Case Study

Cleared for Takeoff

Ignition Gets Deicing Management System Off the Ground

With billions of people flying to their destinations every year, safety is a major priority for airlines. When winter begins and snow falls in many regions, certain precautions become essential, such as removing ice from the airplanes' exteriors through a process called deicing. While it may not be at the top of the average airline passenger's mind, there is an entire industry working hard to ensure that planes are safely deiced before takeoff.

Keeping constant contact with deicing trucks, their operators, and the fluids they use are keys to a productive deicing operation. Like companies in many industries, deicing companies use new technologies to improve their overall operations, effectiveness and efficiency, and to lessen their environmental impact. One innovative company that specializes in deicing, Global Ground Support, looked to Ignition by Inductive Automation® for the tools to achieve these goals.

Envisioning A Better System

Global Ground Support is a manufacturer of airline and airport ground-support equipment based in Olathe, Kansas. Its primary product line is aircraft deicers, which are truck-mounted, crane-lifted, open or enclosed "baskets" from which operators spray streams of heated deicing fluid onto the aircraft. Global Ground Support makes a variety of deicers to service planes of different sizes and to withstand severe weather conditions. About 1,700 of the company's deicers are operating in 33 countries, and it is the sole supplier to the United States Navy and the United States Air Force.

Global Ground Support often uses new and innovative technologies to improve its operations. One challenge it faced in improving its operations was the lack of any means for tracking its trucks or measuring how efficiently each operator was using their deicing fluids. "When you're running that kind of operation, it is very difficult to keep a handle on everything at the same time," said Jeffrey Walsh, executive vice president of worldwide sales, service and marketing for Global Ground Support.

The company struggled to find a software solution that could fit its needs that was also cost-effective, web-based, and could collect data in a way that seamlessly fit their operations. Walsh had developed a web-based program 15 years earlier that allowed him to input the status of all the vehicles, put in the operators and drivers, and display the status of the operation. However, this system was very time-consuming and reliant on manual input.

One of Global Ground Support's deicing trucks preparing an aircraft before takeoff.

What Global Ground Support needed now was a way to synchronize and automate most of its process to better collect data and keep the operation running smoothly. The company also needed the ability to view the data remotely; it was all limited to the terminals in the trucks. Walsh knew that achieving what he wanted for his system would require some help from an outside source.

Taking On Database & Development Challenges

R Systems, a multi-discipline integrator in the Kansas City area, was brought in to work on the on-board equipment and Cloud-based SCADA that would be needed for Global Ground Support's vehicle telemetry system. Global Ground Support and R Systems had worked together previously, so when Erlan Rice, project manager for R Systems, got the call to work on this project, he had little to no hesitation about accepting it.

"When we first met with R Systems, we were very straightforward that we didn't know if this project would be completed because of the challenges on the database side," said Walsh. "Erlan Rice was very aware of these issues and said, 'Jeff, you need to look at Inductive Automation.'"

Rice said, "After understanding the needs for this particular project, we felt that Ignition was tailor-made for this. It's a very open system, and we like the development and operation environment. We thought it was well-suited for this type of web-based system." After R Systems presented concepts for completing the project and Walsh viewed a case study on Inductive Automation's website, he became convinced that Ignition was the right solution.

"There were capabilities of Ignition that would allow me to build a project that was better than what I was hoping for"

– Jeffrey Walsh
Executive Vice President, Worldwide Sales, Service & Marketing at Global Ground Support

Because of the uniqueness of the telemetry system he needed, Walsh decided to not only use Ignition but to recruit Inductive Automation's own Design Services to work alongside R Systems in creating the system. The Design Services team helps customers with custom HMI / SCADA design using Ignition, integration with databases and PLCs, and overall software system design consultation, as requested.

The key reasons why Global Ground Support decided to use Ignition to create the system was the low cost of development, its web-based deployment, and the way it handles databases. Web-based deployment makes Ignition fast to download, install, and to launch to any computer or device with a web browser. Ignition allows unlimited database connections to any type of data-base, and enables users to develop database applications.

Going Above & Beyond Expectations

Through the team effort between Global Ground Support, R Systems, and Inductive Automation's Design Services, the telemetry system was completed, and was named MIDAS (Management, Information, Database and Accounting System). Based on Ignition, the MIDAS system allows Internet-connected devices with the proper authorization to view the live data off of any deicing truck.

MIDAS helps Global Ground Support keep its costs down while increasing the accountability and effectiveness of its workers. The system works automatically and seamlessly, which ensures that the truck drivers can do their jobs without any slowdown or difficulty caused by learning a new procedure. With MIDAS in place, the company can now keep drivers accountable for the amount of time it takes them to deice a plane and the amount of fluid they use per plane. These measurements not only save the company money on their operations but also help them leave a smaller carbon footprint by minimizing the amount of fluids they use.

Using Ignition as a framework, Walsh and Global Ground Support were able to create a unique system that helps them stand out in their industry.

"When I started talking with Inductive Automation, I very quickly learned that not only were we going to be able to meet the basic requirements of the system that I was hoping to develop, we were going to be able to exceed that. There were capabilities of Ignition that would allow me to build a product that was better than I was hoping for," says Walsh.

R Systems is an industrial controls systems integrator with locations in Kansas and South Dakota. The company serves a diverse range of industries, including water/waste water, meat processors, OEMs, hospitals, and others. Its services include automating production processes, designing and developing control systems, implementing local area networks, solving hardware and software problems, and providing on-site trouble-shooting and system start-up assistance.
www.rsystems.org