ALTIZON
The Industrial IoT Company

Smart Manufacturing
Varroc, Auto Component Manufacturer leaps into Industry 4.0 using Datonis®

Real time OEE

Downtime Analysis

Conditional Based Monitoring

Varroc, a leading global Auto Component manufacturer was looking for a comprehensive solution to leverage Industry 4.0 initiatives for Enterprise wide automation across all its plants.

This case study discusses how Varroc with help of Altizon's Datonis®, the Industrial IoT Platform, began its IoT journey and transformed its factories into Smart factories. It elaborates on how Varroc connected all its disparate machines seamlessly, created a single data tunnel to analyze the parameters in real time, and achieved 20% improvement in OEE.

- 20% increase in Overall Equipment Effectiveness

- 20% increase in Manpower Efficiency

- 5% decrease in Product Defects

- Realize ROI right after the pilot in less than 12 months

- Maintain sustainable competitive advantage

SECTOR

Automobile | Automotive Component Manufacturer

CUSTOMER PROFILE

A $1.3 bn enterprise, Varroc is a leading global passenger car lighting supplier and the market leader among two-wheeler automotive component suppliers in India. Founded in 1990, they are the emerging global force in Automotive Component manufacturing and suppliers to leading passenger car and motorcycle companies worldwide.

With 35 world-class manufacturing facilities, 11 engineering centers in 10 countries, across 3 continents, Varroc is truly a global Enterprise, embracing cutting edge technologies like IoT to make a push in to Industry 4.0.

BUSINESS REQUIREMENTS

Varroc's IoT strategy was aimed at driving following business requirements:

- Establish Real Time OEE (Overall Equipment Effectiveness)

- Conduct Downtime Analysis

- Implement Energy Monitoring at machine, cell and plant levels

- Enable Condition Based Monitoring for spindle temperatures

- Create a Single Source of Truth: Centralize data repository

THE CHALLENGE

As a part of their Industry 4.0 initiative, the customer primarily wished to leverage IoT for maximizing operational efficiencies, productivity, reducing the energy footprints and maximizing capacity utilization. But there were several challenges at the outset:

- Firstly, Varroc has multiple assembly lines with a diverse set of machines, systems, and sensors, all communicating on different protocols. As such, primarily they needed a partner who could connect diverse set of assets on to a single platform and make use of underutilized 'dark' data.

- Secondly, the amount of data, data types and their applications were so vast, that the platform handling it, needed to be scalable and flexible.

- Lastly, Varroc faced the typical challenge of innovating in 'Brownfield' markets – wherein the real bottleneck is in integrating IoT in tandem with both the new and legacy equipment without any further CAPEX for asset substitution.

SOLUTION

Altizon determined their IoT integration requirements and filled in their technology gap with Datonis®,a scalable cloud based Industrial IoT Platform by Altizon.

With OPC as the de-facto standard for connectivity, the data was pushed securely and seamlessly from the heterogeneous mix of assets and diverse OT data sources (PLC, Sensors, CNC controllers, Relays, HMIs, CSV etc.) across different locations & with disparate data loggers using different protocols to OPC Server client. Datonis® would then process this data in real-time using an OPC client (agent) which read the data stored in the format of tags in OPC server client.

Within a few weeks of deployment, machines and systems began streaming real time data to Datonis® as a centralized platform. And the output of these configured tags from OPC UA was utilized in near real time or on a scheduled manner to provide insights into Overall Equipment Effectiveness (OEE) & Condition Based Monitoring (CBM).

In addition to this existing machine data, HMI screen also enabled operators to log supplementary data (such as downtime reason codes) to further track downtime pockets, identify major causes and create an action plan to improve uptime & calculate the "mean time to resolve".

Varroc management created project charters to address top reasons for unplanned downtime or machine failures. They ran awareness and education programs for workforce to improve work habits and reduce contact time losses. They also took measures in preplanning and response time to improve on process issues.

Datonis® provided for a complete integration with modern web and mobile applications using a comprehensive set of REST APIs. This meant that the customer could inject production data into their ERP systems (case in point SAP) as well as build applications that would present this data in the most suitable manner on any device. As such minimal change management was required & there was no interference in existing work process of Operators.

Further Datonis® provides a flexible pricing model which means that the customer only pays for machines connected. This offered a lot of flexibility with no up-front investment required for the platform. Datonis® also provides an uptime SLA so the data is always processed and the system is always available.

OUTCOMES

Given Altizon is vendor agnostic, it could connect all their diverse machines seamlessly and provided an end to end solution, right from machine connectivity to data acquisition and processing with state of the art business relevant applications on top of Datonis®.

With Datonis IoT Platform, Varroc was able to transform their existing business processes. Some of the business outcomes of deploying Datonis® platform are:

- **Centralized Machine Data**

  By connecting and pushing the data from heterogeneous machines (like Honing, Press, Injection molding, Hobbing, Pick & Place, Testing machines etc.) at shop floor, Altizon provided for a centralized platform – a single source of truth for all Operational metrics of Machine Utilization, Performance, Quality, Condition Monitoring and Energy Consumption in real time.

  Machine data analysis reports are now available anywhere and at any time. And with a connected shop floor, Varroc could use different monitoring tools it needs to immediately see inefficiencies and identify bottlenecks in real time.

- **Monitoring & Maximizing Line Efficiency**

  OEE (Overall Equipment Effectiveness), OPE (Overall Process Effectiveness), Production Variance, Accurate Idle time pockets & Reasoning could now be monitored at cell, machine and/or plant levels in near real time.

  Providing Production Visibility and Machine Efficiency across assembly lines allowed decision makers to monitor progress at a plant level and drill down into specific machines whenever needed.
  1. Due to the reduction in shifts, OEE has seen a considerable improvement which has led to an almost 20% increase in Operational Efficiency and 10% reduction in direct running costs of the machine (including labor and energy)
  2. Insights into real time OEE and downtime, have also reduced the number of people employed in data entry of these metrics. The indirect manpower reduction has helped to the tune of 20% increase in Manpower Efficiency.

- **Condition Monitoring**

  Systematic processes (alerts & notifications) could be created to identify the Idle time pockets that can now never be missed. Alerts triggered as per escalation plan based on business process requirements.

  Further Condition monitoring and a tool health dashboard ensured that the tool consumption and inventory was reduced by 2% leading to a considerable working capital reduction.

- **Energy Monitoring**

  Energy meters were connected for consumption monitoring at machine, cell and plant level. It served to manage energy requirements for current operations and future scale up.

- **SAP Integration**

  Integration with their existing ERP systems like SAP led to advanced insights on Inventory Planning and Lean Manufacturing programs.

- **Quick ROI**

  Bolstering not only the bottom line, but also the top line, Varroc IoT initiative helped them achieve their predefined objectives right after the pilot project. The payback period was less than 12 months. With this success, they are now planning to horizontally deploy the solution across 30 more locations.

ABOUT ALTIZON

Altizon is the creator of the Datonis® Enterprise IT-OT Grid by enabling an Intelligent Connected Ecosystem for the Industrial Internet of Things. We enable digital transformation in enterprises by accelerating Smart Manufacturing initiatives, modernizing Asset Performance Management and pioneering new Business Models for service delivery. The Datonis® IIoT platform, accelerates IT/OT integrations by helping quickly connect diverse industrial assets and launching new applications over a hybrid infrastructure with edge computing, advanced in-stream, an application development framework and Deep Learning capabilities. A set of ready-to-go Apps, Enterprise Integrations and Data Services for Operational Intelligence, further accelerate enterprise outcomes. With a global footprint of over 100 enterprise users, Altizon is a leading Industrial IOT platform provider as recognized by Gartner and several other analyst firms like Forrester and BCG. An award-winning company, Altizon, is also an alum of the Microsoft Accelerator. For more info: www.altizon.com

CONNECT EVERYTHING
Connect Seamlessly
Collect & Transfer Data Securely
Manage Devices

PROCESS EVERYTHING
Define structure
Generate alerts & notifications
Store data securely

DEPLOY ANYWHERE
SaaS model
Cloud hosting & support
Private cloud/On-premise

OWN YOUR DATA
Create visualizations
Build applications using API'S
LOB Integration

CONTACT US

Contact us at sales@altizon.com to avail this offer.

Phone (India): +91 20 6790 3700

Phone (US): +1 833 2584966

India Office
Office No.101, 1st floor, Galore Tech Park,
Opp Shinde Petrol Pump Bavdhan Khurd, Pune
Maharashtra – 411021

USA Office
5500 Butler Lane, Scotts Valley,
CA 95066
USA

www.altizon.com