



CLIENT



CUSTOMER OVERVIEW

Clark Construction Group, LLC, is one of the most experienced and respected providers of construction services in the United States. For over a century, Clark, which is American owned and operated, has been transforming the ideas and visions of their clients into award-winning projects. The company is consistently ranked among the country's largest building and civil construction companies with annual revenue in excess of \$4 billion, and regional offices from coast to coast.

THE PROBLEM

Clark Construction leads hundreds of active projects at any given time and *undetectable water leaks during construction resulting from environmental conditions and system failures* were causing millions of dollars in damage. To manage this problem, Clark needed visual insight into water delivery and consumption during construction.

THE BRIEFING

A lead engineer at Clark identified a potential solution, which involved installing and connecting a flowmeter, pressure sensor, and control valve in the domestic water main, to an IoT platform. This engineer engaged Losant to help with the implementation. Team members were able to quickly and easily set up a test at a Clark job site by installing the valve and sensors in the water main and connecting it to the Losant IoT platform. This gave Clark *a visual tool to monitor water flow and control the water main of a construction site.* Clark was able to see current water pressure, water flow and water main on/off status. In addition to receiving fulltime, real-time visibility, Clark also had the capability to turn the water main on or off from a smart device. The company is now outfitting many of their job sites with the same solution.

THE RESULTS

The data visible on Losant's IoT dashboards will prevent Clark from spending millions of dollars in damages and lost time.

THE NEXT OBJECTIVE

Clark Construction sites can benefit from implementing IoT technology in many areas. The next possible wave of Losant solutions will focus on *employee safety, asset tracking, and higher levels of monitoring.*



LOSANT ENTERPRISE IOT PLATFORM TEAM: WHAT WE BELIEVE

Losant is a progressive product team composed of software engineers, solutions engineers, and automation specialists. Together, we produce superior technology for enterprise IoT solutions. We believe in continuous improvement and work toward our vision of an ever-connected world. As we adapt to our changing environment and add features to our IoT cloud platform, we consider usability, flexibility, reliability, and security to promote ease of use for our customers.









Clark Construction needed to find a way

to mitigate water damage on its job sites.

Using Losant, they were able to identify potential issues before they arose, resulting in potentially millions of dollars and hundreds

INDUSTRY

THE SOLUTION

CONSTRUCTION

of man hours in savings.

CLIENT

"After testing many other products and not having much luck, I was very optimistic when I tried Losant. With no programming background I was still able to get our first job site connected and able to monitor the water main remotely. A big problem has been solved thanks to Losant."

BOB GELETY LEAD ENGINEER



LOSANT PROVIDES THE TOOLS YOU NEED TO SUCCEED

The Losant Enterprise IoT Platform is an application enablement platform which allows enterprises to effectively build applications and create solutions that securely scale to millions of devices. All of Losant's components, from Edge Compute to End-User Experiences, work seamlessly together to transform real-time data from connected and non-connected devices into tailored IoT solutions.









CUSTOMER OVERVIEW

The University of California, San Francisco (UCSF) has professional schools in dentistry, medicine, nursing and pharmacy. UCSF leads the nation in biomedical research and received more funding from the National Institute of Health in 2017 than any other public university.

THE PROBLEM

Dr. David Agard of the University of California, San Francisco (UCSF) needed to identify a solution to help monitor conditions in the university's electron microscopy lab, which contains two Krios cryo-electron microscopes. Cryo-EM or cryo-electron microscopy allows users to see large biological structures down to the atomic level. Each microscope of this caliber is built to order, requires liquid nitrogen tanks, off-site UPS systems, and a temperature and vibration-controlled facility to operate effectively.

THE BRIEFING

Prior to integrating technology, the university lab staff manually checked temperatures, UPS alarms and switched liquid nitrogen tanks when they were running low. Dr. Agard wanted a fully automated maintenance process and a system that would alert the staff when problems occurred or tanks were low.

Dr. Agard connected Particle sensors to a few different IoT platforms but Losant's capabilities won him over due to the ability to customize dashboards and trigger text and email alerts.

Using the Losant Enterprise IoT Platform, Agard successfully configured a condition-based maintenance solution to monitor and protect the valuable equipment in the lab.

THE RESULTS

Today, instead of executing a time-based maintenance solution —which would require staff to change tanks every few days instead of when they were low- the technology constantly checks the condition of the equipment, switches between tanks on site and alerts the staff when nitrogen is too low. In addition to creating an automated process for nitrogen tank switching and replacement to assist the lab's full-time staff, Agard also created email and text alerts to notify him when the UPS systems have faults or when the facility's temperature moves into levels not ideal for equipment and samples.

THE NEXT OBJECTIVE

Dr. Agard has installed tablets in the lab to display conditional information for all users to see. He would like to monitor all other laboratory assets using IoT.



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THE SOLUTION

A biochemistry professor on the campus of University of California, San Francisco, needed to create an automated solution for monitoring conditions in the university's Cryonics lab. The lab is home to two high-value Krios cryo-electron microscopes which require liquid nitrogen tanks, off-site UPS systems and a temperature and vibration-controlled facility. Using the Losant Enterprise IoT Platform and Particle equipment, Dr. Agard built a solution to monitor assets and alert staff if conditions require attention. Being able to monitor things is ideal. The microscopes are about \$5 million each and they depend very much on the environment for things to function properly. It [Losant] allows the managers of the lab to check very easily that all is well.

DR. DAVID AGARD PROF. OF BIOCHEMISTRY & BIOPHYSICS, UCSF



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THE PROBLEM

The opportunity pursued by our customer, a global industrial OEM, was a monitoring solution that would enable a proactive service model vs. the reactive service model industry norm. The proactive service model supports response to problems before an equipment failure, rather than after costly downtime is incurred. Delivery of detailed monitoring data simultaneously to the end user, service technicians, and customer operations management is a key advantage.

This strategic IoT use case highlights the numerous benefits possible when IoT is made integral, in this case, to the industrial equipment product by actually being built-in at the manufacturing stage.

THE BRIEFING

The customer made initial IoT progress with their internal IT staff, yet in further defining their needs, determined internal resources, alone, would be inadequate.

The Losant Enterprise IoT Platform and the sophisticated Losant Edge Agent were ideally positioned to meet critical needs stated by

the customer: individualized "views" of the data, simultaneously delivered via a single application to three distinct customer/receiver areas:

- End Users: Providing a timely and detailed monitoring dashboard
- Service Technicians: A Service portal, detailing operating conditions for internal and external service personnel
- · Operations Management: Identifying trends, areas of need or opportunities

With Losant's application platform and involvement, the IoT equipment monitoring solution the customer completed delivers fully on their original objectives and criteria. Data is collected from dozens of embedded sensors and uniquely visualized for each of the three customers/receivers. Losant provides ability to build multi-tenancy applications — a key differentiator — ensured access to unique views of the data tailored to the business needs of each receiver category. When needed, variable configurations of the data to individual audiences within each category can be implemented.

In addition, the Losant Edge Agent enables new device enrollment at the user level, and continuously reports on equipment condition, utilizing three status levels updated in 5 to 25-minute intervals depending on the mission-critical level of the equipment:

- Status Good
- Warning
- Critical Warning

Visualized data, metrics and trends at the individual unit or facility level are shared via a single application as separate user experiences based on individual needs across equipment users, service technicians, and operations management. Transparency of the data reduces response time by eliminating discrepancies, questions, and cumbersome reporting and service scheduling steps.



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THE RESULTS

Industrial equipment embedded with IoT technology, this case indicates, can successfully deliver customer benefits in operating efficiency, reliability, reduction of downtime, as well as beyond the core operational value of the equipment itself:

OEM

- The OEM can deploy IoT strategically to benefit their customers.
- A more sophisticated, technologically advanced product is built and sold.
- Integrated IoT capability can enhance the product portfolio, distinguish the OEM, and advance the industry.
- The value of the equipment, the OEM and the customer/supplier relationship are extended and enhanced.

CUSTOMER

- Monitoring from several distinct user perspectives is enabled.
- Cost saving are realized from reduced response time and the improved monitoring and maintenance efficiency of a proactive approach.
- Access to current data and insights helps customers make informed and timely business decisions.

Through these delivered benefits and the value they represent, the OEM is able to differentiate from competitors, lead progress in their industry, grow and add customer relationships and pursue new revenue opportunities.

THE NEXT OBJECTIVE

As this customer case demonstrates, benefits of product integrated IoT are real. It's why interest in IoT Connected Machine opportunity has steadily grown as use case concepts are proposed and proven, and as applications are pursued and achieved. Industrial equipment functioning with IoT at its core has been projected to grow and expand both geographically and across multiple industry categories. Losant is committed to helping lead the progress by delivering the benefits of IoT to equipment manufacturers, as well as through manufacturers, externally, to their customers via embedded IoT products. We believe this is where the most powerful new IoT insights and advantages will be realized as new service and revenue generating opportunities are identified and developed.



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SOLUTION

INDUSTRIAL EQUIPMENT MONITORING

PROJECT OVERVIEW

Industrial equipment — from pumps, engines, compressors and inverters to generators, CNC stations, presses, multicomponent systems, and more — require timely attention, maintenance, and repair. Equipment performance monitoring has long been a priority. Temperature, pressure, vibration, load capacity, and much more are continuously monitored and updated. IoT technology has been shown to offer significant advantages in many cases, as it has in this one.



LOSANT PROVIDES THE TOOLS YOU NEED TO SUCCEED



LOSANT CASE STUDIES: HONORING CUSTOMER RELATIONSHIPS FIRST

Stories of how Losant's IoT expertise has served customers are plentiful and rich with insight. However we never forget that certain details of the work are not ours to share. Customers seek our assistance often as part of a confidential strategic initiative. We honor this confidence. Such cases, including this one, focus on key insights, applications and benefits we believe are widely achievable. Customer identity and specific details of the case remain anonymous and unstated.

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