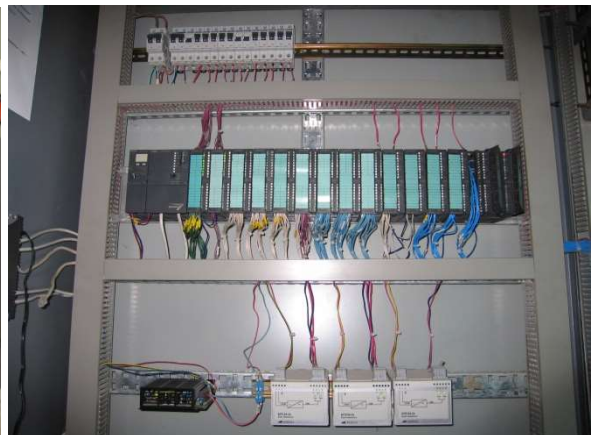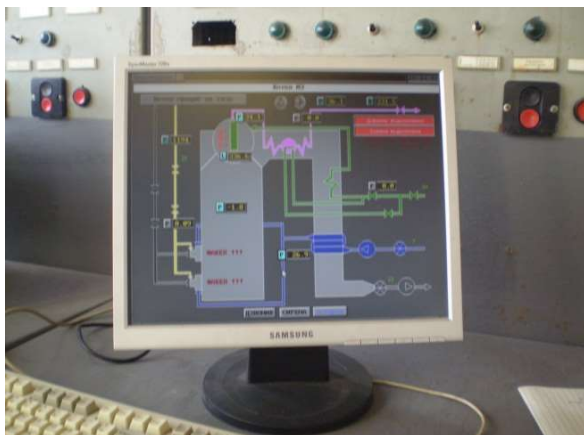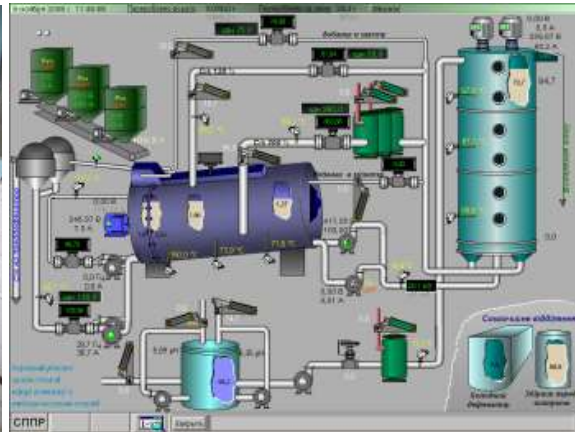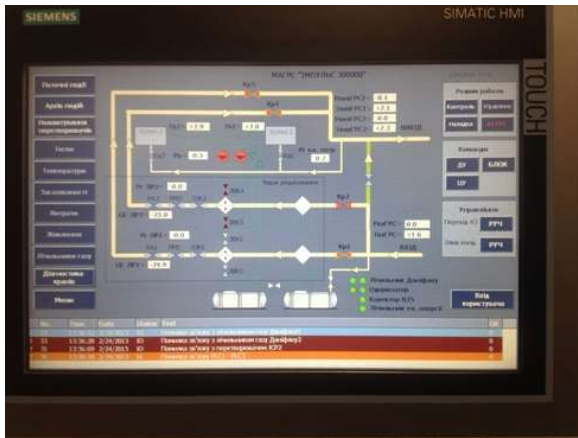# LLC "Design and Development of Automated Technologies" (DDAT)

https://ddat.com.ua | info@ddat.com.ua

Since 2010

Company Profile

LLC "Design and Development of Automated Technologies" (DDAT) is an engineering and innovation company from Ukraine, established in 2010. DDAT develops and implements tailored solutions in industrial automation, SCADA/HMI design, telemetry, energy management, and intelligent control systems.

The company's focus lies in creating scalable and resilient architectures for critical infrastructure — spanning energy networks, manufacturing processes, and public utilities — with special attention to operator-centred UX and fault-tolerant system logic.

DDAT has extensive experience integrating AI-enhanced digital twin technologies, predictive diagnostics, and modular automation platforms. These solutions are applied across real-world industrial sites, where reliability, situational awareness, and rapid deployability are essential.

In addition to engineering practice, the company's core experts are also active in academic research and contribute to peer-reviewed scientific publications indexed in Scopus and Web of Science. This fusion of applied development and research allows DDAT to bridge innovation with implementation, ensuring that each project incorporates both field-tested robustness and forward-looking capabilities.

Modernisation Projects – Critical Infrastructure. Full-cycle HMI Modernisation for Tobacco Manufacturing

SCADA/HMI Modernisation at British American Tobacco – Priluki Plant (2021)
Client: PJSC "Tobacco Company "V.A.T. – Priluki" (British American Tobacco Group, Ukraine)
Period: April–September 2021
Scope: Migration of legacy SCADA to a modular, modern interface environment with ISA-101 compliance and full-cycle delivery by DDAT.
Key Achievements:
- Developed a multi-level SCADA/HMI system integrating substations, compressors, lighting, ventilation, and backup systems.
- Introduced semantic color zoning, consistent screen logic, and diagnostic trends, enhancing operator responsiveness.
- Provided shift-ready usability for 15+ operators, with built-in scalability for smart IEDs and future digital twin integration.

Visual Examples:

Unified Utility Dashboard – SCADA Overview

Shows a centralised screen for real-time monitoring of ventilation, lighting, compressors, and power systems.

High-Voltage Substation Panel (35/10 kV)

Displays a dynamic substation view with breaker statuses, transformers, and feeder line conditions.
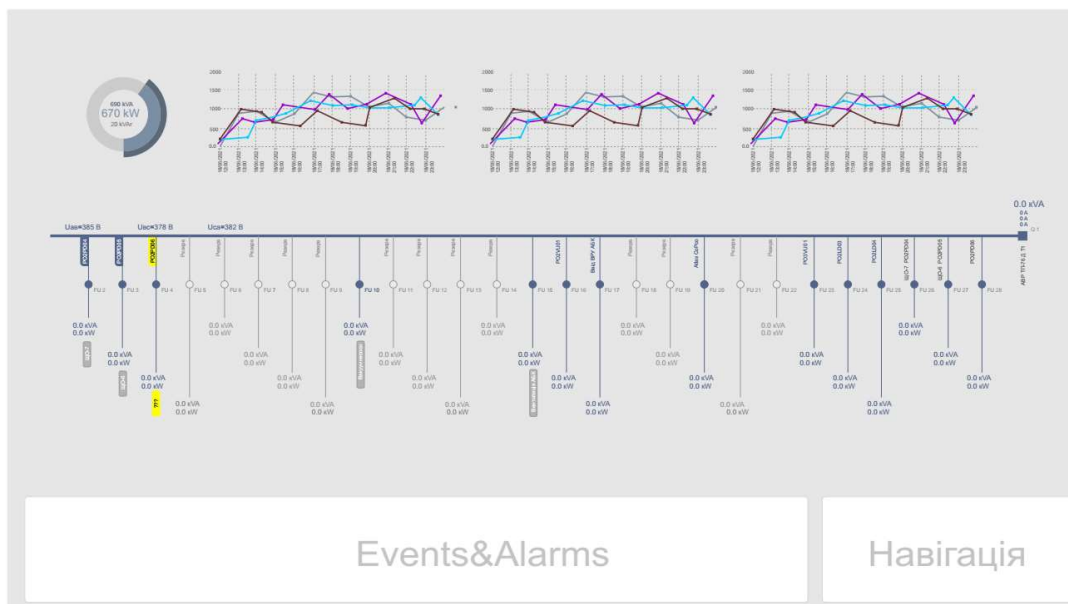
Low-Voltage Distribution Interface (0.4 kV)

Presents a schematic of package substations and distribution boards, highlighting power levels and fault zones.

Event Diagnostics & Alarm Trends Dashboard

Illustrates the event log and trend analytics screen, supporting predictive diagnostics and operational decision-making.

This project reflects DDAT's core competencies in delivering end-to-end SCADA/HMI solutions for critical infrastructure. Its success stands as clear evidence of the company's ability to build systems that are technically sound, operationally resilient, and future-ready

Impact:
> Faster operator reactions to alarms and system deviations
> Lower training effort due to intuitive design
> Improved maintenance via embedded diagnostics
> Future-ready system architecture in line principles (usability, resilience, adaptability)

Relevance:
This project embodies the principles of **resilient digital infrastructure** through smart interface design and modular control strategies. The improved fault-tolerance, streamlined

decision-making, and long-term flexibility directly align mission to strengthen infrastructure usability and preparedness.

Selected Projects Before 2010: Industrial Engineering Expertise (Pre-DDAT)

2000–2002 | Shamraivka Sugar Plant (Ukraine)

Developed an automated control system for steam boilers at a thermal power unit. Functions included control of steam pressure, drum water level, flue draft, and air-fuel ratio.

2002–2005 | Shamraivka Sugar Plant (Ukraine)

Automation of the juice purification and defecation process. Modernization of lime kiln systems, steam boilers, and auxiliary stations with full SCADA integration.

2006–2009 | Astarta-Kyiv Holding

Automation of sugar production lines (diffusion, clarification) across multiple facilities. Repeated commissioning and integration cycles.

Key Projects After 2010: DDAT Implementation References

Automation of Packaging Lines – Dairy Sector (Ukraine, 2011–2014)

Client: Tetra Otich (Ukraine/Russia)
Technology: SIMATIC PROFINET (Distributed Control System, DCS)
Scope: Design and deployment of modular SCADA/HMI for automated packaging lines in a high-throughput butter and spread production facility.


Highlights**:**
  – Developed intuitive operator interfaces tailored to fast-paced packaging operations.
  – Integrated diagnostic layers with visual alert indicators and trend monitoring.
  – Implemented real-time recipe switching, modular logic blocks, and adaptive error messaging.
  – Used Siemens S7-300 and SIMATIC HMI Panels for seamless line coordination.

Visual Examples:
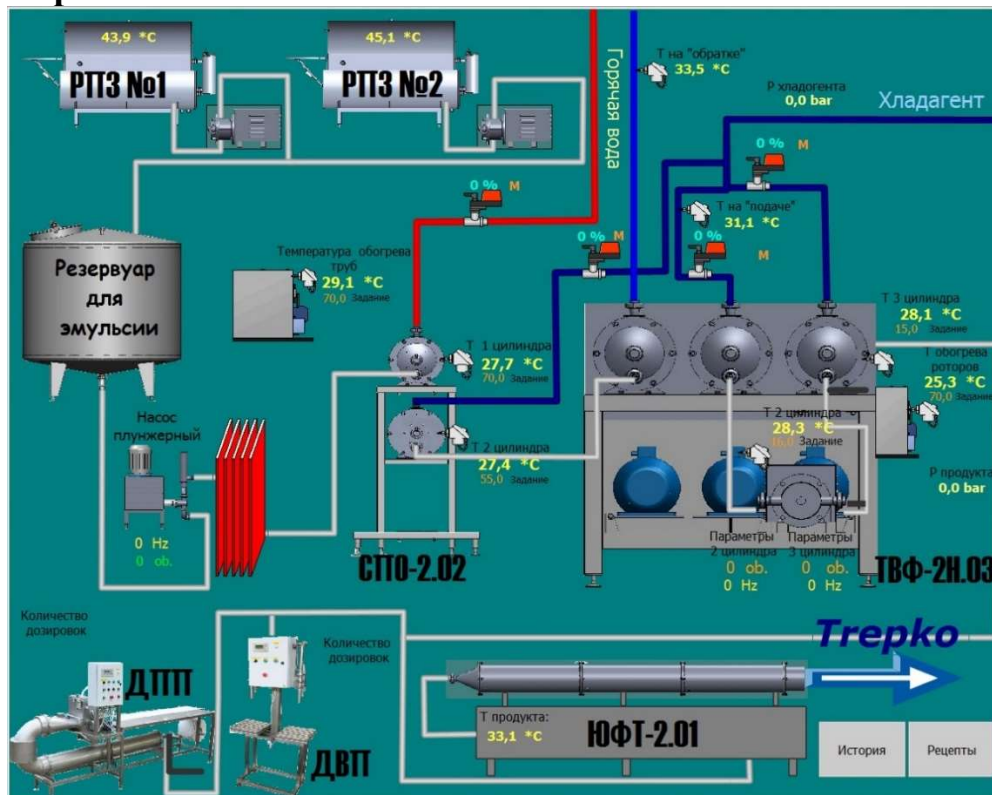
Operator Interface for Packaging Line: Butter/Spread
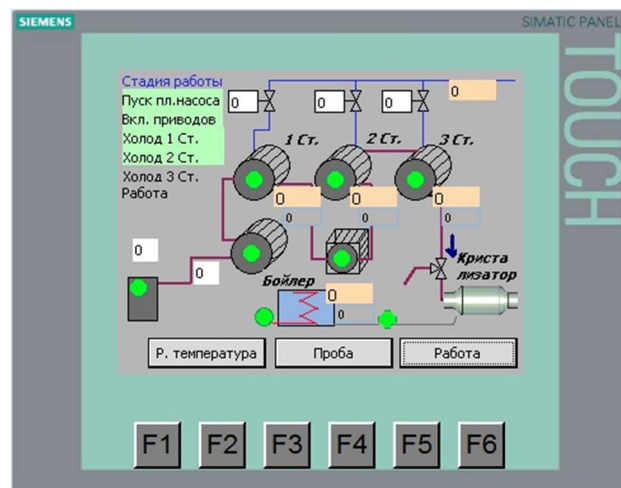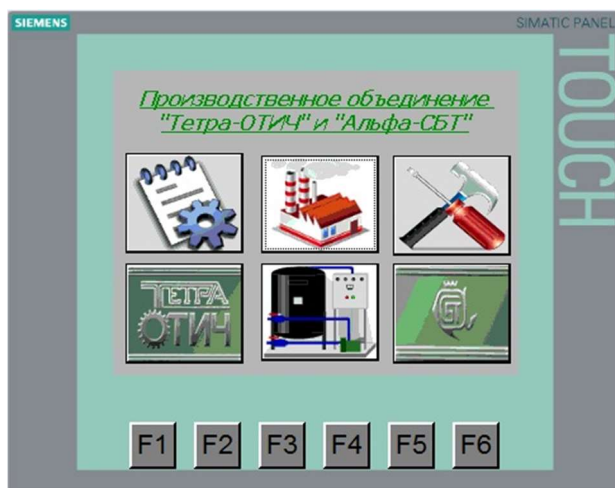
Interface Example– Recipe Selection and Production Status

This layered interface supports maintenance teams in diagnosing thermal inconsistencies.

Result:

Delivered a resilient and ergonomic HMI/SCADA interface that improved production uptime, reduced operator error, and enabled traceable switching of recipes under live loads.

2011 | Kyivvodokanal (Ukraine)

Development and commissioning of an automated telemetry system for monitoring and managing pressure in water supply networks.

Gas Distribution Automation — PJSC "Fakel" (Ukraine, 2013–2017)

Scope: Full-cycle deployment of automation and SCADA/HMI systems for stationary and mobile AGDS units across Ukraine.
Technologies: Mitsubishi FX3U, Siemens S7-300/1200, SCADA-over-GPRS, custom HMI.

Highlights:

- Designed modular control systems and intuitive operator panels for Automatic Gas Distribution Stations.
- Enabled real-time telemetry, diagnostics, and alarm handling under fault conditions.
- Implemented SCADA-over-GPRS logic for remote mobile stations.
- HMI structure followed ISA-101 principles: role-based, zoned, and fault-aware.

Visual Examples:

Result:

Achieved uninterrupted gas distribution with long-term reliability in critical infrastructure. The solution supported adaptive deployment (including mobile units), operational safety, and stress-tolerant performance

2018 | Kyiv Metro (Ukraine)

Development and delivery of technical training programs for metro control engineers and operators, focusing on industrial automation systems.

Applied Research – Energy Management Interface at Zhdanivka Sugar Refinery (2021)

Scope: Development and pilot deployment of a predictive energy control interface system for industrial sugar production.

Led by: Dr. Viktor Sidletskyi, in collaboration with the future project team.

Highlights:

–   Designed and tested a **role-based interface** to support operators, engineers, and energy managers in managing energy flow.

–   Implemented **digital twin diagnostics** and **neural control algorithms** to monitor granulation, evaporation, and auxiliary units.

–   Integrated **forecast analytics** and **adaptive visualization** to detect inefficiencies and system faults early.

Visual Example:

Energy Consumption Deviations Panel.

Impact:

The system demonstrated robust behavior in live industrial conditions, showcasing high usability and predictive performance. The project serves as a **proof of concept** for modular, intelligent HMI structures aligned with CReDO's mission — particularly in critical infrastructure monitoring and adaptive resilience.

2016–Present | Schneider Electric Ukraine

Provision of engineering consultancy and project-based support for control system integration and modernization using Schneider Electric platforms.

Domains of Expertise

UX-centric SCADA/HMI engineering

Predictive control, diagnostics, and anomaly detection

Telemetry, alarm processing, modular architecture

Industry 4.0: OPC UA, MQTT, Modbus, AI elements

Digital Twin design for energy and production networks

Clients & Partners

Kyivvodokanal

Schneider Electric

Kyiv Metro

Fakel AGRS Projects

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