

OPENTECH LABS

Engineering that connects software, systems and infrastructure.

— Solutions designed to operate, integrate and evolve.



we design, build, integrate and support solutions that connect software, systems and infrastructure.

Opentech Labs is the engineering division of Opentech, a **technology company founded in 2010**. The division connects software, automation and technical infrastructure for teams where downtime, undocumented systems and improvisation create real operational risk.

OPENTECH LABS

Engineering that connects software, systems and infrastructure.

Modern operations depend on more than isolated equipment or code. They depend on **systems that communicate, documentation that survives the project and delivery teams that understand physical constraints.**

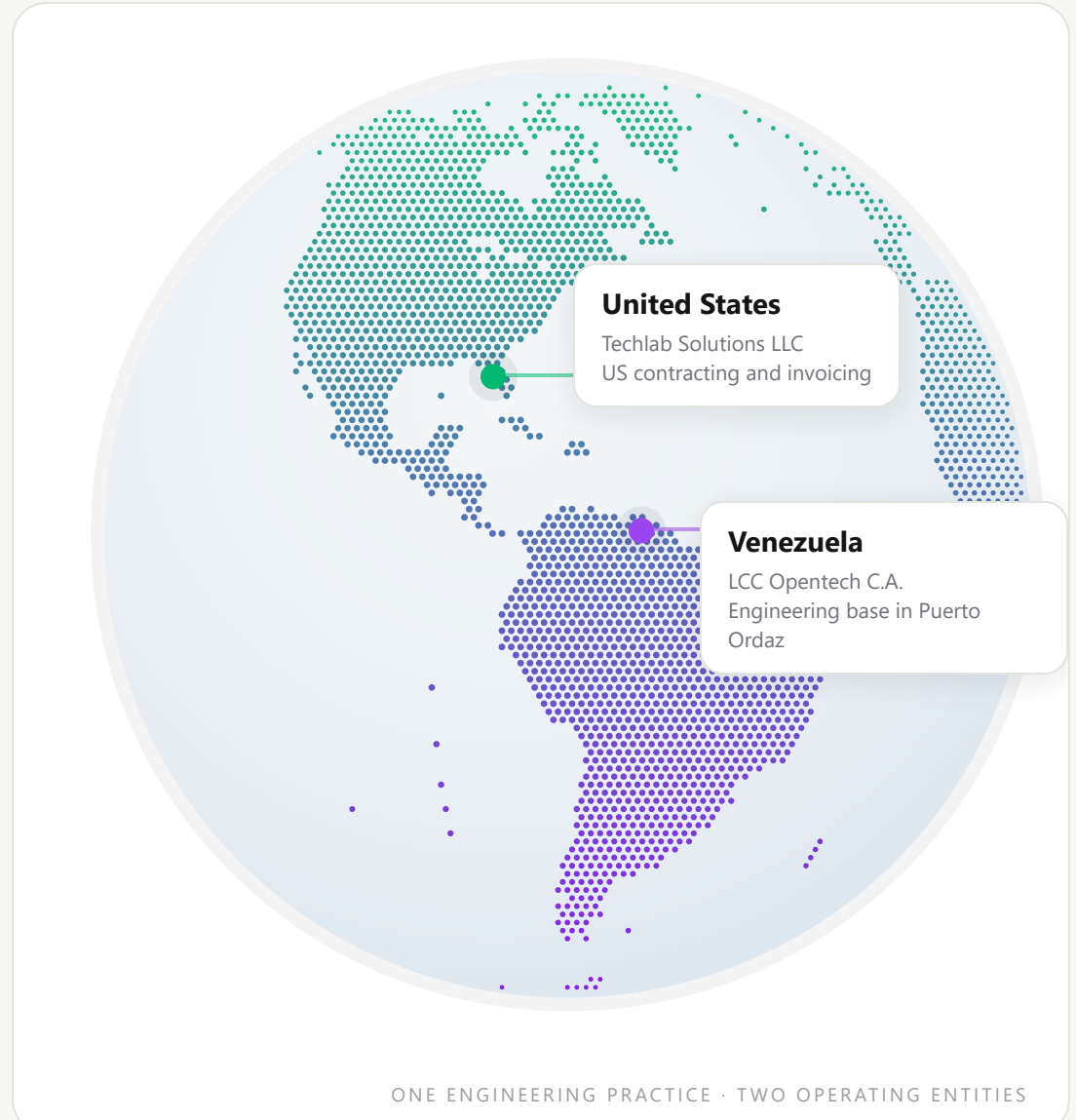
Opentech Labs combines software engineering, automation, network infrastructure and technical documentation so clients can move from an operating need to a maintainable solution with clear ownership and traceability.

2010

Opentech founded

End-to-end

from discovery and architecture to implementation, OA and handover



Contract in the US. Execute on the ground in Venezuela.



Capabilities



Software Engineering

Custom software, internal systems, dashboards, integrations, formal QA and dedicated technical capacity for evolving requirements.



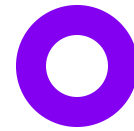
Automation & Controls

HMI, acquisition and visualization of operating variables, industrial protocols, process workflows and equipment integration.



Network Infrastructure

LAN/WLAN, switching, servers, IP telephony, copper and fiber-optic structured cabling, PoE connectivity, IP video surveillance, testing and as-built documentation for operating facilities.



Engineering Delivery

Surveys, design criteria, infrastructure requirements, drawings, material lists, quantity takeoffs and controlled revision cycles.

Technologies we work with

A representative stack for application and embedded engineering, industrial data, edge delivery and operational infrastructure.

Application & Embedded Engineering



Python



TypeScript



React



C++

Industrial Data & Protocols



PostgreSQL



MongoDB



MQTT



Modbus

Cloud & Edge Platforms



Windows



Linux



Azure



AWS

Platforms & Infrastructure



Docker



GitHub



Cisco



MikroTik

Cloudflare DigitalOcean Nginx Panduit Grandstream REST APIs HMI CI/CD AI-assisted engineering

One engineering practice across code, data, devices and infrastructure.



A documented delivery process

The same operating discipline supports consulting, fixed-scope projects and flexible delivery teams. Each stage creates a reviewable output before the work moves forward.

01

Discovery

Understand the operation, users, constraints, available information and risks. The output is a validated problem definition and requirements base.

02

Specification

Translate needs into architecture, design criteria, scope, deliverables and an execution plan that can be reviewed and approved.

03

Execution

Build, integrate and coordinate the work with activity tracking, progress visibility, issue management and consumption reporting.

04

QA & Handover

Test against requirements, control revisions, consolidate technical documentation and transfer the solution to the client team.

Operational backbone: documented workflows and flowcharts cover requirements, planning, activity management, QA, deployment, communications, monitoring, documentation and project closure. Cloud project-management and communication systems such as **ClickUp and Slack** keep responsibilities, decisions, progress and evidence visible to the delivery team.

Documented process reduces ambiguity, rework and dependence on individual memory.



A distributed team, assembled around the work



Each engagement combines a stable leadership core with the specialists required by the technical objective. The team can expand or shift as architecture, software, interface, QA, documentation and field-integration needs evolve.

Technical & project leadership

Scope, technical decisions, priorities and client coordination.

Architecture & backend engineering

Services, data, integrations and maintainable product structure.

Frontend & operational interfaces

Workflows, dashboards, HMI and operator-facing experiences.

UX, prototyping & visual systems

User stories translated into reviewable flows and interfaces.

QA, documentation & field integration

Validation, traceability, handover and connection to physical operations.

One accountable delivery practice. The right mix of specialists for each stage.



A software relationship built through trust and results

BLC Global develops technology solutions for the energy sector. Opentech began supporting its Oil & Gas business on **Optimum O&G BCP**, translating user stories into wireframes, prototypes and nearly 50 application interfaces. The results of that first delivery expanded our participation into formal QA of the broader software platform.

The trust built through those deliveries opened a new stage on **SRP Field Device**, where Opentech assumed software architecture, backend and frontend responsibilities for a well-site monitoring and control product under evolving hardware, operator-workflow and product requirements.

COLLABORATION PROGRESSION

- 01 · **Optimum BCP:** UX, prototyping and frontend interfaces.
- 02 · **Platform QA:** structured system validation.
- 03 · **SRP Field Device:** architecture, backend and frontend.



Public product material supplied by BLC Oil & Gas. Shown for product context.



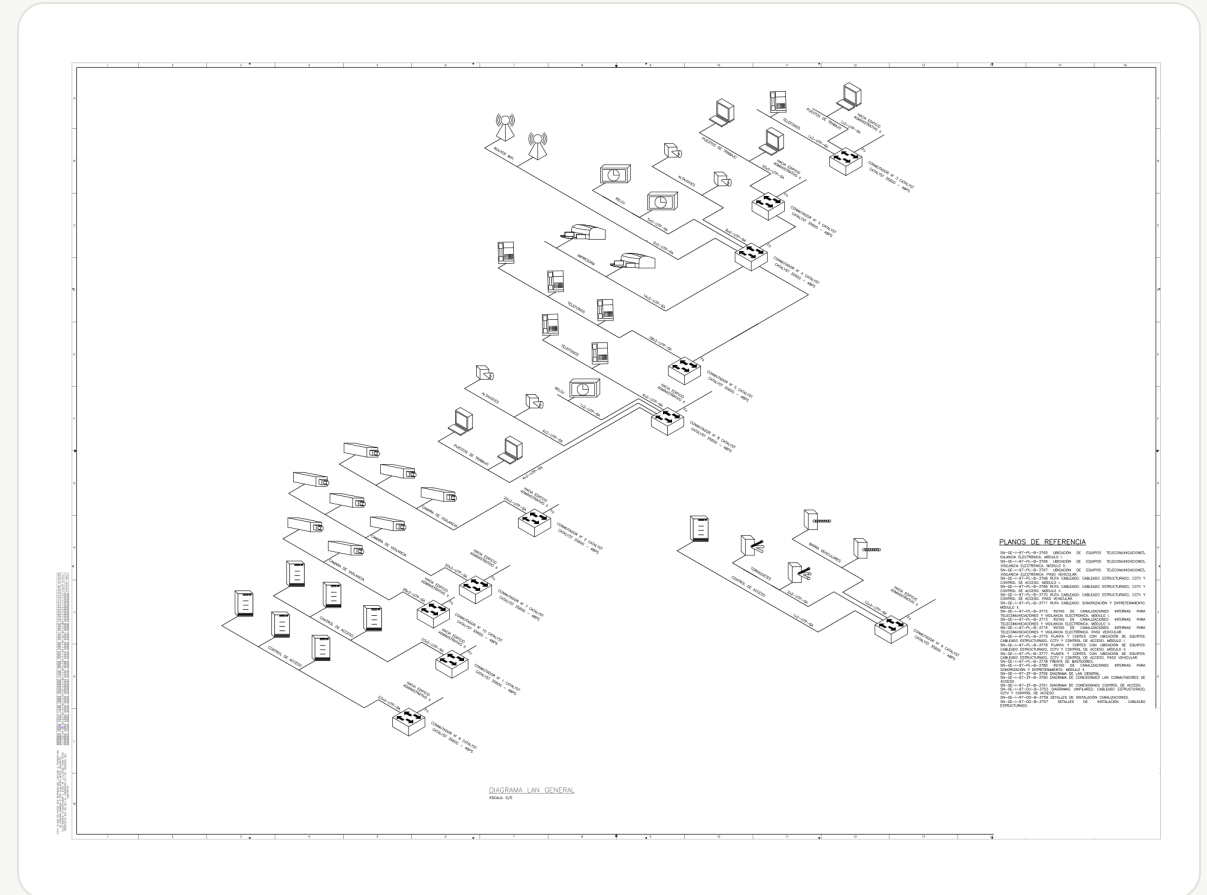
Multi-building telecom program — Siderúrgica Nacional, Ciudad Piar

For the Siderúrgica Nacional complex in Ciudad Piar, Opentech developed telecommunications detail engineering for **10+ auxiliary buildings and industrial fronts**: security and access facilities, warehouses, maintenance and vehicle workshops, industrial dining, fire response, documentation and medical services, plus document packages associated with melt-shop and rolling-mill areas.

The work combined **voice/data, CCTV, access control and sound systems** with Cat 6A structured cabling, fiber links, equipment rooms, racks, pathways and grounding. Deliverables followed the standards and formal approval cycles of an international EPC contractor.

DELIVERABLES

- Design criteria and infrastructure requirements
- Material lists and quantity takeoffs
- Equipment locations and routing plans
- Construction-ready CAD/PDF drawings
- Port, cable, route and pathway identification lists
- Single-line, LAN and connection diagrams
- Rack elevations and installation details
- Transmittal and review packages



General LAN diagram — main security building



Complete telecom package — Nanogress Ceramic Center

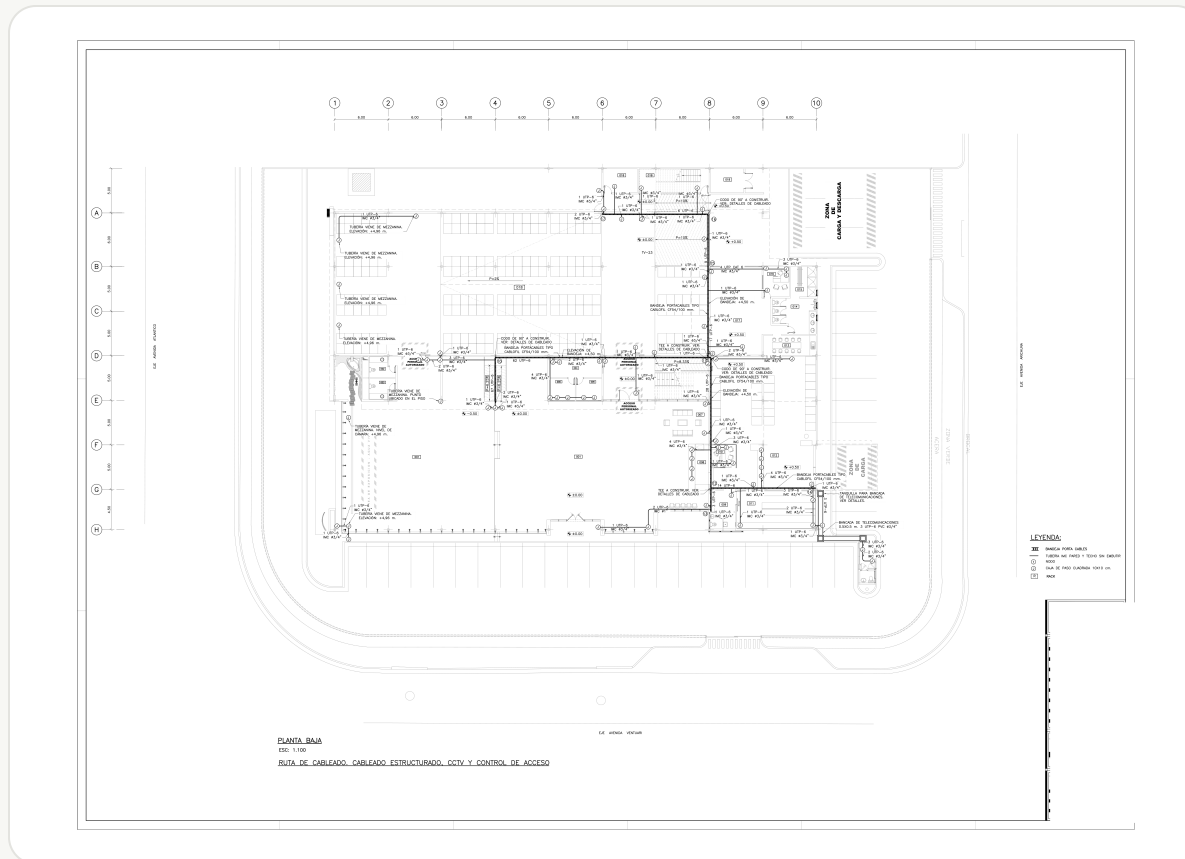
Self-contained telecommunications project covering **voice/data, CCTV and access control**: design criteria, infrastructure requirements, identification lists, material lists, quantity takeoffs and a **13-drawing package** — equipment layouts, structured cabling routes, single-line diagrams, LAN/connection diagrams and rack elevations.

STANDARDS AND REFERENCES APPLIED TO THESE DELIVERABLES

COVENIN 200 · 2454 · 3539

ANSI/TIA-568 · TIA-569 · TIA-606 · TIA-607

IEEE 802.3



Structured cabling routing plan — sheet 3 of 13



Building-wide communications infrastructure — delivered in an operating facility

Opentech implemented the business center's **communications and corporate systems platform**: complete Cat 6 LAN, a 48-port Cisco switching core, two servers, virtualization, file services, routing and firewall, backups, DHCP/DNS and internet-facing services. A subsequent IP video surveillance phase extended structured cabling, PoE connectivity and video recording to IP-camera locations across the property. The work combined systems configuration, commissioning and field installation inside a building already in operation.



Exterior camera installation



Structured cabling rack



Cisco PoE switching



Cabling pathway and conduit detail

Field photos from project records.

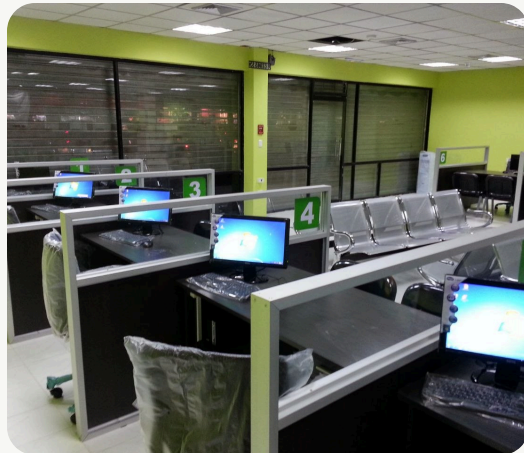


A multi-site health operation connected under one technical relationship

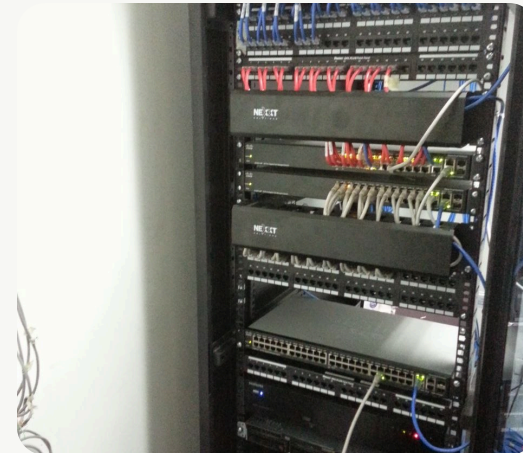
Brofinsa, then the company administering medical coverage for SIDOR workers, engaged Opentech directly across three related environments: its office inside SIDOR; the Alfredo Maneiro health center, including connectivity for admissions, laboratory and medical-imaging areas; and the Salud Médica pharmacy laboratory. The scope grew beyond cabling: Opentech **configured the routing, switching, servers, IP telephony, wireless and video recording**, with implementation and support adapted to each site's operating needs.



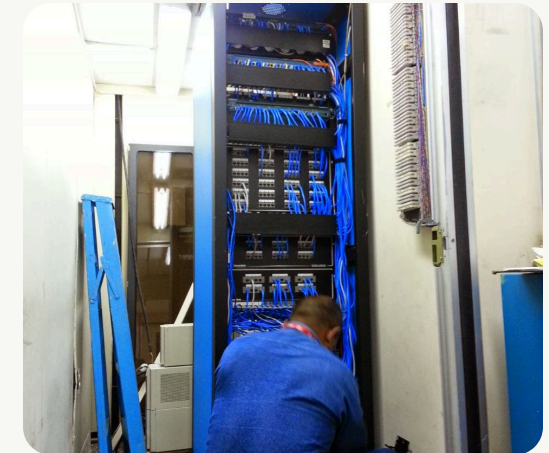
Alfredo Maneiro health center



Delivered admissions area



Installed equipment rack



Brofinsa inside SIDOR

Field photos from project records.



LABORATORY AUTOMATION · HMI · MODBUS

Turning a materials-testing press into a digital measurement system

A geotechnical laboratory needed to replace manual observation with a repeatable digital test workflow. Opentech connected the materials-testing press to an embedded computing setup through **serial communication and Modbus**, then built a touch interface for the operator.

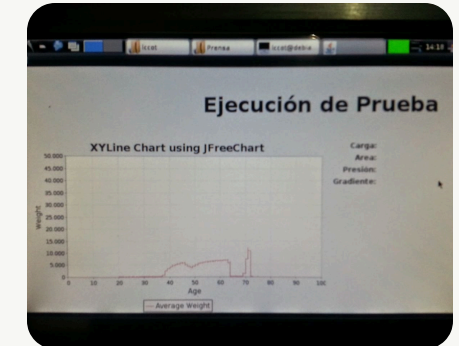
During each test, the system acquired and displayed **load, specimen area, calculated pressure and pressure gradient**, while plotting the response in real time. The work covered communication across Linux/Windows environments, equipment integration, data acquisition, HMI behavior and validation on the physical press.

Serial acquisition

Modbus

Touch HMI

Real-time charting



Software, industrial communication and physical equipment in one working solution.



Selected delivered track record

Additional completed work supported by invoices, final reports, field records or revision-controlled drawings. The client base ranges from multinational manufacturers and international EPC groups to healthcare, retail and commercial operations. Detailed cases presented earlier are intentionally not repeated.

Disaica

Cat 6 corporate network, servers and technical implementation.

CC ADMA Shopping Center

Telecommunications design package for a commercial development.

ESEM School & Emergency Unit — PDVSA

LAN diagrams and technical documentation for institutional and healthcare facilities.

Oxinova Offices at MASISA

Office technology-infrastructure implementation inside an industrial site.

TESTIM

IP cameras configured and integrated over the existing local network.

CE Bierzo Business Center

Telecommunications engineering and structured-cabling documentation.

Clínica Quiriquire — PDVSA

Telecommunications criteria, product schedules and revision-controlled drawings for a healthcare facility.

Plant Expansion — MASISA

Technical infrastructure work for an expansion of the multinational wood-products manufacturer.

Bonsai Sushi, Orinokia Mall

Video surveillance diagnosis, cabling organization and IP-camera implementation.

MeruQ

Custom web-based RMA system with documented delivery and support.



Delivery controls that remain visible

The process describes the sequence. These controls describe what the client can inspect during the work and retain after delivery.

Progress & consumption visibility

Activity tracking, regular status reporting, issue visibility and consumption reports for flexible-capacity engagements.

QA evidence

Requirements-based testing, recorded findings, correction cycles and formal validation before release or handover.

Document & revision control

Traceable document codes, review status, revision history and Rev.0 / Rev.A cycles when the project requires formal engineering delivery.

Handover & autonomy

As-built records, manuals, technical knowledge transfer and a consolidated project archive that reduces dependence on individual memory.

Commercial safeguards: confidentiality by default, NDA before detailed exchange, procurement-ready legal entities and clearly defined deliverables.

The deliverable is not only the solution. It is also the evidence needed to operate, maintain and approve it.



Opentech Labs — Engineering that connects software, systems and infrastructure

CONTACT

Ing. Manuel Rodríguez — CEO & Founder

info@lccopen.tech · +58 414 8968569

<https://lccopen.tech>

LEGAL ENTITIES

Techlab Solutions LLC — United States

LCC Opentech C.A. — Venezuela

Opentech founded in 2010