Software System for Monitoring and Control at Solenoid Test Facility

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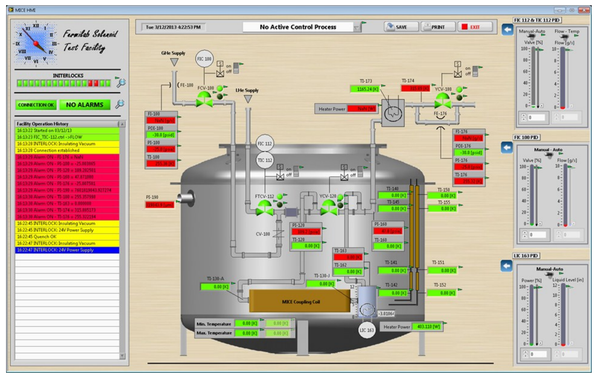
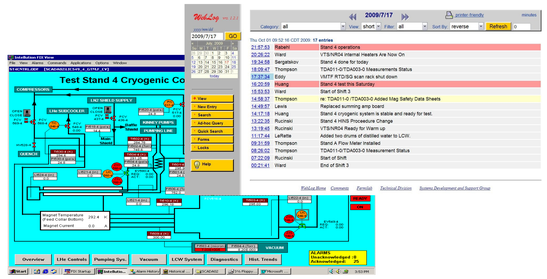
Human Machine Interface



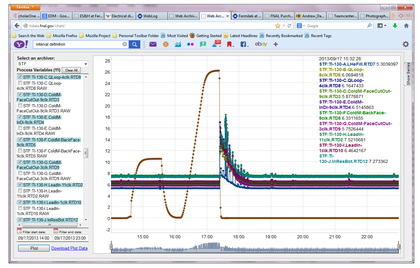
This is the focal UI for systems operation and control. It presents an overview of the system and allows the operator to start automated processes, control valves, and tune and adjust the PID controllers.

Integration with Other Systems



The system interfaces with the IFIX control system for paging, interlocks and alarms. It also makes automatic entries in the electronic logbook.

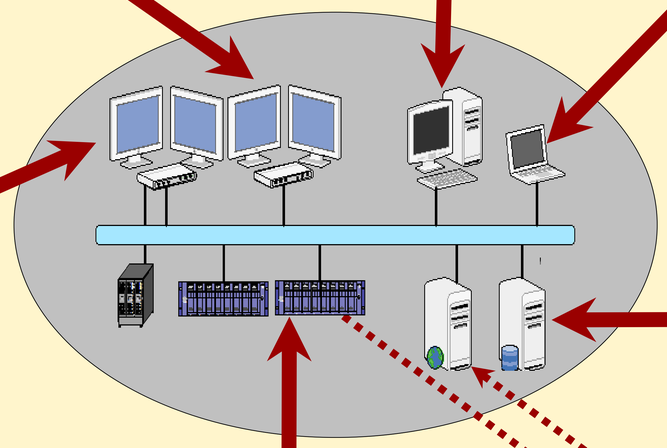
Web Data Access



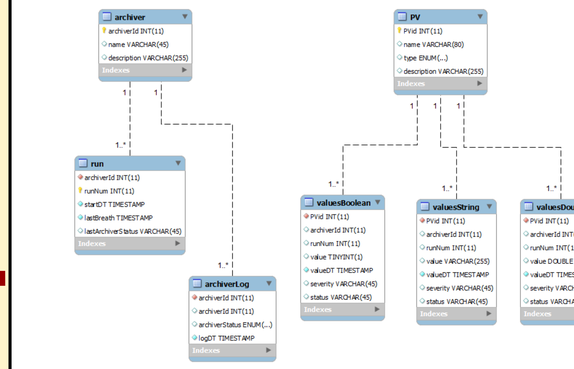
The web application allows for viewing of historical trends and downloading of selected data. It accesses the archived data via a SOAP Web service.

User Interface Programs

User Interface includes programs for real-time plotting, numerical display and scan control. The plotter and numerical display programs access data through the EPICS CA and can save and restore custom configurations.

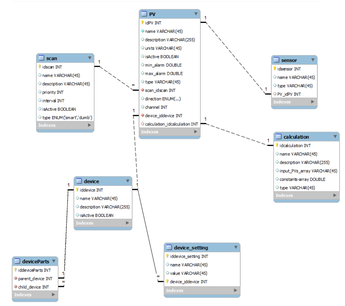


Archive Database Schema



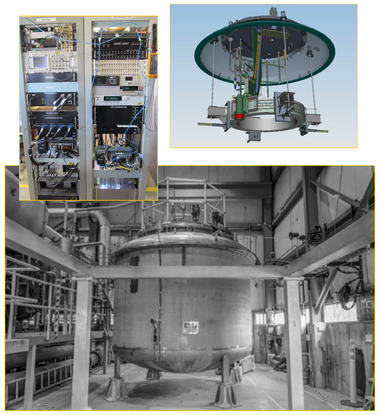
The archive database contains Process Variable data stored as time based information and grouped under runs. A run is defined as a continuous data saving activity of a specific data archiver.

Configuration



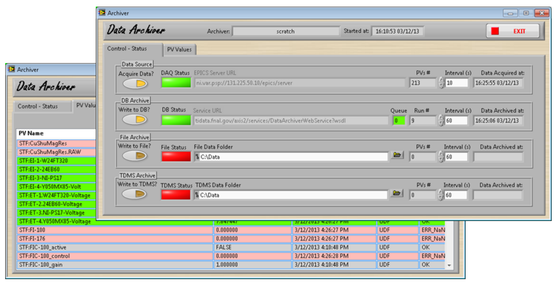
The DAQ and control subsystem is highly configurable. The data model is based on the Process Variable (PV). Each PV is attached to a single device and calculation, and can belong to many different scans.

Hardware



The Solenoid Test Facility is used to test large aperture superconducting solenoid magnets. Its DAQ hardware is based on COTS, such as National Instruments cRIO crates running the VxWorks RTOS and LXI instruments.

Data Archiver



The data archiver program submits data obtained from an EPICS CA to a SOAP Web service for saving. Data can also be concurrently written to a local file system in CVS and/or TDMS format.