Case study

Freelance DCS

A mine of benefits for Wake Stone

How does a systems integration company with no experience in mining and DCS successfully commission, test and start-up a plant in a short period of eight weeks? Easy, they use Freelance.

In 2011, Carolina Automation Systems (CAS) attended the ABB Automation and Power World conference in Orlando and learned about Freelance, the distributed process control system. So impressed were CAS with the Freelance demo and its ease of use that they recommended their customer, Wake Stone Corporation, who were on the lookout for a modern yet compact DCS solution; to consider Freelance. Together they attended the APW conference again in 2012 and learned more about Freelance and were confident that it would help them achieve their objective of process optimization. Wake Stone awarded the upgrade project to CAS with kick-off in June 2012. Using Freelance, CAS had a fully engineered system up and ready for implementation for Wake Stone Corporation by August 1st, 2012.

Benefits

- Reduced installation and operating cost
  - Software applications reduced from 21 to four, providing an 80% reduction in software applications
  - Load time from 20 hours to 20 minutes. Man hours required to load the software reduced by 80%.
- Increased process reliability
- Reduced engineering cost
  - Older SCADA system used approximately 28 tags, Freelance provided the same functionality in 5 tags. Reducing the number of tags by 82%
- Improved process control
- Reduced maintenance and troubleshooting cost
- Improved diagnostics
- Enhanced operational productivity

Power and productivity
for a better world™

“This project had a lot of difficulties and challenges, but none were related to our integrator or the Freelance system. This ABB product has provided the ability to create, manage and troubleshoot a complicated automated plant system. During the process, I’ve even learned the system enough as an end user to modify many parameters, change SFC’s and graphics without the need of an integrator. Our company has been very satisfied by the ease of use and rigidity of the Freelance system as our plant has been running automatically for over a year now.”

Jared K. Miedema, PE
Senior Mine Engineer
Wake Stone Corporation

Wake Stone Corporation

Wake Stone Corporation, a recipient of numerous awards in strengthening public education and environmental causes, was founded in 1970. With quarries in east-central and eastern North Carolina, as well as South Carolina, Wake Stone has steadily grown to be the fourth largest crushed stone producer in North Carolina and one of the top 50 in the United States. These quarries are engaged in production and sales of crushed stone, aggregates, gravel, rocks and minerals that are used in construction, road, and agriculture. Crushed stone manufacturing is a very meticulous process based on stone specifications, capacity and use of final products. The process comprises of drilling and blasting holes in rocks. Broken rocks are hauled on trucks and transported to a series of crushing machines, where the stones are re-crushed, screened into different sizes and piled according to customer requirements.

Carolina Automation Systems

Carolina Automation Systems (CAS), an automation integration company located in Garner, NC near Raleigh executed this project. Formerly known as Pharma Serv LLC, CAS has 25 years of experience in automation, instrumentation and control industry.

As this was the first mining project for CAS, they required a user friendly system with a complete software package that integrated graphics, trends, alarms, reports and other communication protocols. A system, where all configured tags were managed in a single database and, it could be tested offline too.

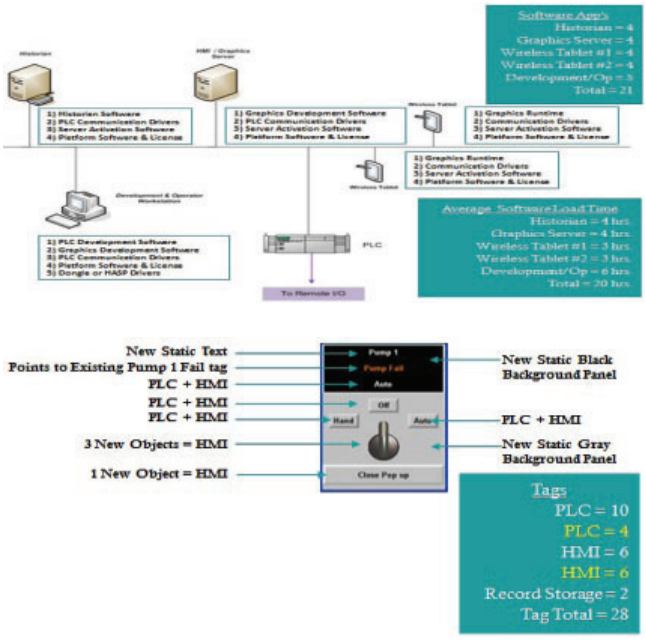
Challenges

The challenges in this project were plenty as both Wake Stone Corporation and CAS had no previous DCS experience. The engineers were required to develop both control and I/O loop drawings, construct control enclosures and write control sequences. There were minimal process flow diagrams and no existing software design specification.

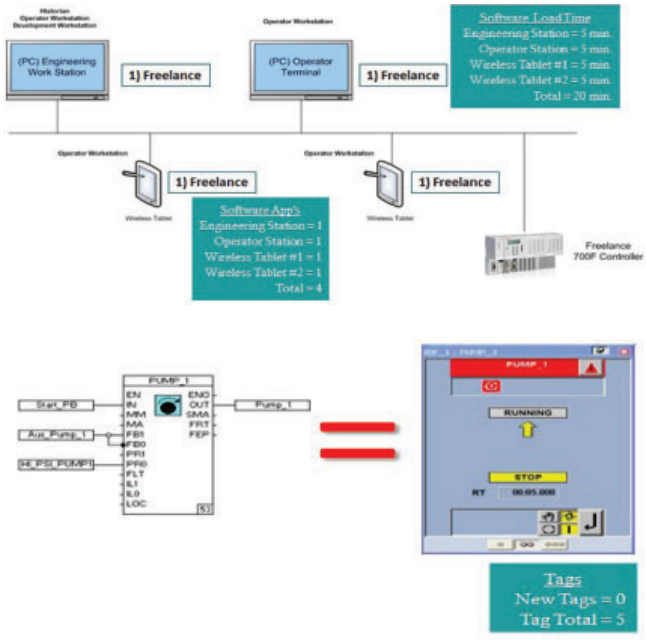
The existing SCADA/PLC system involved too many software applications with an average software load time of almost 20 hours. The customer was looking for a faster solution. Also the tight schedule of eight weeks made commissioning a challenge

Comparisons between existing PLC\SCADA and Freelance systems

PLC\SCADA



Freelance DCS



“Because we had zero mining and zero DCS experience we knew the automation solution we choose had to be extremely user friendly and easy to use. The Freelance system as it turns out was just that. From its built in Alarm Bar to its Auto Generated SFC Operator View page, not to mention its built in trending and historical record keeping, Freelance was the key to our customers satisfaction and overall project success.”

Kevin Fleming
President
Carolina Automation Systems

Solution

ABB’s Freelance matched the project requirements perfectly, providing maximum automation with minimum engineering. A single easy to use engineering tool was used to commission and configure automation functions, the operator interface with displays and logs, and fieldbus parameters. This reduced the engineering time significantly. The predefined faceplates helped reduce tag numbers in the system. The system also included a single tag database facilitating easy archiving/ backup, ready-made faceplates, improved redundancy, easy diagnostics and extended troubleshooting capabilities.

Using Freelance CAS was able to engineer, commission, test and have the plant online in just eight weeks. With Freelance, Wake Stone Corporation now have a powerful automation system that is not only cost-effective in terms of hardware and software, but is also very easy to use.

Scope of supply

- The Freelance DCS comprised of the following:
- 1 AC 700F Controller with PM 783F CPU
- 4 S700 I/O Modules
- 3 CB220 Compact boxes for S900 remote I/Os
- 3 Operator stations

Contact us

www.abb.com/controlsystems
www.abb.com/freelance

3BSE076856

Note:

We reserve the right to make technical changes to the products or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not assume any responsibility for any errors or incomplete information in this document.

Power and productivity
for a better world™