Morning Lab Notes

- OBPC architecture decided upon. In one pack, there will be 7 cells, 7 boards, each with a PIC processor. One PIC per pack will be designated the “master” processor for that BMS pack. It will poll the other boards in the pack via I2C for information. The SCADA will request information from this PIC, either via I2C or RS-232 or similar serial protocol. Thus, the SCADA will only need to communicate with one processor per pack instead of needing to communicate with all 28 cells individually.

- SCADA/Safety – draw up packaging scheme for your systems. There should probably be a metal casing or something to enclose them. This metal casing will be used for GLVS ground during testing.

- The Mechanical Engineering department has aluminum that we could use for straps. By making the straps 3/8” thick instead of 1/8” thick, the effective resistance of the straps would be the same. Because aluminum is eight times less expensive than copper and because there are already supplies of aluminum at Lafayette, we are halting our order of copper.

- Major project deliverable deadlines for BMS, safety loop, and SCADA were decided today. They are:
  - Safety Loop:
    - Design complete: 22 February
    - Design review: 25 February
    - Completed: 6 March
  - BMS:
    - Design complete: 26 February
    - Design review: 27 February
    - Completed: 6 March
  - SCADA:
    - Design complete: 26 February
    - Design review: 1 March
    - Standalone: 12 March
    - Integrated: 5 April

- Freewheeling diodes and their importance to the relays were discussed.
• Future versions of the car will almost definitely add sensors that interface directly with the SCADA. The SCADA hardware, as per SOW requirements, must be expandable and specify interfaces that these sensors can use to connect to the SCADA. The SOW also requires that the software be written so that it can be modified or expanded without recompiling code. If we want the software to be reused by future projects, it MUST be written in an expandable and easy-to-understand fashion.

Tasks for the week:

**BMS:** Circuit schematic
Simulation plan
Finish firmware changes
Begin drafting QA tests (due next week)

**Pack:** Charge & discharge cells
Deliver cell characterization based on 5 cells
Deliver pack drawing
Packaging for charging circuit (cell)
Design discharging circuit (cell)

**SCADA:** GUI presentation
Exception handling presentation
Design SCADA packaging
Begin drafting QA tests (due next week)

**System:** ICD
ATP draft
System state diagram
Budget/BOM

Design discharging circuit (pack)
Design discharging circuit (pack)