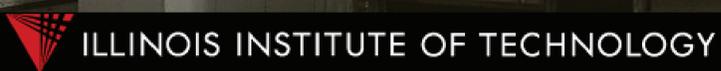


IPRO 303

Information Design for Plant Management to Predict Equipment Failure



User Interface Design



Key Functions

- **Error logs** Allows an operator to share his reasoning or comments about an error
- **Alert List filter option** Filters the Error Log List by setting maximum and minimum priority levels viewed
- **Alert List sorting option** Sorts the Error Log List by time, priority level, tagname, area, etc.
- **White-listing** An error is white-listed if it has been determined that the error is a false error; a false error is an error that is either deemed not relevant or incorrect.
- **Log in/out** This is used to help the system allow privileges as well as keep track of who did what on the system.
- **General information screen** This displays varied information about the entire plant operation. For example, the screen could contain the coal usage by the power plant over a given period of time.

Key Attributes

- Minimizes errors
- Helps eliminate steep learning curve
- Dynamic software structure
- Appropriate Fault Analysis System
- Meets the needs of SmartSignal® and end-users
- Visual representations to illustrate User Interface
- Extendable to systems/facilities beyond power plants

PRI	DATE/TIME	ASSET	TAGNAME	DESCRIPTION	STATE	AREA	OPERATOR
2	4/14 12:20	CONDENSER	CDWF-13-B19	INLET FLOW RATE	ABNRML	SECTOR 6	SAMAD
3	4/14 12:19	COAL FEEDER	RTNTD-DP	D FEEDER RUNNING AND TRIPPED	FAILED	SECTOR 7	RACHEL
4	4/14 12:10	STEAM	CARD21-W11	B AIR HEATER GAS OUT TEMP	HIGH	SECTOR 7	NIRAV

White-List Screen Personal
This screen shows the white-listed errors at the personal user level. From this screen the users cannot delete the errors.

PRI	DATE/TIME	ASSET	TAGNAME	DESCRIPTION	STATE	AREA	OPERATOR	INSTANCES
2	4/14 12:20	CONDENSER	CDWF-13-B19	INLET FLOW RATE	ABNRML	SECTOR 6	SAMAD	3
3	4/14 12:19	COAL FEEDER	RTNTD-DP	D FEEDER RUNNING AND TRIPPED	FAILED	SECTOR 7	RACHEL	6
4	4/14 12:10	STEAM	CARD21-W11	B AIR HEATER GAS OUT TEMP	HIGH	SECTOR 7	NIRAV	1

White-List Screen Plant-Wide
This screen shows the white-listed errors at the plant-wide level. A column showing the number of instances a particular error has been whitelisted is on the far right. If an error has been whitelisted sufficient number of times, users can delete the error so that it does not show up again.

RTNTD-DP
FEEDER RUNNING AND TRIPPED - FAILED

Reason: []

Comments: []

Submit

Add Error Log

PRI	DATE/TIME	ASSET	TAGNAME	DESCRIPTION	STATE	AREA	OPERATOR
2	4/14 12:20	CONDENSER	CDWF-13-B19	INLET FLOW RATE	ABNRML	SECTOR 6	SAMAD
3	4/14 12:19	COAL FEEDER	RTNTD-DP	D FEEDER RUNNING AND TRIPPED	FAILED	SECTOR 7	RACHEL

View Error Log List

PRI	DATE/TIME	ASSET	TAGNAME	DESCRIPTION	STATE	AREA	OPERATOR
5	4/14 11:30	COMPRESSOR	ARCADA-M1	AIR/OIL PUMP PRESSURE	HIGH	SECTOR 7	NIRAV
5	4/14 11:28	COAL FEEDER	RTNTD-DP	D FEEDER RUNNING AND TRIPPED	FAILED	SECTOR 7	RACHEL
4	4/14 11:22	TURBINE	CARD21-W11	EN FW HEATER LEVEL	ABNRML	SECTOR 7	SAMAD

Alert List Screen Sorted by Priority

Back/Forward Button

Log In/Out Option

Filters Error List by Priority

ERROR LIST | WHITE-LIST LOG | GENERAL INFO | Nirav Hazariwala | Submit

DELETE | WHITE-LIST | ADD ERROR LOG | VIEW ERROR LOG | FILTER: MIN 1 MAX 5 | OK | Refresh

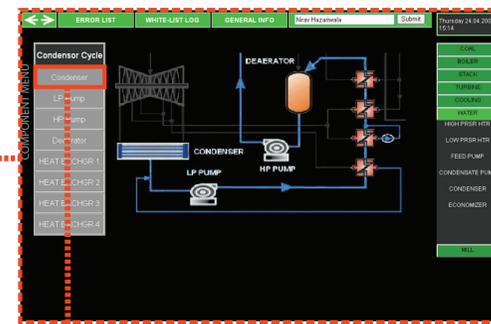
PRI	DATE/TIME	ASSET	TAGNAME	DESCRIPTION	STATE	AREA	OPERATOR
2	4/14 12:20	CONDENSER	CDWF-13-B19	INLET FLOW RATE	ABNRML	SECTOR 6	SAMAD
3	4/14 12:19	COAL FEEDER	RTNTD-DP	D FEEDER RUNNING AND TRIPPED	FAILED	SECTOR 7	RACHEL
4	4/14 12:10	STEAM	CARD21-W11	B AIR HEATER GAS OUT TEMP	HIGH	SECTOR 7	NIRAV

COAL
BOILER
STACK
TURBINE
COOLING
WATER
HIGH PRSR HTR
LOW PRSR HTR
FEED PUMP
CONDENSATE PUMP
CONDENSER
ECONOMIZER
MILL

Main Alert List Screen Sorted by Time



General Information Page
This screen shows general information about how the whole plant is operation. On each gage, the minimum and maximum acceptable values are shown.



Component Screen
This screen shows the several assets in a component system, in this case a condenser cycle. When the cursor is placed on the particular asset on the menu (L), the same asset is highlighted on the diagram.



Asset Information Screen
This screen is shows the historical data, graphs, general information, and a graphic of a particular asset. From here the user can access the control window to test changes in parameter values

Output Control - Microsoft Internet Explorer

Temperature: 98 → []

Pressure: 115 → []

Flow rate: 20 → []

Standard Value: 100 → []

OK

Output Control Window