

## Pronunciation & Declaration

How to say it. What it means. What it commits to.

# A.I.R.O.N.<sup>TM</sup>

Pronounced “*Iron*”

### Mechanism

**Why the “A” is silent:** In real operations, Autonomy should not demand attention — it should run quietly in the background, doing the work that keeps improvement alive: sensing drift, capturing wins, protecting people, and raising the baseline safely and purposefully.

A.I.R.O.N. is not a poster. It is a living system that craves change — and learns from it.

### What this document is

This document defines what A.I.R.O.N. is built to do — clearly, honestly, and without hype. It exists so everyone, from the floor to leadership, understands what the system does, what it does not do, and why that matters.

If it is written here, it is a real capability.

If it is not written here, it is not promised.

This document is the reference point for how A.I.R.O.N. is understood, explained, and trusted.

Forging tomorrow's efficiency  
with every minute of today's operation

# DINGFELDER



# A.I.R.O.N.<sup>TM</sup>

Autonomous Intelligence for Resource  
Optimization in Networks

## Abstract

This paper documents a real-world troubleshooting event and demonstrates how A.I.R.O.N.<sup>TM</sup> collapses diagnostic time by making *intent observable without modifying PLC logic*. The example contrasts traditional expert troubleshooting with A.I.R.O.N.<sup>TM</sup>'s native, non-intrusive visibility model.

## Background

A production press failed to complete its cycle. The PLC program utilized a one-shot instruction to advance a critical step. The one-shot was not latched, making real-time verification unreliable through visual observation alone.

Despite correct-looking logic and valid inputs, the machine would not cycle. Approximately two hours were spent reviewing upstream conditions and ladder logic with no resolution.

## Traditional Ghost Busting Method (Field-Proven)

An expert diagnostic technique was applied:

- A counter was installed in parallel with the one-shot coil.
- The counter incremented each time the one-shot executed.
- No functional behavior of the machine was altered.

### Result:

- The counter incremented on every press attempt (intent confirmed).
- All upstream logic was immediately cleared.
- The fault was located one rung downstream.
- Time to repair after confirmation: approximately 2 minutes.

This method replaced assumption with evidence.

## The A.I.R.O.N.<sup>TM</sup> Advantage

While the traditional method required temporary logic modification, A.I.R.O.N.<sup>TM</sup> required none.

A.I.R.O.N.<sup>TM</sup> was already:

- Non-destructively ingesting all I/O,
- Observing internal execution states,
- Monitoring one-shots and transitions via Ethernet.

The machine was already instrumented.

## Native Ghost Busting Workflow

### Step 1 — Verify Intent (10 seconds)

- Open the I/O / Logic Activity view.
- Observe the existing one-shot execution indicator or internal counter.
- Press the operator input.

**Outcome:** intent is confirmed or eliminated instantly.

### Step 2 — Expand the Influence Field

- Select all logic groups, outputs, and transitions affected by the one-shot.
- Press the input again.

A.I.R.O.N.<sup>TM</sup> immediately reveals:

- Which downstream paths execute,
- Which paths stall or abort,
- Where execution continuity breaks.

At this point, the fault is no longer hidden. It becomes structurally obvious.

### Step 3 — Physical Resolution

- Inspect the identified component or condition.
- Repair, replace, or correct configuration.
- Confirm resolution via live observation.

**No logic edits. No downloads. No risk.**

## Key Insight

Most failures hide inside assumed continuity.

A.I.R.O.N.<sup>TM</sup> breaks this illusion by:

- Separating intent from outcome,
- Making execution observable rather than inferred,
- Collapsing troubleshooting scope from systems to single points.

## Impact Comparison

| Method                         |               |              | Time           | Risk        | Intrusion    |
|--------------------------------|---------------|--------------|----------------|-------------|--------------|
| Traditional ladder review      |               |              | Hours          | Medium      | None         |
| Manual Ghost Busting (Counter) |               |              | Minutes        | Low         | Program edit |
| <b>A.I.R.O.N.<sup>TM</sup></b> | <b>Native</b> | <b>Ghost</b> | <b>Seconds</b> | <b>None</b> | <b>Zero</b>  |
| <b>Busting</b>                 |               |              |                |             |              |

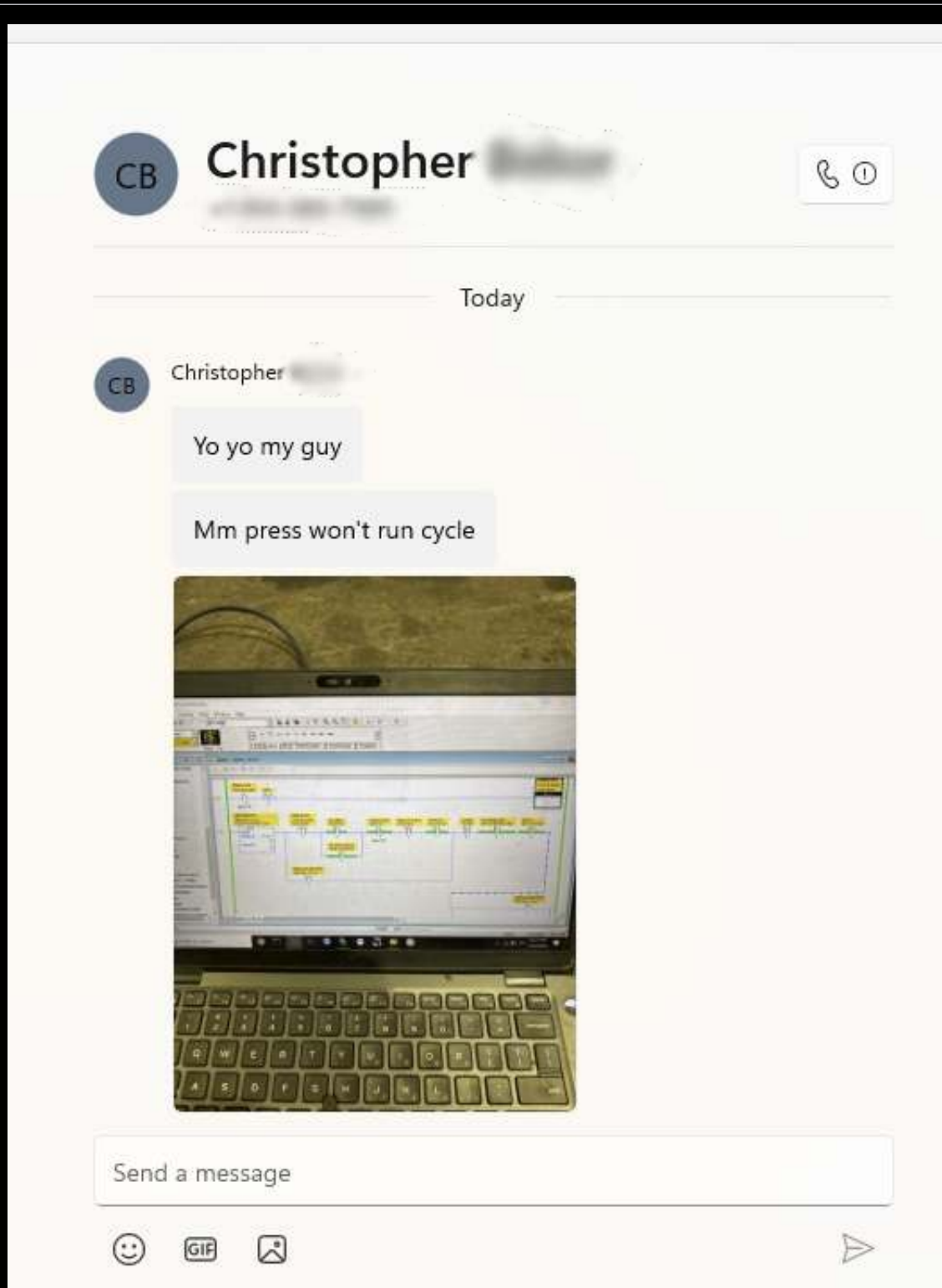
## Conclusion

A.I.R.O.N.<sup>TM</sup> does not assist troubleshooting — it removes speculation entirely.

Ghost Busting evolves from a technique into a certainty:

Intent is visible. Execution is undeniable. Failure has nowhere to hide.

## Field Screenshot (Redacted)



Field screenshot included for library reference. Personal details redacted.

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### Mechanism

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**A.I.R.O.N. does not replace people.  
It preserves what makes them powerful.**

It listens when reality changes.

It remembers what works.

It protects humans while it improves systems.

And it never stops learning.

**This is Industry. Period.**



# A.I.R.O.N.™

Your machines ALWAYS whisper.  
With A.I.R.O.N.™ you'll NEVER hear them scream.

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