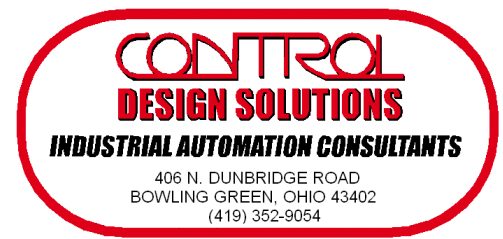


CDSL Newsletter



Control Design Solutions Ltd.

Fall Newsletter Volume 3, Issue 1

CDSL Background

Founded in 2000

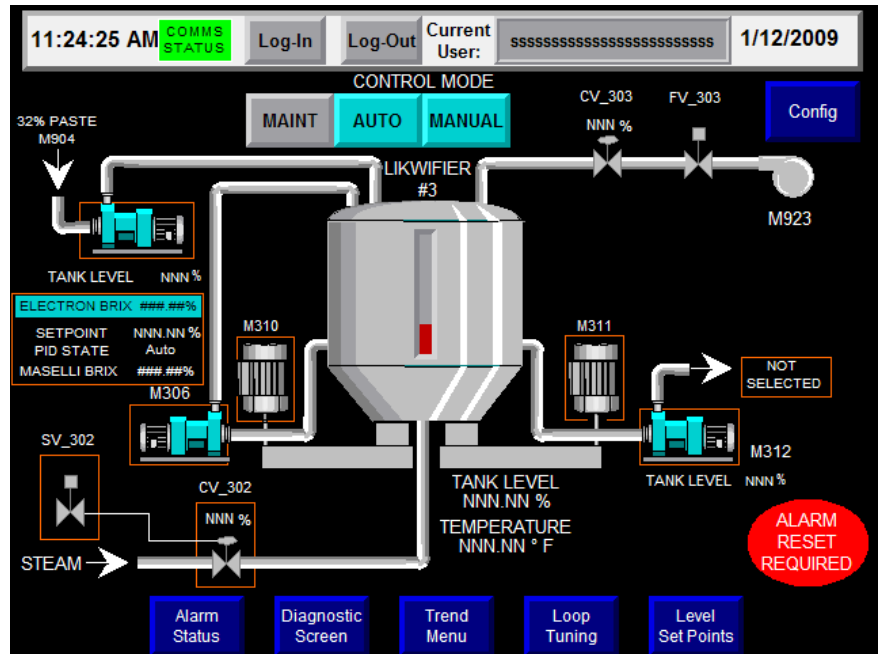
Located in Bowling Green, Ohio

Develop Practical Hardware and Software Solutions

Process & Packaging Design and Integration for the Food, Paper and Auto Industry

Services

- Equipment Installation Construction Documents
- Control System Design
- PLC Programming
- HMI Programming
- Process Design
- On-Site Support
- Specialty Equipment Design and Fabrication.

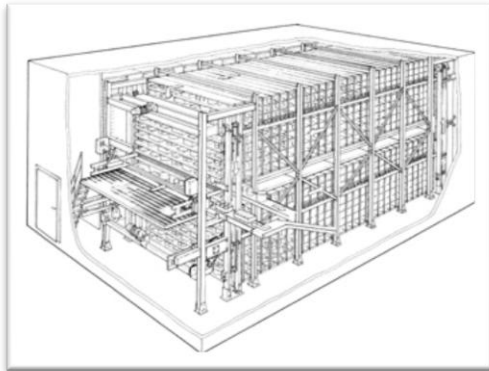


Tray Hardner Control System Replacement

Tray Hardener Control System Replacement

An Ice Cream manufacturer was experiencing great concern over the age of the controller on their Tray Hardener. The company's busiest season was fast approaching. The Tray Hardener is a crucial part of Ice-Cream production and without it there would be a significant loss in packages being produced. The system consisted of approximately 150 I/O points and included the controls for ammonia and circulating fans.

CDSL was called to investigate the possibility of replacing the controller and the associated I/O with an Allen Bradley based system. The caveat was that downtime was to be kept to one weekend.



CDSL designed a control panel with Flex I/O cards, utilizing an existing Control Logix controller and ControlNet network. CDSL re-wrote the PLC program in Allen Bradley Logix 5000 format from a printout of the old code. The panel was installed adjacent to the existing control panel and CDSL developed a design package to guide the electrical contractor. The panel, control power and communication network wiring were installed while the Tray Hardener was in production. CDSL arrived on site the Friday prior to the weekend construction to prepare for the weekend task. On Saturday morning after production was down for the weekend CDSL

worked with the electrical contractor and plant maintenance personnel to re-wire all the I/O, perform a point to point I/O check and test the new PLC logic. By Sunday afternoon the Tray Hardener was running and ready for production. CDSL was able to install the new control system along with a new PLC program without losing any valuable production time.

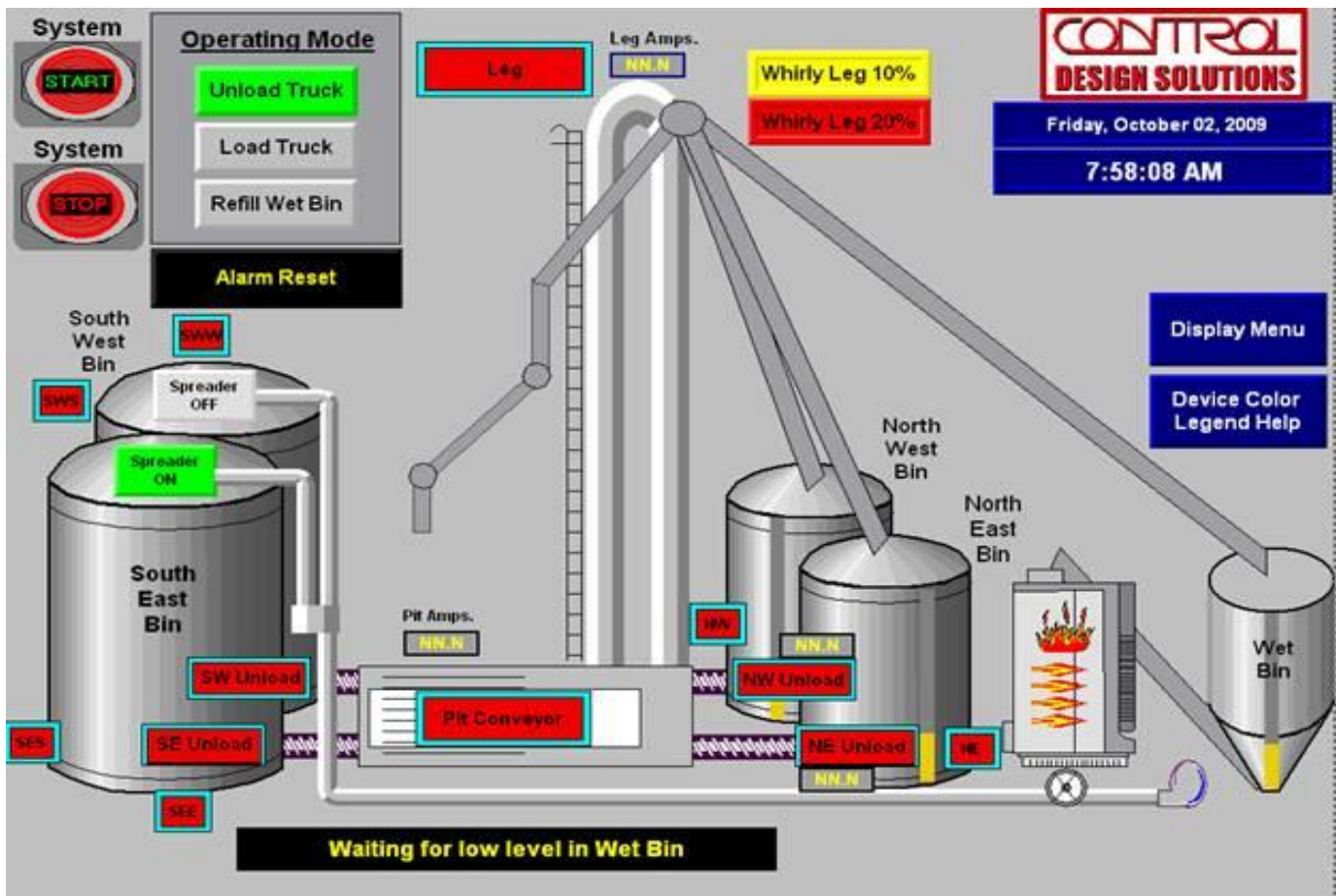
Shop Capabilities

CDSL has recently invested in a variety of equipment which allows us to fabricate prototypes to help solve your conveying and packaging problems. These items include:

- Bridgeport mill
- Allen-Bradley Kinetix 6000 servo system
- Allen-Bradley PLC and communication test equipment
- Miscellaneous conveyors
- Accumulation systems/devices
- CDSL has also partnered with local machine shops to expand our capabilities and resources

This capability was used recently to simulate and test proposed solutions and various alternatives to a challenging project. The shop testing produced a design that was simpler than the original proposed conveyor design. The end result was reduced costs to build, install and operate for our customer. Further these capabilities allow us to minimize installation and production downtime by providing proven solutions

Grain Handling



CDSL recently branched into another new arena for us with work on a local agri-business grain handling system.

CDSL integrated a programmable logic controller and a pc based HMI to automate the grain handling process. Among other things this gives the system operator the ability to initiate transfer sequences with a single button. The system automatically performs a sequential shutdown, clearing the system, once the transfer is complete. The automatic control provides interlocks with downstream equipment and reduces energy consumption by shutting down idle equipment. Automatic control includes operator adjustable run duration and run intervals settings for the bin aeration fans. Manual control for all motors is provided via the HMI. System alarm displays, motor current draw displays and trend are also provided as operational and trouble-shooting aides. Controls include over-current and no-load shutdown.

The PC utilized for the HMI provided the means to incorporate a data base application which tracks production by commodity, by farm, by variety and by owner. The application provided data entries for all loads including, farm identification, weights, moisture, test weights, foreign material and sell/store/contract designation. Additionally the application tracks the status of grain contracts.

This automation provides improved control, greater flexibility and ease of operation with less intervention which ultimately allows the owner to be more productive.



CDSL was asked to assist GM Powertrain with their capacity increase project. GM Powertrain uses the [Siemens Transline](#) machine tool. This system requires all of the equipment in the plant to conform to the same hardware, HMI, diagnostics and PLC programming standards.

Hardware standards included using AS-interface for all digital field devices. Various Profibus networks are used on the machines to control smart devices such as Cognex cameras, Programmable Measuring Electronics (PME), serial devices such as printers and scanners and Variable Frequency Drives (VFD). All of the variable speed motors used VFD's that were externally mounted on the motor or frame of the machine. This limited the size of the electrical control panel and the need for panel cooling.

PLC programming utilizing the Transline system incorporates identical structure in every machine. This allows for easy troubleshooting and program changes. Because of the programming structure, you could quickly navigate the program in a piece of equipment that was completely unfamiliar to you.

The primary structure for the PLC program used the [Simatic S7-Graph](#) which is the use of sequence control. Programming using this method allows for the use of the [WinCC/ProAgent](#) diagnostics software. ProAgent is a diagnostic device that automatically configures the HMI with program information to give the technician specific troubleshooting aid.

CDSL easily adapted to the Siemens Transline system and was able to contribute successfully to the capacity increase project. This time spent with the various technologies as one system also helped us understand the true concept of "Standardization". Many companies try to mandate "Company Standards" but run into many obstacles that demand compromise. Obviously GM Powertrain demanded standardization with all vendors and created a manufacturing environment that "Standard" is a working component.

If you have customers, clients, co-workers or friends that are in need of assistance with process and/or packaging projects, custom equipment, control integration or industrial automation we would appreciate it if you would forward this newsletter or provide them with our contact information.

This distribution list was developed from contacts of the CDSL employees. If you do not want to receive future copies of the CDSLNewsletter, please respond to this e-mail and your name will be removed from the list.

Thank-you

You can find additional information about CDSL by going to our website at www.cdsl.biz

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