

Embedded Systems & IoT

Custom sensors, firmware, industrial monitoring, and IoT dashboards.

embedded-sensors-iot · Revision Draft · 2026-07-07 · Status: **Draft**



5TECH · SERVICE

Embedded Systems & IoT

Representative 5Tech embedded work — a custom sensor node, its firmware, and the connectivity that carries the measurement to a dashboard.

Figure FIG-001 — Representative 5Tech embedded work: a custom sensor node, its firmware, and the connectivity that carries the measurement to a dashboard.

We build the low-level layer that connects physical assets to software: custom sensor nodes, embedded firmware, gateways, and the dashboards that make the data useful. Rugged, field-ready, and designed to be maintained.

Physical operations generate value from data — but only if it is captured reliably and turned into a decision. When an off-the-shelf sensor does not fit your environment or does not measure the thing you actually care about, we design one that does. Because embedded work spans electronics, firmware, connectivity, enclosure, and software, projects often stall when they are split across vendors — so we keep them under one roof.

Who this is for

- Operations that need to measure something no off-the-shelf product covers.
- Teams with sensors in the field but no reliable data pipeline or dashboard.
- Product companies needing embedded firmware and hardware integration.

Problems we solve

- No visibility into equipment condition until something fails.
- Off-the-shelf sensors that do not fit the environment or the metric you need.
- Unreliable connectivity from remote or harsh sites.
- Data that never turns into an alert or a decision.

What you get (deliverables)

- Custom sensor / embedded device design or selection.
- Firmware (bare-metal or embedded Linux) with an over-the-air (OTA) update path.
- Gateway and connectivity — cellular, LoRa, or Wi-Fi — with failover.
- An industrial monitoring dashboard with alerting.
- Documentation and a maintenance / update plan.

You receive design files, firmware source, and documentation, so you are never locked into us to keep a fielded fleet running.

How we work

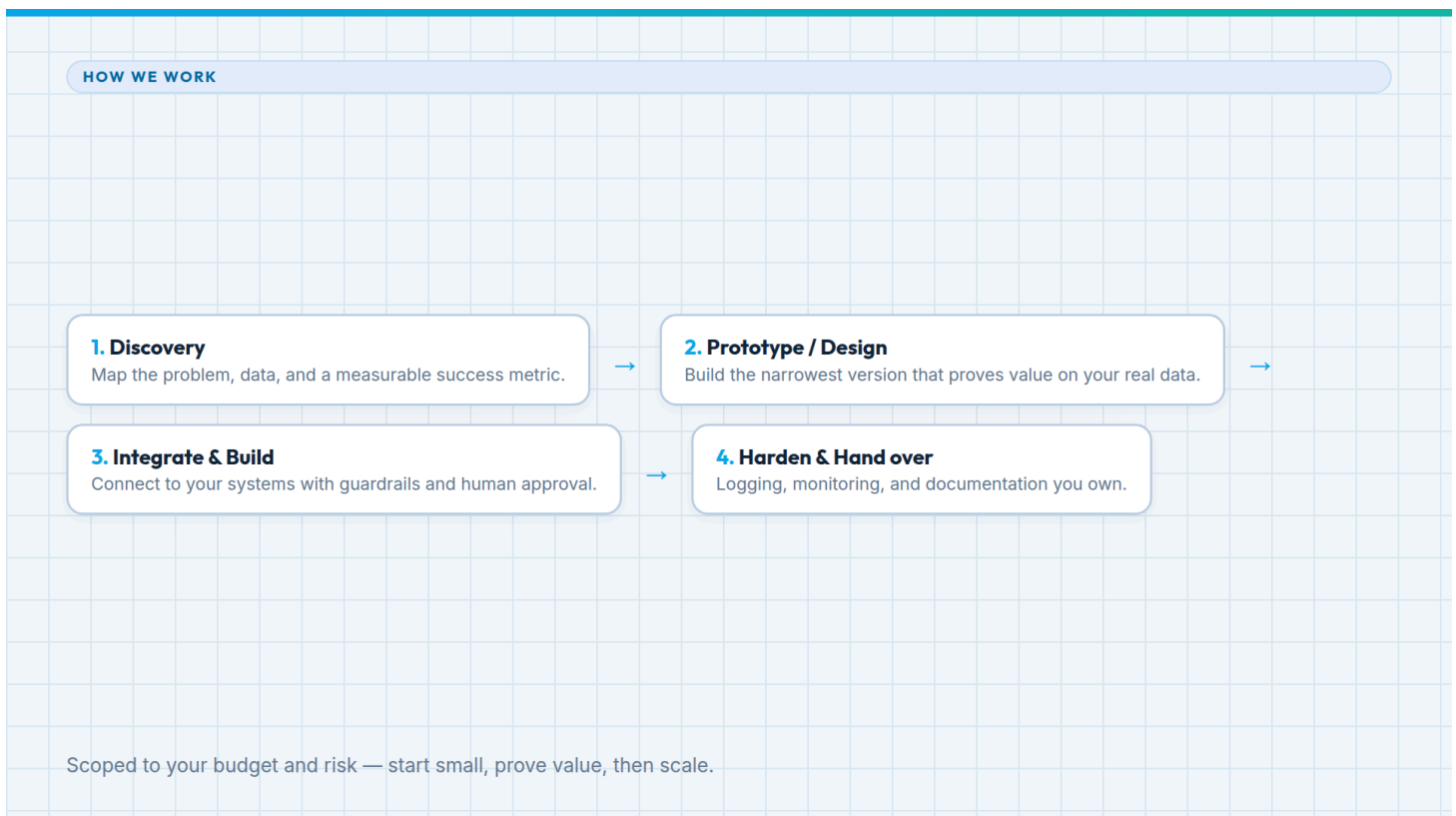


Figure FIG-002 — *The engagement: define the signal, prototype the hardware, connect and visualise, then field-harden.*

- 1. Define the signal** — Clarify exactly what to measure and the accuracy and latency it needs, before any hardware is chosen.
- 2. Prototype hardware** — Build or select a sensor node and prove the measurement on your real asset.
- 3. Connect & visualise** — Stream data through a pipeline that survives remote or harsh sites, into a monitoring dashboard with alerting.
- 4. Field-harden** — Address power budgets, environmental sealing, connectivity with failover, and a maintainable update strategy for the real environment.

We can design a device from scratch, adapt an off-the-shelf module, or add a measurement and connectivity layer to equipment you already own — integrating with the PLCs, machines, and software you already run rather than replacing what works. As with all our work, we scope a small proof on your real asset before a wider rollout, and we are honest about which measurements are straightforward and which are genuinely hard so you can plan accordingly.

Example use cases

- Custom sensor development for a metric no product covers.

- Industrial equipment monitoring and predictive-maintenance data.
- Embedded Linux devices and edge processing.
- IoT dashboards for real-time visibility and alerting.
- Low-level hardware integration into an existing product.

Related services & industries

Related services

- Robotics & Automation — `../robotics-automation/`
- Machine Vision & Computer Vision — `../machine-vision-computer-vision/`
- Hardware & Software Prototyping — `../hardware-software-prototyping/`

Industries served

- Manufacturing · Smart buildings · Infrastructure · Agriculture & remote sites.

Related industries

- Manufacturing automation · Smart buildings & IoT · Research & prototyping.

Figures

ID	TITLE	STATUS	FUTURE FILENAME	PURPOSE
FIG-001	Industrial Hero Render	Missing	<code>images/hero_service.png</code>	Service page cover / hero
FIG-002	Engagement Process	Missing	<code>diagrams/process.png</code>	The service engagement process

Voice and claims mirror the live site (`content/services.ts` , slug `embedded-sensors-iot`): capability-based and honest, with no invented metrics or client names. See `figures.json` for the figure manifest and full generation prompts, and `revision.md` for change control.