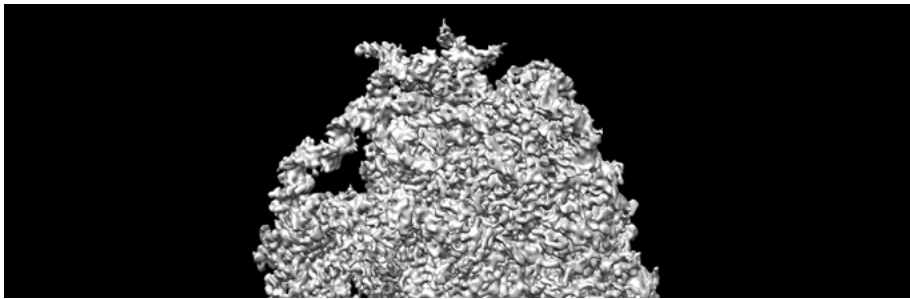


**CLIENT**


***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 allows the managers of the lab to check very easily that all is well.***

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

**INDUSTRY**
**RESEARCH**
**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.


**ABOUT LOSANT**

Losant is an Enterprise Internet of Things Platform that enables building real-time connected solutions.

- Accelerate the creation of connected IoT solutions
- Enhance the customer experience with real-time data
- Provide enterprises with a secure and scalable foundation
- Integrate new and existing network and hardware systems
- Customize options to fit the needs of any business

**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 has 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 IoT Enterprise 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 technology.

**HELLO@LOSANT.COM**

