



Advancing IAQ at a Major International Airport Using SkySpark Analytics

Case Study
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The Client Need

With COVID-19 impacting travel and affecting traveler confidence, the management team at a major international airport required a data-driven solution to help facility managers quickly understand overall system performance with regard to temperature and humidity levels in order to optimize environmental conditions to minimize the spread of COVID.

The client already had an extensive deployment of CO², humidity and temperature sensors, which were periodically commissioned with their Building Management Systems (BMS) to ensure accuracy. The airport management team wanted a solution that could utilize the existing investment in sensors to meet their Indoor Air Quality (IAQ) performance tracking goals. For this reason, they did not want to invest in additional third-party sensors, as all of the current sensors were already connected to their BMS.

BASSG, a leading SkyFoundry partner, was commissioned to build an IAQ solution that would perform analytics on the sensor data and deliver an easy-to-use dashboard for operators, as well as detailed reports for management. The requirements pointed to a clear fit with SkySpark® as a solution platform.

The Solution

The first step was to get the sensor data from the Niagara®-based BMS into SkySpark. To accomplish this, BASSG installed the nHaystack driver into the Niagara BMS. With the driver installed, BASSG was able to quickly map all temperatures, humidity and CO² sensors into SkySpark. With access to all of the data, they were ready for the next steps.

Applying Analytics to the Data

The goal was to provide the airport operations staff with full situational awareness of IAQ performance, from a high-level presentation of real time data to the ability to drill down into problematic areas and optimize the overall performance of the system to mitigate COVID.

Essential analytic rules implemented were based on the Department of Homeland Security (DHS) severe acute respiratory syndrome (SARS) half-life calculation: www.dhs.gov/science-and-technology/sars-calculator

SkySpark's capability for custom programmability of rules was critical to implementing the DHS algorithms, which provide estimated surface decay rates of SARS-CoV-2 (the virus that causes COVID-19) based on numerous environmental factors as summarized in the following excerpt from the DHS website:

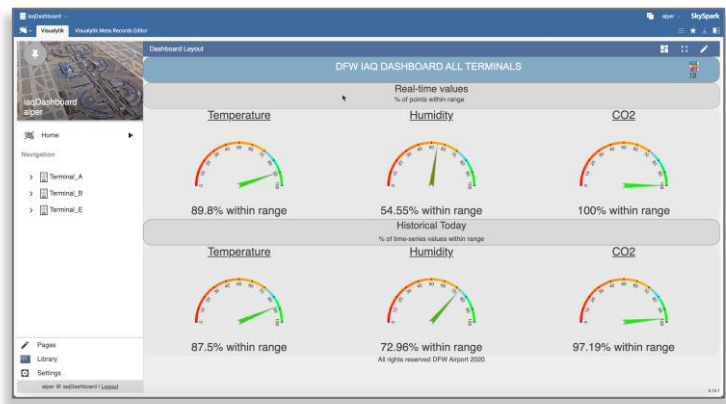
“Relative humidity, temperature, and sunlight (UV) can be used to provide an estimated half-life for SARS-CoV-2 with this model with some degree of certainty. The predictive power is limited to temperature between 74-95°F and relative humidity between 20-60% for a UV index of 0, and a temperature of 68°F and 20% relative humidity for a UV index between 1.5 and 12.”

Visualization and Reporting

With SkySpark doing the data acquisition, data storage and processing of analytic algorithms, the next step was data visualization and reporting for the operators. BASSG utilized their Visulytik add-on application for SkySpark. Visulytik uses a simplified, graphical block programming interface to define Axon queries that request and format data from SkySpark.

The user interface design included a “top layer” to present real-time data sensor data, along with drill down options to present KPIs and summaries based on historical data in alignment with the ranges that the DHS suggests for achieving the shortest half-life of the COVID virus.

Visualization and reporting utilized SkySpark's full customizable View framework to provide dashboards and detailed document-type reports.

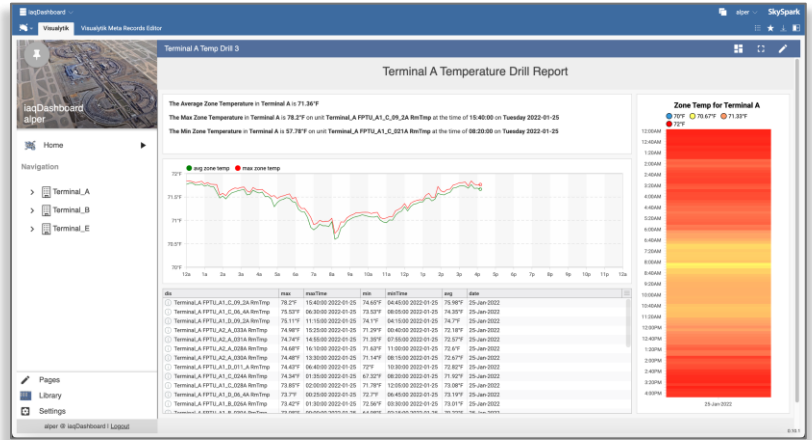


Fast Results

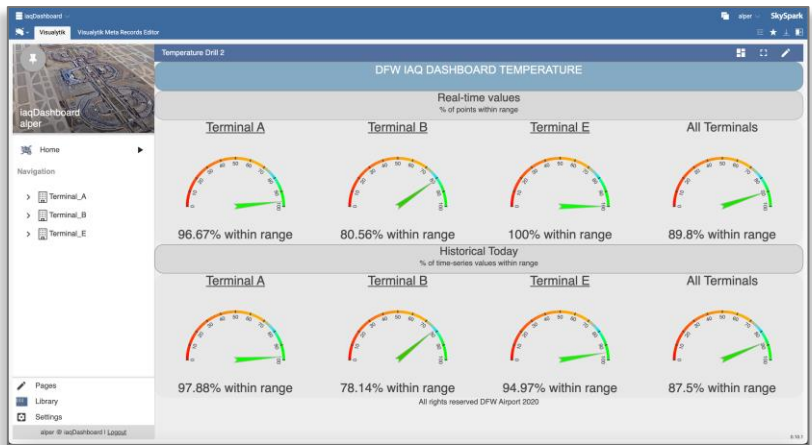
Responding to COVID-19 with effective mitigation actions was an urgent need for the airport.

The entire project was completed by BASSG in two weeks. Such a comprehensive data analytics and user interface would have taken months with other tools or vendors.

Most important, the customer has been happy from day one.



SkyFoundry wishes to thank BASSG for this timely and important case study. Find them at: <https://bassg.com/>



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.

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.



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

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