Ecava IGX Takes Care of Power Distribution for MHB

How It Started

Malaysia Marine and Heavy Engineering Holdings Berhad (MHB), or formerly known as MMHE, is a leading offshore and marine services provider in Malaysia, focused primarily on the oil and gas sector. Operations across the MHB yards located in Pasir Gudang (Johor, Malaysia) are supported and supplied by the power distribution. These extremely high voltage powers are monitored and controlled by the professional team in a power facility room located in the administration building of MHB. There are rows and rows of panels comprising with numbers of power meters in the control room area, in which the operators are required to walk to each of them in order to monitor the entire power distribution. Imagine if there is an emergency situation, it is very important for the operator to be notified at the earliest moment to control any unwanted loss, but it could be difficult to achieve by their manual monitoring work routine. Therefore, MHB has chosen Ecava IGX SCADA to build an accurate and automated monitoring system to guard the power plant operation.

One of the many rows of power meter panels in MHB power facility room

Operator had to monitor each panel manually everytime during the job routine schedule. Power Distribution Network by Ecava IGX provided the solution to monitor the system in the efficient way.

Power Distribution Network (PDN) System by Ecava IGX

In this project, Ecava IGX is required to monitor the power meter readings accurately. The Power Distribution Network (PDN) system is designed to achieve this by having the best connection architecture in order to yield the efficiency. All the digital power meters will be transmitting serial data via Modbus RTU protocol to MOXA MGate serial converter. These serial data will be converted to digital data by MOXA MGate, then send to Ecava IGX SCADA server via Modbus TCP/IP protocol. PDN system will process these data to present them on mimic screens to ease operators' routine work, as well as record them as real-time / historical trends and reports.

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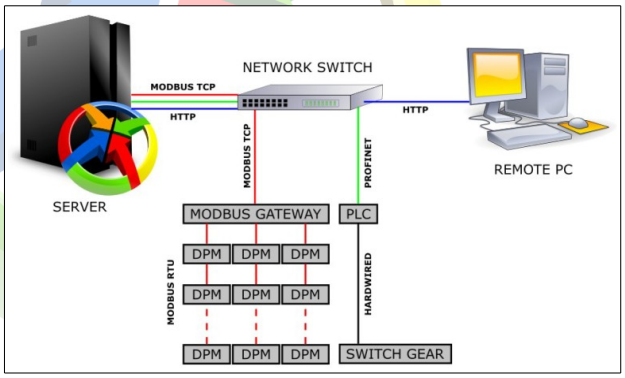
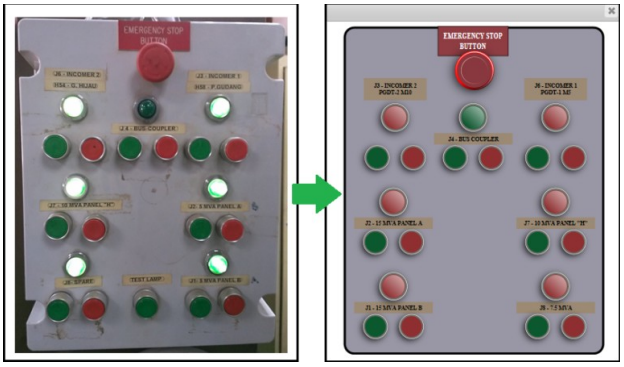


The basic system architecture for PDN system

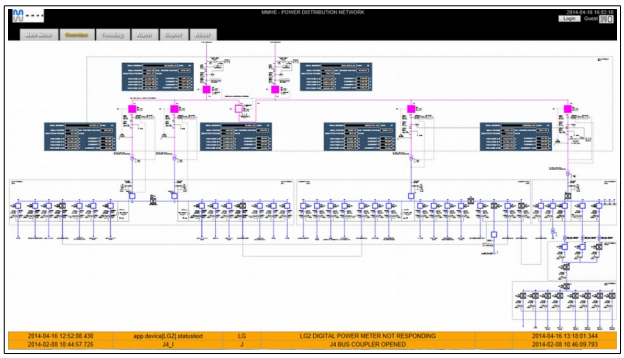
Ecava IGX Emerges to Make Life Easier in Power Facility Room

PLC (Programmable Logic Controllers) is equipped in this project to aid the control operation of switchgear for PDN. SCADA mimics are designed imitate the hard button switchgear panel in an identical way, the reason is to target operators' convenience in familiarize with the automated PDN system. Operators can initiate requests on the panel mimic screen easily to control the switchgear operation.



SCADA mimic for PDN system is designed to imitate the switchgear panel

Other than that, since there are different voltages across the entire power distribution, different color codes are used to design the mimics. The approach shall lead to easier inspection whenever it is required.



SCADA mimic for PDN system is designed with different color lines illustration to indicate different voltage

The Hardware / Software:

Server Machine: DELL PowerEdge R720 Server
OS: Windows Server 2012 R2

Device: Digital Power Meter

- Schneider Electric PowerLogic PM850
- Rudolf DPA96A
- Atec MDM3100

Protocol: Modbus RTU (to MOXA MGate serial converter)
Protocol: Modbus TCP (from MOXA MGate serial converter to Ecava IGX SCADA server)

PLC (Programmable Logic Controllers): Siemens S7-1200
Protocol: Profinet

SCADA: Ecava IGX
IO tags: 8192 tags

Database: PostgreSQL database

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