**Custom made electronic designs**

*Conception de carte électroniques*

- Upgrade of the PS injection kicker control system to inject 2GeV beams into the PS synchrotron
- AD Elena fast deflector high voltage electronics and control system for generation of pulsed electrostatic field for beam deflection
- HV ion trap system for the SPS North Extraction system. The system allows the counting of HV breakdown pulses between the various electrode parts of the electrostatic septa system used for beam extraction and spurious ions trapping

**Industrial automation and controls**

*Automatisme industriel et contrôle*

- Control architecture for the upgrade of the PS and PSB septa positioning systems. This system includes an auto-optimisation algorithm for precision placement of the motorisation systems
- Profile of a magnet pulse from the upgraded generator for the Booster injection system based on Marx topology using solid-state power switching
- Laser triggered Thyristor research and development. Improved switching performance, improved d/dt, floating node operation.

**Specialist software tools**

*Logiciels et outils spécialisé*

- FASEC carrier card for the FIDS ’generic’ system for kicker magnets protection systems. Combined microprocessor with embedded OS (Linux) and fast digital logic
- Capacitor discharge unit for PS kicker systems with embedded safety functionalities
- Power trigger controller card for the LHC beam dump trigger modules. Has on-board digital and analogue design for high voltage pulsed power environment.