

MUHAMMET IŞIK

Industrial Solutions Architect | OT/IT Integration & Industrial IoT

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PROFESSIONAL SUMMARY

Industrial Solutions Architect bridging **Operational Technology (OT)** and **Information Technology (IT)**, with 10 years of technical entrepreneurship and operational leadership experience. Leveraging my ITU Control and Automation Engineering foundation, I go beyond writing code or deploying PLCs—I architect scalable systems that transform field data into commercial value.

Throughout my career, I managed technical operations for **225,000 assets** with P&L responsibility, commissioned **multiple production lines** to strengthen my field expertise, and engineered strategies to overcome technical barriers in **key public tenders**. Using **HIMA, Siemens, and IIoT** technologies, I transform traditional "black box" industrial systems into modern, data-driven architectures compliant with **Functional Safety (IEC 61508/EN 5012x)** standards.

For me, technology isn't a goal in itself—it's a tool to achieve business objectives. With this vision, I blend **startup agility** (MVP, Zero-CAC Growth) with **enterprise engineering discipline** (V-Model, Standards) to deliver end-to-end solutions that are both technically and commercially sustainable.

EXPERIENCE

Industrial Solutions Architect | Railway Systems & Industrial IoT

NET Mühendislik Otomasyon | Şişli, Istanbul | Jul 2025 - Present

Turkey distributor for HIMA (Safety PLC), Simplinx (IIoT), and Emerson (AMS Trex) products; Istanbul dealer for SICK and Beijer. Machinery, railway, and process safety; industrial automation technical support solutions.

- Automated Market Intelligence (Python/ETL):** Engineered a **Python-based automation bot** to track potential public tenders and railway system projects. Reduced daily manual scanning time from 1 hour to 5 minutes, achieving operational efficiency and establishing a filtered, actionable **"hot leads"** pipeline for the sales team.
- Specification Engineering & Market Penetration (HIMA):** Architected technical equivalency strategies aligned with **CENELEC EN 50126/128/129 and IEC 61508** standards to overcome local specification barriers for HIMA products. Presented cost-optimizing alternative architectures to customers without violating standard compliance, **unlocking access to key public tenders**.
- Technical Account Recovery & Value Engineering:** Analyzed integrator projects at risk of being lost due to "High Cost" perception by **reverse-engineering** customer order history. Delivered architectural optimizations eliminating unnecessary high-capacity hardware, **recovering lost projects**.
- IIoT Solution Architecture & Cost Optimization (Simplinx):** Architected **lean infrastructures** using Simplinx gateway technology for industrial customers, minimizing middleware hardware and license costs. Achieved significant savings in customer digitalization budgets through **TCO (Total Cost of Ownership)**-focused transformation projects.
- Channel Strategy & Network Operations (Simplinx):** Managed Turkey distributorship process for the IIoT product line; enhanced technical and commercial competency of the national dealer network. Managed existing dealer performance while expanding sales channels through new partner acquisition.
- Technical Enablement for System Integrators:** Provided **technical mentorship** to integrator companies in the customer portfolio, enabling them to develop their own signaling solutions beyond mere product procurement. Transformed passive buyers into active solution partners capable of solving complex problems.
- Diagnostic Consulting & Field Analysis:** Identified operational bottlenecks unnoticed by businesses through technical audits conducted at customer sites. Revealed hidden efficiency potentials with recommendations optimizing data collection variables and **live demonstrations**.
- Product Lifecycle Management (Emerson AMS Trex):** Managed commercial and technical lifecycle of the predictive maintenance product line in the Turkey market. Ensured **uninterrupted operational continuity** by executing global supply chain coordination, end-user training, and order management processes.

- **Rapid Prototyping & Live Validation:** Executed **live Proof-of-Concept (PoC)** studies on-site using the Simplinx ecosystem and software competencies (Python/Node-RED vision). Accelerated technical persuasion processes by solving complex integration problems in real-time in front of customers.
- **Safety-Critical Data Strategy Advisory:** Delivered advisory on architectures combining Functional Safety (HIMA) and Data Analytics disciplines; presented **strategic roadmaps and concept designs** for leveraging safety data in predictive maintenance models.

Technical Project Engineer | IT/OT & Machine Automation

CSM Metalürji Mühendislik | Esenyurt, Istanbul | Feb 2025 - Jul 2025

Custom machine manufacturer for steel wire and rope processing industry. Serial production and line automation.

- **Custom IIoT Middleware Development (C#/.NET):** Engineered a **custom middleware application** enabling data flow between Siemens S7 PLCs and factory MES/ERP systems. Automatically processed and reported production data (SCADA tags), **eliminating operators' 2+ hours of daily manual data entry effort.**
- **High-Volume Commissioning (FAT/SAT Leadership):** Personally led software development and Factory Acceptance Tests (FAT) for **12+ production lines** during an intensive 6-month period. Completed on-site installation and Site Acceptance Tests (SAT) for 4 critical projects, delivering projects with **serial commissioning** discipline.
- **Multi-Vendor Motion Control:** Synchronized drives from multiple vendors (ABB, Siemens, Mitsubishi, Festo) with hydraulic/pneumatic systems for precision tension and speed control in steel wire processing lines. **Optimized line performance and coil quality** by integrating non-standard hardware.
- **HMI Development & Operational Visibility:** Designed user-friendly HMI/SCADA interfaces (WinCC, GT Works) enabling operators to master complex machine parameters. **Shortened field intervention times** with real-time status monitoring and fault diagnosis screens.
- **Field Engineering & Troubleshooting:** Actively participated in electrical panel assembly and signal tracing processes beyond software alone, resolving discrepancies between electrical schematics and field realities on-site.
- **Standardization & Knowledge Transfer:** Transformed repetitive field operations into **Standard Operating Procedures (SOPs)**. Institutionalized knowledge transfer through training provided to technical teams, eliminating person-dependency and making maintenance processes scalable.

Research Assistant & Academic Mentor | Railway Systems & Safety-Critical Software

ITU EEF Rail Systems Laboratory | Sarıyer, Istanbul | Jan 2024 - Present

Concurrent with professional career, I assume technical leadership and researcher roles in academic R&D projects.

- **Model-Based Design & Academic Publication:** Developed safety-critical signaling components on the **ANSYS SCADE** platform using "Model-Based Design" (MBD) methodology compliant with CENELEC EN 50128 standards. Custom C-based Modbus protocol design running on HIMA Safety PLC was **published as an academic paper at TOK 2025 conference.**
- **V-Model Verification & Validation (V&V):** Designed test procedures and validation processes compliant with **CENELEC EN 50126/128/129** standards for developed electronic control systems, standardizing safety-critical test processes within the laboratory.
- **Embedded Systems Prototyping:** Enabled **rapid hardware validation for academic projects** by developing sensor integration and real-time data processing applications on ARM-based microcontrollers (STM32).
- **Research Leadership & Mentorship:** Provided technical advisory for academic research projects funded under **TÜBİTAK 2209**. Contributed to talent development by mentoring next-generation railway engineers on signaling architecture and embedded software.

Founder & Technical Leader | Consumer Electronics & Technical Service Operations

HSR Teknoloji Hizmetleri & Ceporjin Yedek Parça | Şişli, Istanbul | Aug 2016 - Jan 2025

Technology venture managing technical service and spare parts operations for 25,000 mobile devices over 8 years.

- **Bootstrapped Entrepreneurship & P&L Management:** Built service and spare parts operation from zero with **100% equity (bootstrapped)**. Created a sustainable commercial structure without external investment by managing cash flow, inventory costs, and profitability processes.

- **High-Volume Technical Operations (25K Assets):** Managed end-to-end lifecycle (Intake-Repair-Delivery) of **25,000 mobile devices** over 8 years. Achieved **96% CSAT (Customer Satisfaction)** through technical checklists and quality processes developed to prevent recurring defects.
- **Zero-CAC Growth & Community Management:** Built **10,000+ member** digital communities (Facebook/WhatsApp) using **Community-Led Growth** strategies without traditional advertising spend. Achieved high-volume sales success with **Zero Customer Acquisition Cost (Zero CAC)** by building technical trust.
- **Workforce Development & Technical Curriculum:** Created **100+ page proprietary technical training curriculum** to close the skilled labor gap in the sector. Trained **100+ technicians** and pioneered **15+ participants** launching their own technical service businesses.
- **Custom Resource Planning System:** Designed a custom, error-free Excel-based **Resource Planning System** for the business's inventory, cost, and service tracking. Eliminated inventory losses with this system tailored precisely to business needs instead of off-the-shelf ERP software.
- **IT Infrastructure & Digital Transformation:** Architected and managed the business's e-commerce and web presence on **Linux server** infrastructure without outsourcing. Provided IT infrastructure setup advisory to newly established partner ventures.
- **Global Supply Chain & Import Strategy:** Managed direct procurement processes with China-based manufacturers. Minimized currency risks by optimizing inventory turnover and **achieved cost advantages in import processes**.
- **Strategic Supply Chain & OEM Component Recovery:** Established a **sole source** business model providing critical components at **OEM (Original Equipment Manufacturer)** standards in a market dominated by aftermarket parts. Through this circular economy operation transforming end-of-life devices into qualified resources, closed the quality gap in the sector and contributed to the national economy with **~\$6 Million USD import substitution**.

Technical Product Manager & Project Leader | TravelTech & SaaS

Citio Turizm Uygulaması | Kadıköy, Istanbul | Jun 2022 - Jul 2023

B2C TravelTech platform connecting tourist venues and entertainment services. MVP Launch and Product Development.

- **Turnaround Leadership & MVP Delivery:** Took over a stalled development project, re-architecting the technical and strategic roadmap. Translated business goals into scalable system architecture, **delivering MVP (Minimum Viable Product) to market within 1 year**.
- **Technical Architecture & Engineering Oversight:** Beyond creating business requirements; actively contributed to **Database Schema Design** and **API Contract (Swagger/OpenAPI)** processes with backend teams. Established engineering discipline preventing technical debt accumulation by participating in Code Reviews.
- **Agile Orchestration & Cross-Functional Leadership:** Led 5-person multidisciplinary (Backend, Frontend, Design) team. Established Jira-based Agile/Scrum processes from scratch to increase sprint efficiency; ensured UX consistency by resolving conflicts between Design and Frontend teams with **technical revisions**.
- **Quality Assurance & API Validation:** Ensured product quality by creating **end-to-end test scenarios with Postman** for RESTful API services and database flows. Validated **system reliability** before go-live by managing manual and automation test processes.
- **Stakeholder Management & Business Analysis:** Bridged communication between C-Level management (CEO) and software teams. Enhanced **Product-Market Fit** by translating complex requests from business units into technical requirements.

Country Technical Operations Manager | Consumer Electronics & After-Sales Services

Biztech Teknoloji | Ataşehir, Istanbul | Mar 2019 - May 2021

Turkey distributor for Meizu smartphones and wearable technology brand; authorized seller for Xiaomi, Amazfit, QCY wearable technology products in Turkey. Ceased operations.

- **Large-Scale Operations Management (200K Assets):** Managed after-sales operations for 60,000 Meizu smartphones and 140,000 wearable technology products across Turkey. Guaranteed customer satisfaction by coordinating SLA and DOA (Dead on Arrival) processes with national service partners (KVK, Genpa).
- **Quality Intelligence & HQ Reporting:** Regularly analyzed service data to track defect trends and customer feedback. Established technical feedback loop to improve production quality through **periodic quality reports presented to Global Headquarters (HQ)**.

- **Warranty Cost & Claims Management:** Conducted Root Cause Analysis when defect rates exceeded critical threshold (2%), proving errors were manufacturing-origin. Managed **Free of Charge (FOC)** parts claims and commercial negotiations aimed at reducing warranty costs with this data.
 - **Facility Setup & Strategic In-Housing:** Established an ESD-compliant **Central Technical Service Laboratory** owned by the company to end outsource dependency for wearable technology products. **Minimized operational expenses (OPEX)** by building necessary hardware and equipment infrastructure and bringing service operations in-house.
 - **Process Standardization (SOPs):** Created end-to-end **Standard Operating Procedures (SOPs)** and repair manuals to liberate technical service processes from person-dependency. Established a scalable, autonomous workflow where newly hired technicians could perform repairs by simply following documentation without training.
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SKILLS

Solution Architecture & Technical Leadership

- **OT/IT Integration:** Industrial field-to-cloud (PLC/Sensor to Cloud/ERP) data flow architecture, Edge Computing (Simplinx), Protocol Translation.
- **Technical Product & Project Management:** Agile/Scrum (Jira), MVP Development, Technical Roadmap, Resource Planning.
- **Commercial Strategy:** Technical Sales (Presales), POC (Proof of Concept) Management, **TCO (Total Cost of Ownership) Analysis**, P&L Management.
- **Process Design:** SOP (Standard Operating Procedure) Creation, SLA Management, Root Cause Analysis (RCA).

Industrial Automation & Safety

- **Functional Safety:** HIMA (SIL3/4), IEC 61508, EN 50126/128/129 (Railway Systems), Safety-Critical System Design.
- **PLC & Control:** Siemens TIA Portal (S7-1200/1500), Mitsubishi GX Works, SICK Safety Systems.
- **Industrial Communication:** Profinet, Modbus TCP/RTU, EtherNet/IP, OPC UA, HART Protocol.
- **Field Operations:** HMI/SCADA Design (WinCC), Drive Commissioning (ABB/Festo), Pneumatic/Hydraulic Integration, FAT/SAT Test Leadership.

Software Engineering & Data

- **Industrial Software:** C# .NET (Middleware/Gateway Development), Python (Pandas/ETL/Automation), Embedded C.
 - **IIoT & Data Flow:** Node-RED Flow Design, MQTT Broker Management, JSON/XML Data Processing, SQL Database Modeling.
 - **API & Integration:** RESTful API Design (Swagger/OpenAPI), Postman API Test Automation, Webhook Integrations.
 - **Infrastructure & DevOps:** Linux (Ubuntu/Debian) System Administration, Docker (Containerization), Bash Scripting, VPS Management.
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EDUCATION

Control and Automation Engineering, Bachelor's Degree

Istanbul Technical University (ITU) | Sarıyer, Istanbul

- *Department Description:* Control and Automation Engineering is an interdisciplinary program focusing on modeling, control, and optimization of industrial and embedded systems, combining operational and information technology competencies.
 - *Thesis:* "Designing a self-training fighting robot using machine learning techniques."
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LANGUAGE PROFICIENCY

- **English:** Advanced, Professional Working Proficiency (CEFR C1 / ITEP 4.2)
- **Turkish:** Native