

Factory test automation upgrade: migrating to NI TestStand

A global manufacturer upgraded its factory test automation with Proekspert by migrating from legacy LabVIEW systems to TestStand – ensuring reliability, easier updates, and scalable growth.

Technologies

LabVIEW, NI TestStand, custom database, SQL, legacy code stabilization, operator UI improvements.

CASE STUDY

Move beyond legacy risk: future-proofing factory test automation

The challenge: Keeping factory test automation reliable and scalable

A global leader in arc welding operated well-established factory test automation systems built on previous-generation hardware. As production expanded across multiple sites and regions, maintaining and updating these systems became increasingly complex. Growth drove the need for consistent, reliable test automation across all locations.

Their goal: upgrade critical automated test environments to a modern, supportable platform that scales with business growth – ensuring production and engineering teams experience a seamless transition at every site.

Our role: making migration practical and future-proof

This manufacturer engaged Proekspert to upgrade established in-house test automation systems and address the risk of hardware lifecycle issues. The automation environment was built on NI LabVIEW – flexible for custom automated tests – but the existing setup required modernization to support growing production and new sites.

Our key advantage: decades of experience let us quickly spot opportunities to reuse the client's test assets instead of starting from zero. Initial concerns about workload proved unfounded – the core automation components were robust and adaptable, enabling a phased, efficient migration.

What we did:

- Analyzed the test automation infrastructure (including legacy LabVIEW systems and a custom database)
- Piloted migration of key automated tests to NI TestStand – leveraging LabVIEW VIs where practical, avoiding unnecessary rewrites
- Cleaned up and stabilized core code, fixing hidden bugs and long-standing UI issues for a more reliable operator experience
- Completely restructured the test database: now, test data is transparent and easily updated with direct SQL access – no more cryptic, encoded logic
- Enhanced the test operator interface – keeping workflows familiar, but delivering a more stable, user-friendly experience

Migration is ongoing and prioritized step by step with the client. As product lines change, more automated tests can be adapted, reused, or retired without starting from zero.

Bottom line: Instead of a painful rip-and-replace, the client gained a future-proof, scalable factory test automation setup – faster and with less risk – by combining smart technology reuse with targeted modernization.

Outcome: step-by-step improvements to test automation

This modernization is already delivering results. Core test automation now runs on a stable, fully supported platform, breaking the old reliance on obsolete hardware and unsupported systems. Test operators benefit from a more intuitive, reliable interface – cutting downtime and day-to-day friction. The restructured database puts test data directly at their fingertips, with no more hunting through cryptic or encoded logic.

As migration continues, the client gains stronger oversight and control of automated testing across all sites, with less risk of unexpected failures. Additional upgrades – like multilingual support and broader standardization – are planned to match real business needs.

Impact for the client's organization

The updated test automation setup is delivering real business value:

- Lower risk: moving away from unsupported systems cuts the chance of sudden test failures and production downtime.
- Higher efficiency: streamlined automation tools and direct data access mean faster troubleshooting and less wasted engineering effort.
- Ready to scale: adding new products or sites is straightforward – growth no longer brings legacy problems along.