Fermilab U.S. DEPARTMENT OF ENERGY Office of Science

Upgrading existing power controllers for Mu2e

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What's my project?

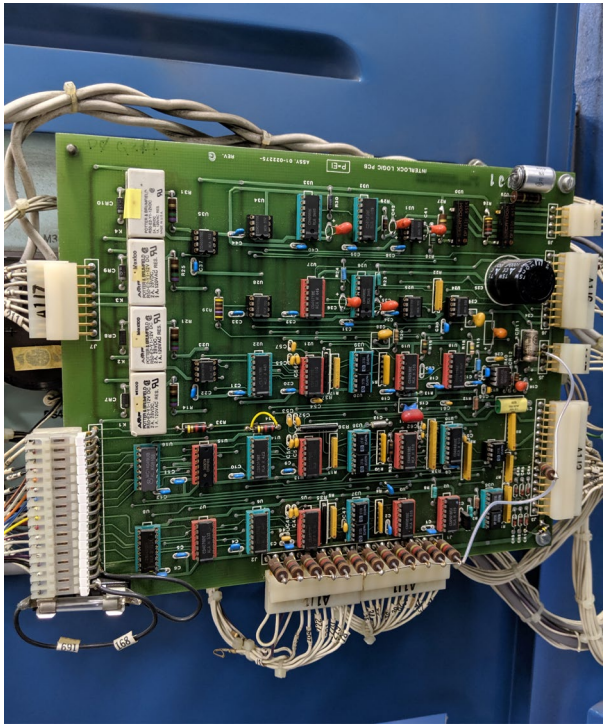
Layout and design control system to improve existing power supplies using a Programable Logic Controller.

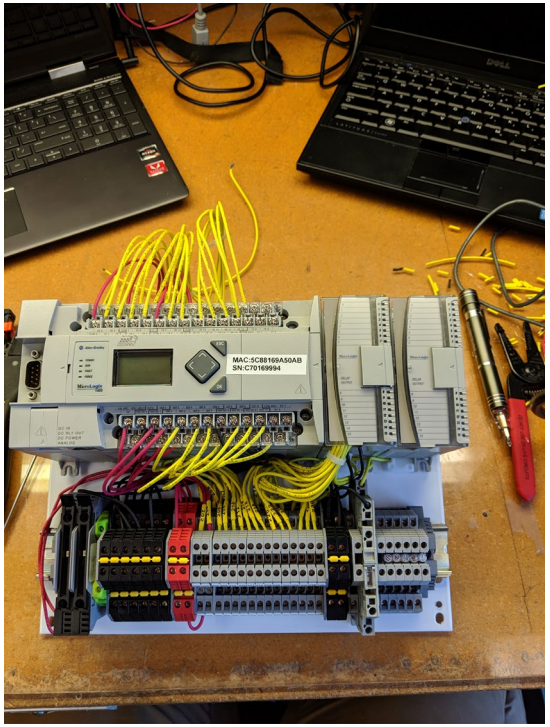
- Layout
- construct
- code a PLC
- perform a low level test.

The PLC will be used to manage:

- Low level protection circuits switches
- Relay control
- Relay status
- Simple ADC/DAC (AC to DC converter) in place of existing discrete hardware.

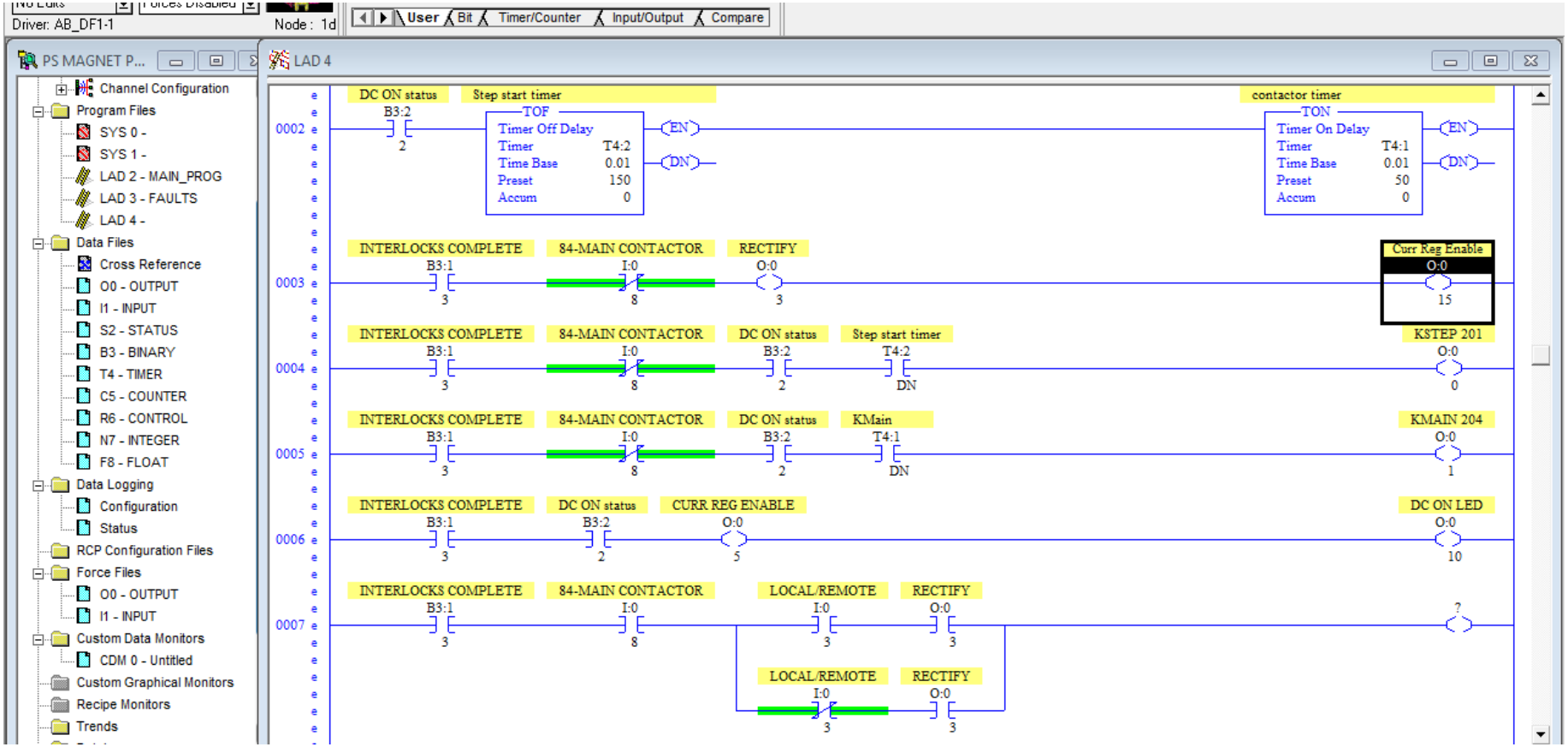
What am I doing?





Replacing existing hardware with a PLC to provide more versatile functionality such as providing information remotely or quickly and easily change the behavior of the power supply controller.

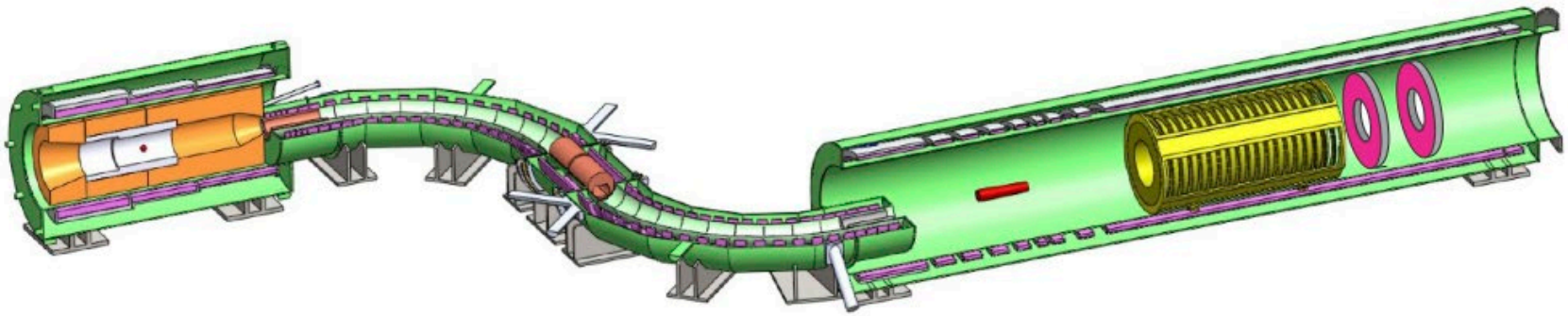
What am I doing?



Currently working on the power supply for the Production Solenoid.

Will soon start working on the PLCs for the Production Solenoid B power supply and the Detection Solenoid power supply.

What is this for?



Production Solenoid –	**Uses 2 TeV Low Beta**	**375kW**	**| 15000 Amp**
Detection Solenoid –	**Uses 1 Low Beta**	**375kW**	**| 7500Amp**

Conclusion

Where I'm at:

- First PLC is ready for testing.

What's next:

- Two more PLCs for the Production Solenoid B power supply and Detection Solenoid power supply.

My thoughts:

- I really enjoy the work that I get to do here.
- I have gotten to learn a lot from work with a PLC.
- There are so many more things that I am excited to get to learn while here!