SkyFoundry

Case Study: Karbosan – SkySpark® Analytics Drives Energy Efficiency and Process Optimization in Heat-Treating Ovens

Case Study
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Project Description

The BASSG team (a SkyFoundry partner) was tasked with helping to improve performance of an energy intensive industrial heat-treating process. The approach involved acquiring and filtering oven operational data into individual cycle runtimes and then analyzing runtimes data across individual stages.

After acquiring and processing the data, a dashboard was created consisting of a suite of SkySpark views that provided operators with clear descriptions of the data. Dashboard views were created for the different industrial heat-treating recipes processed by the ovens.

Visualization of the data gave operators a breakdown of each stage in the process showing the energy consumption along with temperature and time periods.

Analytics were applied to compare the individual stages against the same stage from different runtimes enabling analysis to find which process recipe was the most efficient and which was performing the worst. The project resulted in energy savings and improvement in quality yield.

Project Summary

- Client: Karbosan
- Project Location: Velikoy/Tekirdag, Turkey
- Services Provided: Application of SkySpark Analytics for process optimization and operator dashboard for industrial heat-treating ovens
- Project Status: Completed in 2021
- Application: Industrial Heat-Treating Ovens
- Energy Resource: Natural Gas

Project Highlights

The heat-treating ovens had been using a six-stage process. Data analytics enabled a transition to four stages to achieve the same results. This was possible because analytics provided a better understanding of the process, the heating cycles and associated energy use. Product results were then compared through testing for optimization of oven performance by type.
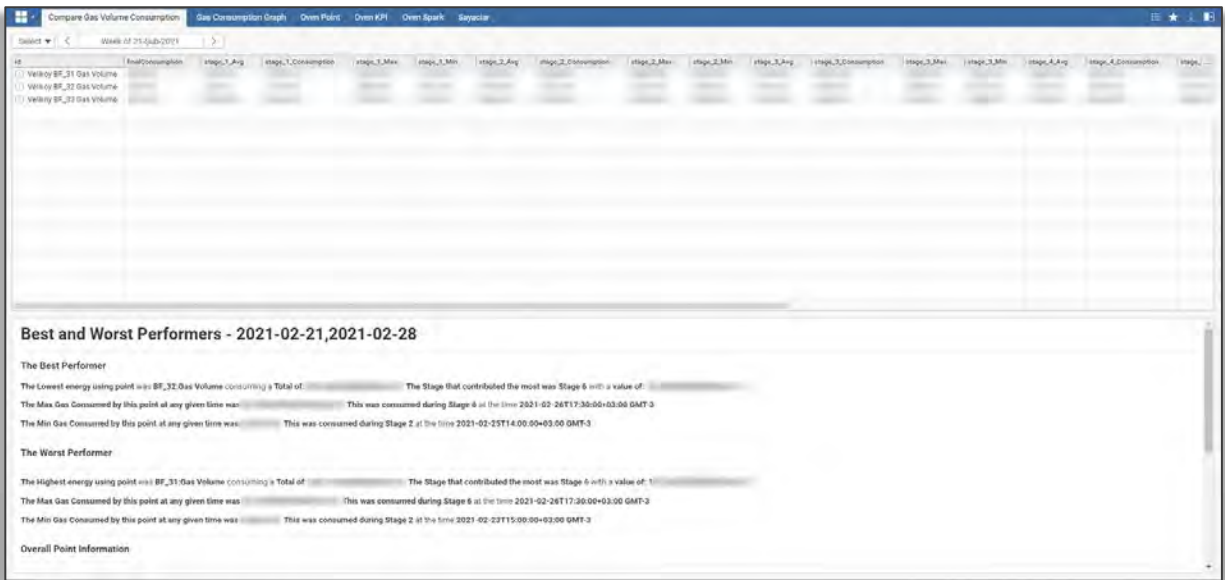
Cost Analysis: SkySpark provided the ability to calculate energy costs within 1% of actual bill invoices.

Operator Tools: Provided an operator dashboard for each oven and energy input to provide operators with real time monitoring.

Financial and Quality Impact: Resulted in approximately 10 percent reduction in energy use and 15 percent improvement in quality metrics.

Data Views and Dashboards

One of the first benefits realized by the customer was a clear presentation of best and worst performing ovens. Below: Analytics based view showcases best and worst performers among the heat treating ovens.

Above: Operator dashboard compares performance of select ovens**'s recipe stage.**

About Karbosan

Karbosan, **Turkey's first manufacturer of bonded** abrasive products, started its production activities in Istanbu**l Halkalı in 1967 with a workforce of 40 employees. Today, with a** total of 570 employees and 95.000 m2 area, **the company's Istanbul Halkalı and Tekirdağ Çerkezköy** factories provide quality, reliable and high-performance products to more than 75 countries in 6 continents.

Karbosan is the first company in Turkey to produce bonded abrasives according to the ISO 9001 Quality Management System and the first Turkish company to be a member of European Abrasive Manufacturers Federation (FEPA) and Organization for the Safety of Abrasives (OSA) with high quality production.

Karbosan takes into consideration the environmental impacts and in every step from the raw material to the delivery of the product to the customers makes its production delicate to the nature according to ISO 14001 Environmental Management system.

About BASSG

BASSG is a smart buildings solutions company founded in 2004 to help commissioning agents, control contractors, and value-added resellers with data acquisition, analytics, optimization and visualization. The company offers a full suite of tools in and out of the SkySpark ecosystem: basMaker (SkySpark graphics library), PB Plus (desktop haystack IDE), Sparko (CMMS); Air Hippo (Data Push Framework), Visualytik (Visual Analytics) and ACETM (Optimization). BASSG also founded Anka Labs for EAC.io development.

In addition, BASSG offers a full range of services including SkySpark-related coding in Axon, Fantom and HTML5 & DART language. The company provides hosting services and security consulting. Its embedded product development services include hardware and software specification and prototyping. BASSG also crafts embedded OS with Elixir and custom Linux and builds custom user interfaces using in-house developed or third party solutions.

SkySpark® - Analytics for a World of Smart Device Data

The past decade has seen dramatic advances in automation systems and smart devices. From IP connected systems using a variety of standard protocols, to support for web services and xml data schemas, it is now possible to get the data produced **by the wide range of devices found in today's** buildings and equipment systems.

Access to this data opens up new opportunities for the creation of value-added services to help businesses reduce energy consumption and cost, and to identify opportunities to enhance operations through improved control, and replacement or repair of capital equipment. Access to the data is just the first step in that journey, however. The new challenge is how to manage and derive value from the exploding amount of data available from these smart and connected devices. SkyFoundry**'s** SkySpark directly addresses this challenge.

The new frontier is to efficiently manage and analyze data to find what matters™.

About SkyFoundry

SkyFoundry's mission is to provide software solutions for the "Internet of Things". Areas of focus include:

- Building automation and facility management
- Energy management, utility data analytics
- Remote device and equipment monitoring
- Asset management

SkyFoundry's software helps customers derive value from their investments in smart systems. Learn more and request a demonstration at www.skyfoundry.com.

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