



Overview

A leading global beverage manufacturer operating a network of concentrate production facilities across Europe, Asia, Africa, and North America. The client maintains stringent quality and efficiency benchmarks and has a strong focus on digital transformation across its global operations.

Challenges

- Limited real-time visibility into production efficiency across a globally distributed network of concentrate plants
- Inconsistent tracking of Overall Equipment Effectiveness (OEE) across locations
- Lack of robust Statistical Process Control (SPC) for ingredient weight accuracy
- Variations in shop-floor processes leading to operational inconsistencies
- Complexity of deploying a multilingual, multi-time zone solution with minimal on-site support

Solutions

- Real-Time OEE Monitoring: Live tracking of machine and line performance at plant and enterprise level.
- SPC on Ingredient Weights: Inline measurements with automated alerts to ensure consistency.
- Multilingual Global UI: Standardized user experience across sites with multi-language support.
- Cloud-Native Architecture: Scalable, secure platform built for high availability and performance.
- 100% Remote Deployment: Fully implemented and supported remotely across global locations.
- Agile Delivery Model: Iterative releases driven by continuous stakeholder feedback.
- DevOps with Azure: Automated CI/CD pipelines enabling efficient global deployments.

Benefits

- Global standardization improved operational visibility and decision-making
- Real-time SPC enhanced quality, reduced waste, and ensured compliance
- Scalable cloud-first design enabled future growth and flexibility
- Multilingual, intuitive dashboards drove high user adoption
- Seamless IT-OT integration ensured reliable, real-time data flow
- Remote deployment reduced costs and accelerated time-to-value

Tool & Technology

- Microsoft Azure PaaS
- NodeJS/ Angular
- Python
- MS PowerBI



Scan to Visit Our Website



Realtime AI for Enhanced Workplace Safety

Overview

ALTEN deployed a real-time, AI-powered computer vision solution in the R&D labs of one of the world's largest F&B companies to enhance workplace safety by detecting proper eyewear usage and triggering instant alerts for non-compliance

Challenges

- A consumable drinks company wants to ensure the safety compliance of the employees within their laboratory facilities
- The customer wanted to implement a safety system to enforce the use of safety glasses and minimize lab accidents
- This system is designed to accurately identify individuals entering the lab and ensure that they are wearing appropriate eyewear, thereby enhancing safety compliance

Solutions

- Designed a system that processes live video feeds from the lab's security cameras. It utilizes AI models to accurately identify individuals entering the lab and distinguish between safety glasses (even with transparent edges) and regular glasses
- Integrated facial recognition with the safety glasses detection system, enabling the system to identify authorized personnel entering the lab while verifying they are wearing proper safety glasses. This combined system operates entirely offline, ensuring data privacy
- Configured an alert system over SMS and email for non-compliance, sharing scheduled summary reports
- Delivered a user-friendly dashboard for real-time monitoring and deployed a comprehensive safety system that meets all client requirements

Benefits

- DINO MLOps Framework
- Maximums Accelerator
- Delivered in 4 weeks
- Processing in less than 100ms

Tool & Technology

- Yolo V7, ONNX Runtime
- DINO MLOps Framework
- MTCNN – ONNX Model
- QDrant VectorDB



Scan to Visit Our Website



Smart Factory – Machine Monitoring

Overview

ALTEN's AI/ML-based predictive analytics solution enabled a leading automotive Tier-1 supplier to detect machine anomalies early, reducing PCB wastage, minimizing downtime, and boosting overall production efficiency

Challenges

- High PCB wastage and line stoppages due to undetected anomalies in pneumatic pistons during the soldering chamber
- Limited real-time visibility into sensor trends; maintenance largely reactive, increasing downtime
- No Remaining Useful Life (RUL) prediction, leading to overstocked spares and inconsistent planning
- Need for secure, scalable IT/OT integration with MES under enterprise controls (Kerberos/LDAP)

Solutions

- Built an end-to-end AI/ML engine for anomaly detection and RUL estimation using historical + live sensor data
- Implemented unsupervised ML + rule-based logic to monitor piston behavior and PCB entry operations
- Orchestrated data processing with Hadoop/Impala and streaming/events via RabbitMQ
- Delivered secure MES integration, role-based access (Kerberos/LDAP), and dashboards for trend, spike, and root-cause analysis

Benefits

- Early anomaly detection prevents PCB scrap and quality escapes
- Reduced unplanned downtime by proactively isolating/servicing defective pistons
- Optimized spares inventory and lower maintenance cost through RUL-driven planning
- Scalable & reusable framework applicable across machines/lines with improved IT/OT compliance

Tool & Technology

- Python, Node.js, React.js, HTML/CSS
- Hadoop, Impala, RabbitMQ
- Kerberos, LDAP, MES integration
- Unsupervised anomaly detection, RUL modeling



 Scan to Visit Our Website



Predictive Maintenance for Production Lines

Overview

Predictive Maintenance helped a large automotive ECU manufacturer monitor production lines in real time, improve yield, enable predictive maintenance, and achieve significant cost savings

Challenges

- High scrap rates and production costs due to undetected bearing deviations during manufacturing
- Lack of real-time visibility into bearing quality before production completion
- No predictive mechanism for Remaining Useful Life (RUL), leading to reactive maintenance and downtime
- Need for cost-effective, scalable solution leveraging Industry 4.0 technologies

Solutions

- Built a machine learning model to predict bearing quality in advance and enable proactive decisions
- Developed an intelligent algorithm to calculate RUL for each bearing in the production channel
- Created interactive dashboards for real-time monitoring of line parameters and predictive insights
- Leveraged Microsoft Azure services for scalable deployment and minimal infrastructure cost

Benefits

- 2% reduction in product scrap at process end through early deviation detection
- Reduced downtime by enabling preventive maintenance before failure occurs
- Clear cause-effect analysis for better decision-making and process optimization
- Cost efficiency with cloud-based architecture and reusable ML framework

Tool & Technology

- Azure Machine Learning Studio, Azure ML Ops
- Azure Functions, Azure SQL DB
- Dashboards for real-time insights



Scan to Visit Our Website



ALLEN

Intelligent Preventive Maintenance

Overview

For a leading Energy & Utilities provider, ALLEN's Cloud, IoT and AI-driven solution enabled early fault detection, reduced downtime, and optimized maintenance operations

Challenges

- A utility provider in the US has two key needs related to monitoring their infrastructure for electricity, gas, and steam generation
- First, they need to develop a smart system to analyze sensor data from their machinery and identify abnormal operations
- Second, this system would enable preventive maintenance and prevent costly equipment failures, ensuring reliable energy delivery

Solutions

- Built an IoT system on AWS to gather sensor data (vibration, temperature, etc.) from machinery via CENTAURI 200 Gateways (wireless protocols)
- Built a system that analyzes and processes the equipment data for analysis
- Enabled AI/ML for predictive maintenance that allows the system to analyze sensor data, identify abnormal equipment behavior, and trigger preventive maintenance before failures occur
- Designed a customizable dashboard for the customer to easily view sensor data and analyze system health with configurable parameters, helping them spot potential issues

Benefits

- Saved up to 50% cost
- Faster and efficient services
- Quick resolutions
- High Customer satisfaction
- Advanced Monitoring & Predictive Maintenance
- Cost Efficiency & Resource Optimization
- Advanced Diagnostics and Resolution Capabilities

Tool & Technology

- CENTAURI 200 Gateway
- IoT/LP Framework
- Python, TensorFlow Lite, Scikit-learn, Edge ML
- AWS IoT Cloud



Scan to Visit Our Website