Client Reference

The IIoT Connected Retail Store

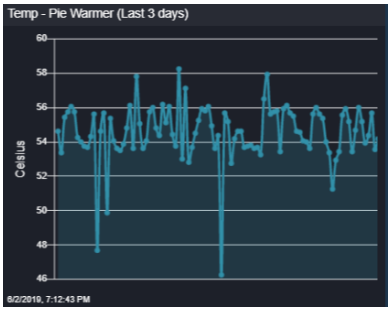
Client Background

The client is one of the major national suppliers of fuel and convenience products operating an extensive network of retail and commercial sites in South Africa. The client experienced multiple downtime events on their freezers, pie warmer and Deli fridges.

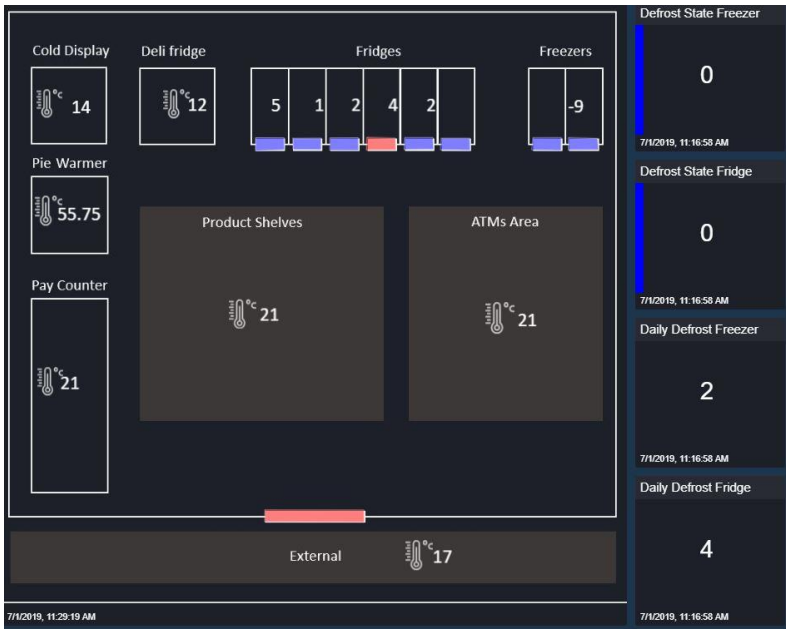
Pragma initiated a project at one of the client's retail sites to use Industrial Internet of Things (IIoT) technologies to monitor the performance and availability of some of their refrigeration and heating assets and to digitally represent their status and performance in the cloud. This would provide an effective way to notify the client in real-time when assets perform outside of their specified operating ranges and enable the client to react timeously to prevent any product losses and customer dissatisfaction.

Key Challenges

- Identifying suitable sensors and devices that are cost-effective and practical for use in a retail environment, yet provide sufficiently accurate data.
- Installing wireless devices that are secure and hidden from plain sight to prevent tampering with/theft of the devices.
- Reliably providing power to a device using an existing power source from the client's operating environment as staff members often removed its power adaptor.
- Insufficient low power IoT network coverage.



> ***With the real time monitoring the client is now able to detect asset behaviour that has previously been unknown. This opens up a new window to manage and control assets based on real time monitoring.***



Value Add

- Live view of asset performance and availability.
- Trend analytics that provides insight into an asset's performance and operational behaviour.
- Real-time view of the configuration of two of the compressors' defrost cycle. This helped the client to determine that the defrost cycle on one of the compressors were too regular.

Pragma Intervention

- Designed, developed and implemented an IIoT solution that is responsible for acquiring, filtering, decoding and aggregating data.
- Developed real-time dashboards for displaying live data received from sensors that includes temperature, fridge and freezer door status and daily count of compressor defrost cycles.
- Integration into a Pragma's On Key Enterprise Asset Management Software for automating work management and storing of aggregated data.
- Supervision and advise during the installation of all devices to ensure quality conformance.
- Helped to maintain installed devices in order to develop an effective maintenance plan for smart technology.

Tools and Technology

- Wireless temperature sensors
- Wireless door contact sensors
- I/O device for monitoring the state of a compressor's defrost cycle and digital temperature probes
- LoRa Network Server (LNS)
- On Key Connect
- On Key 5 EAMS
- Azure SQL database, serverless functions