

Bulk Unloading Control System Upgrade

Case Study



Overview

PLATCON were contracted by an animal food manufacturer to replace an outdated control system that loads heavy goods lorries with bulk product from storage bins.

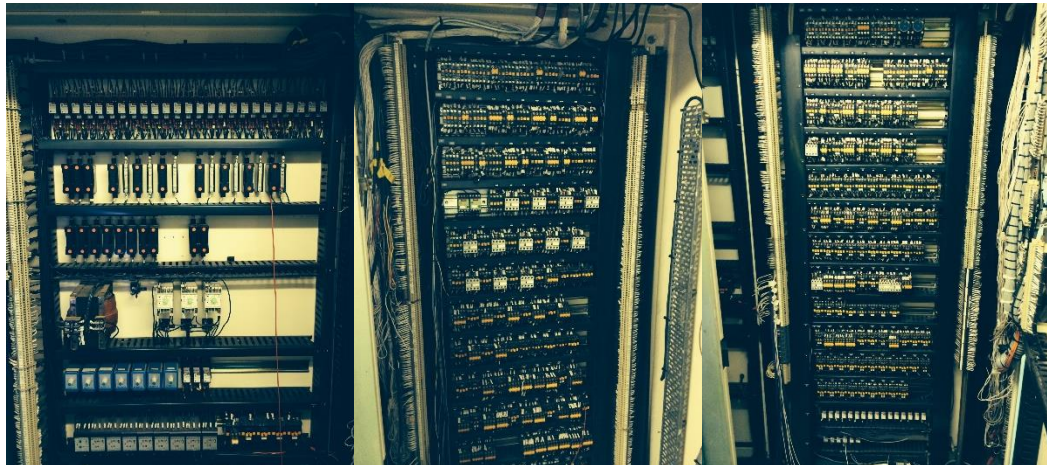
The current system had been in place for 30 plus years and used relay logic as a control system. There were no electrical drawings for the system so fault-finding proved very problematic which resulted in many hours of lost time. Also, the operator interfacing for the system was via push buttons and switches on the front of the panel which were complex and problematic.

PLATCON designed a new suite of control panels to replace the existing panels with a new control system utilising an Allen Bradley ControlLogix PLC. Operator interfacing for the new system consisted of a Human Machine Interface (HMI) on the control panel and a SCADA system via a new PC.

Due to the lack of electrical drawings and information, PLATCON had to reverse engineer the system which meant identifying all field equipment (motors valves etc) and then generating equipment inventories, junction box layouts, electrical drawings etc.

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Original Control Panel



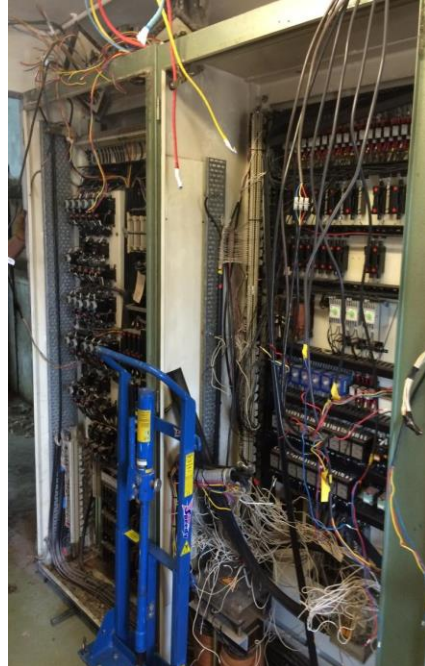
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New PLATCON Control Panel

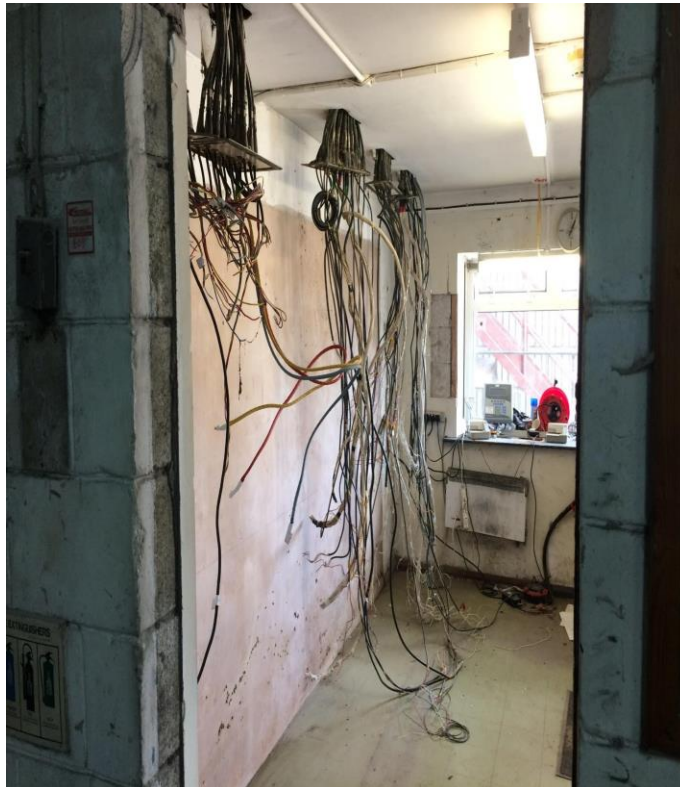


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Removal of Old Control Panel



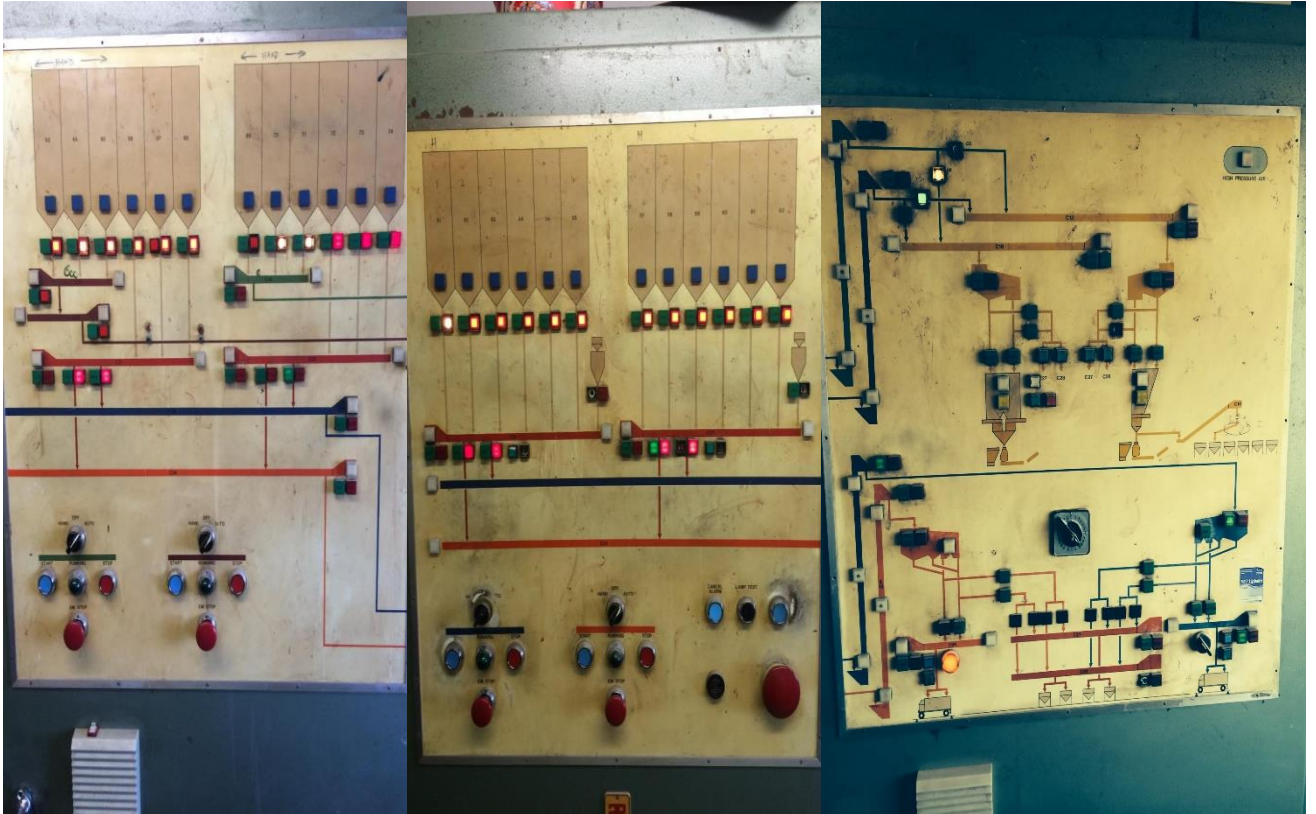
Old Panel Removed



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Old Operator Interfacing

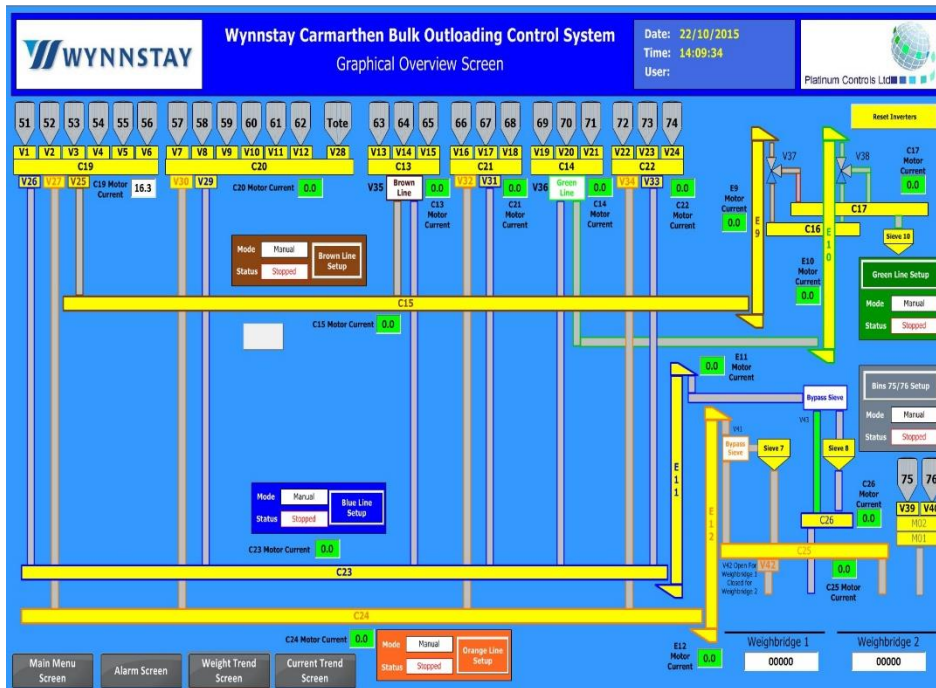
Operators used push button and selector switches etc to select equipment and operation modes



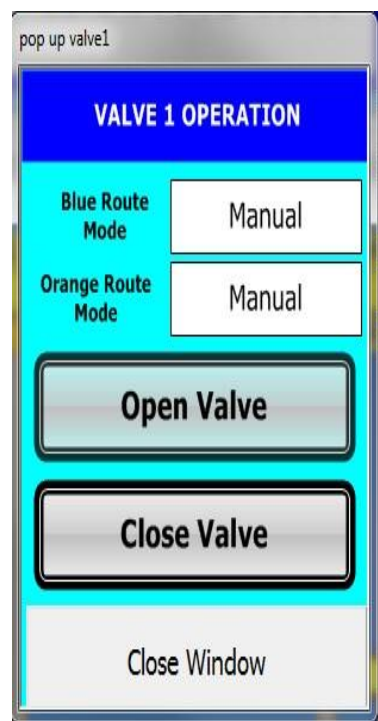
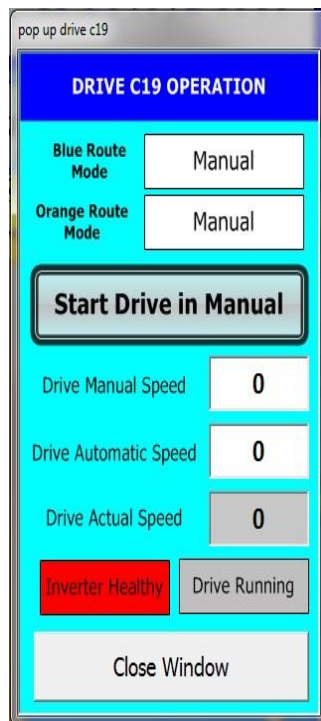
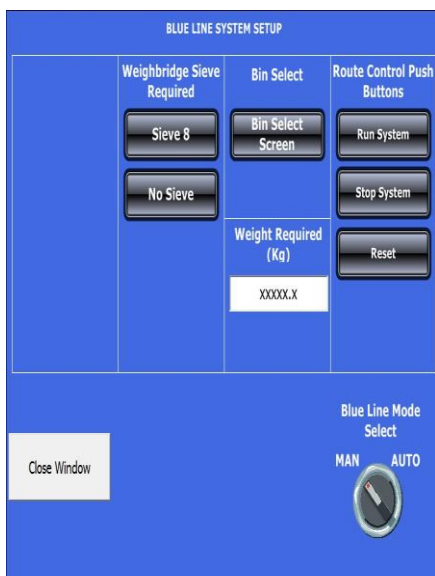
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New Operator Interfacing

The new interfacing is primarily via a SCADA system running on a PC connect to the new control system.



Below is the new operator interfacing via pop up boxes on the SCADA system



Improvements on New System

As the new system is operated and controlled via a SCADA system it was possible to improve the system as detailed below:

- New system has inverter drives to control motors meaning motor speeds can be changed via SCADA system.
- Alarm generation and logging, the new system has alarm handling which can inform operators of equipment that has faulted for example valves failing to open/close.
- Extra information being displayed on SCADA system including motor running current, status of equipment etc.
- Logging of running data to a database for traceability which include recording time/date of unloading, which bin was used etc.
- Full set of electrical drawings cross referenced to panel equipment for ease of identification.
- Operating manual detailing operating procedures, fault-finding etc. Only a few operators understood the old system fully, new system is now understood by all.
- Fault finding is now much quicker due to alarms indicated on SCADA system and due to the fact there are electrical drawings to cross reference.