microline's pipeline inspection system sets a new industry standard, allowing technicians to gather more data with more accuracy in less time.



The 24-inch Smart PIG (Pipeline Inspection Gauge) has over 1,000 sensors collecting 1TB of data, and Streamline makes that data easy to understand and manage.

Smart PIG

Microline tests oil and gas pipelines for corrosion, deformity, and weakness using Pipeline Inspection Gauges (PIGs) and other tools.

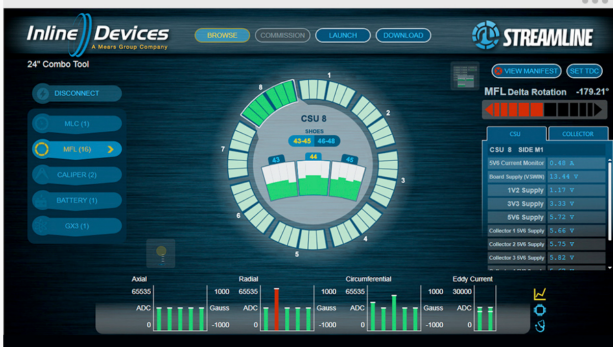
Their new PIG for large-diameter pipelines is 6' long and 24" in diameter, with 78 circuit boards, incorporating and 90 microprocessors. It can travel over 300 miles and record data from 1,000+ sensors every 16th of an inch (every 500 microseconds).



Streamline Windows App

Technicians manage the PIG with a custom Windows app called Streamline, which can configure, test, prep, launch and gather data from the device.

The platform includes an open-source tool called Cauterize that allows the PIG, Streamline, and other tools to share the same communication protocol. Atomic also developed a simulation framework so the team could test Streamline with real data as they developed it.



Streamline matches data on-screen with the position of the corresponding sensors on the PIG, helping technicians quickly find what they're looking for. It also flattens the data, showing a high-level overview on the main screen and making it easy to access any functional aspect of the PIG without clicking several layers deep.

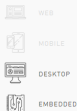
Unlike other configuration apps, Streamline also reviews the status of each sensor and shows warnings.

Streamline is a beautiful application. Personnel are often under pressure in the field because the customer wants to get the pipe back online ASAP. So we focused heavily on conveying the right amount of information in the right way.

Jason Enyart, Embedded Software Manager

Atomic provided embedded software development for Microline's 24-inch Smart PIG, and Windows app development for Streamline, created using C# in WPF. Atomic also developed an open source tool for communication among different parts of the system and a simulation framework so the team could test Streamline with real data as they developed it.

Project domain(s)



Services provided

System Architecture
Information Architecture
Interaction Design
Visual Design
Software Development
User Testing
Deployment

Tools used

Pipeline Inspection Gauge
ARM Processors (Cortex M3 & M4)
C
Ruby
C#
FreeRTOS
LightWeight IP
CAN & Ethernet
Communication

Streamline
C#
Python
WPF Graphics Framework
Reactive Extensions