embin

CONNECTIVITY

Networked Embedded Controller Platform

Custom Hardware Design | Embedded Firmware | Network Connectivity | In-House Protocol Stack

CLIENT

An in-house development to extend Embin's embedded controller platform with network connectivity.

THE PROBLEM

Embin had an existing embedded controller platform that worked well as a standalone unit, but standalone was becoming a limitation — more and more of the projects we wanted to build on top of it needed the controller to talk to other systems over a network. Buying in a licensed networking stack would have meant ongoing royalty costs on every future product built on the platform, which didn't make sense for something we intended to reuse again and again.

WHAT WE BUILT

We took this on as an investment in the platform itself rather than a one-off feature. We added the physical network interface to the controller board, and then wrote our own networking software stack from scratch — covering addressing, the basic transport layer, and the application-level communication needed for real projects, rather than licensing someone else's. It was more work upfront than integrating a third-party stack, but it meant every future product built on this platform would inherit network connectivity with no per-unit licensing cost attached.

WHAT IT DOES

- ✓ Adds a physical network interface and full connectivity to Embin's existing embedded controller platform
- ✓ Runs on a networking stack written entirely in-house — no third-party licensing or royalty costs on any product built on it
- ✓ Supports communication across both local networks and wider connections
- ✓ Provides a reusable, tested connectivity foundation that future controller-based products can build on directly
- ✓ Covers addressing, transport, and application-level communication needed for real networked applications

OUTCOME

This gave Embin a network-enabled version of our own controller platform with no ongoing licensing costs, and every project built on it since has been able to add network connectivity as a starting point rather than a separate piece of work.

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