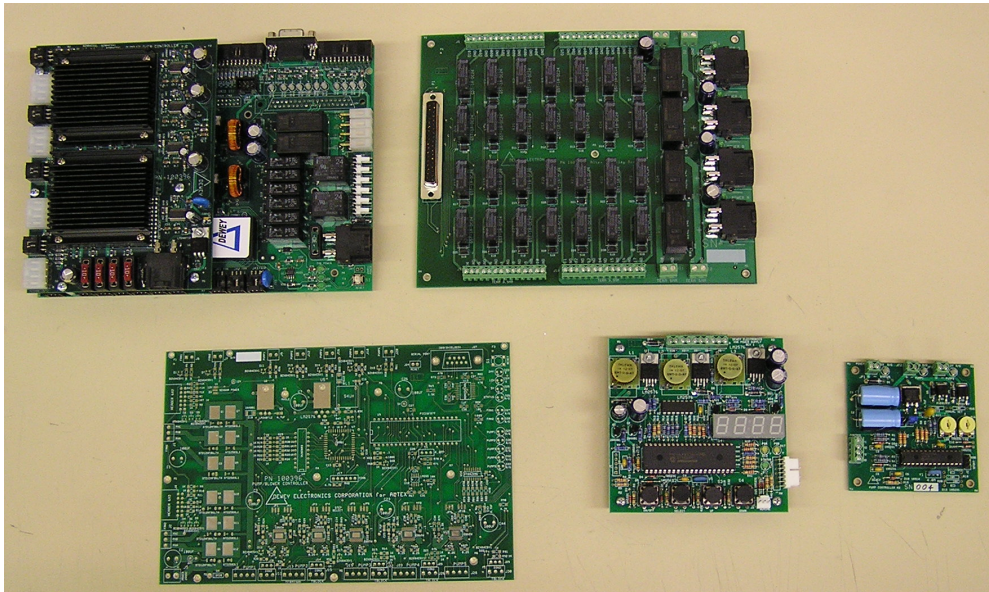


Control System for Fuel Reformer

Our customer needed a control system that monitored temperature, controlled air flow, and provided metered fuel to burners to operate a heavy fuel reformer that would produce hydrogen from fossil fuel for use in a fuel cell. This military demonstration project would require Dewey to fabricate control boards that would handle multiple thermocouples, air blower motors, and fuel pumps.

The approach that our engineering team took was to develop a single board that would handle the blower control, another for the fuel pump controller, and finally another for the thermocouples. Once each of these control boards was tested individually, a composite control board was designed and developed to control the blowers and the pumps. A single thermocouple board was designed and developed to monitor multiple thermocouples. The design went from thru-hole components to surface mounted components to miniaturize the circuit board for installation in the reformer fuel cell power plant.

The design was developed and delivered to our customer, and the control system was demonstrated in the power plant during a successful 1,000 hour performance demonstration.



Design progression from single unit controller (right bottom) to complete control system (top left) on a surface mounted single board pictured with relay board