



Development of electronics modules as communication bridges in test setups

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Our task

Build a communication bridge
which connects the electronics
board under test with a computer
to test it.

What is a quench?



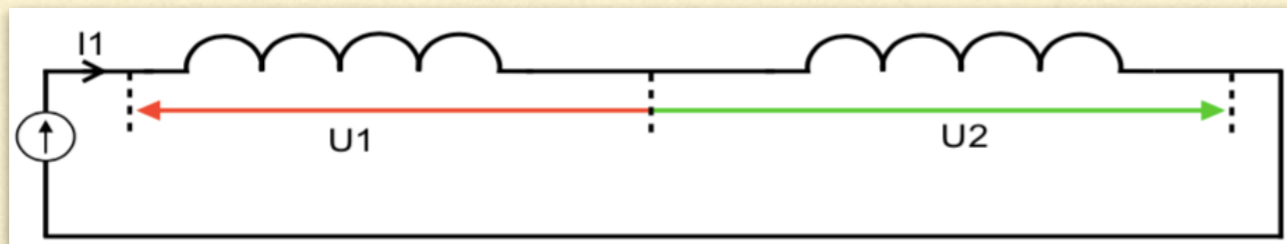
<https://www.universetoday.com/21895/first-images-emerge-of-damage-to-the-lhc/>

Example of consequences
of a quench (LHC, 2008)

- Sudden terminations of magnet operations
 - Rapid change of superconducting to resistive state
 - Can cause serious damage to the magnet (local thermal hotspot)
 - The liquid helium (1.9 K) evaporates, would cause explosion
-

Quench protection

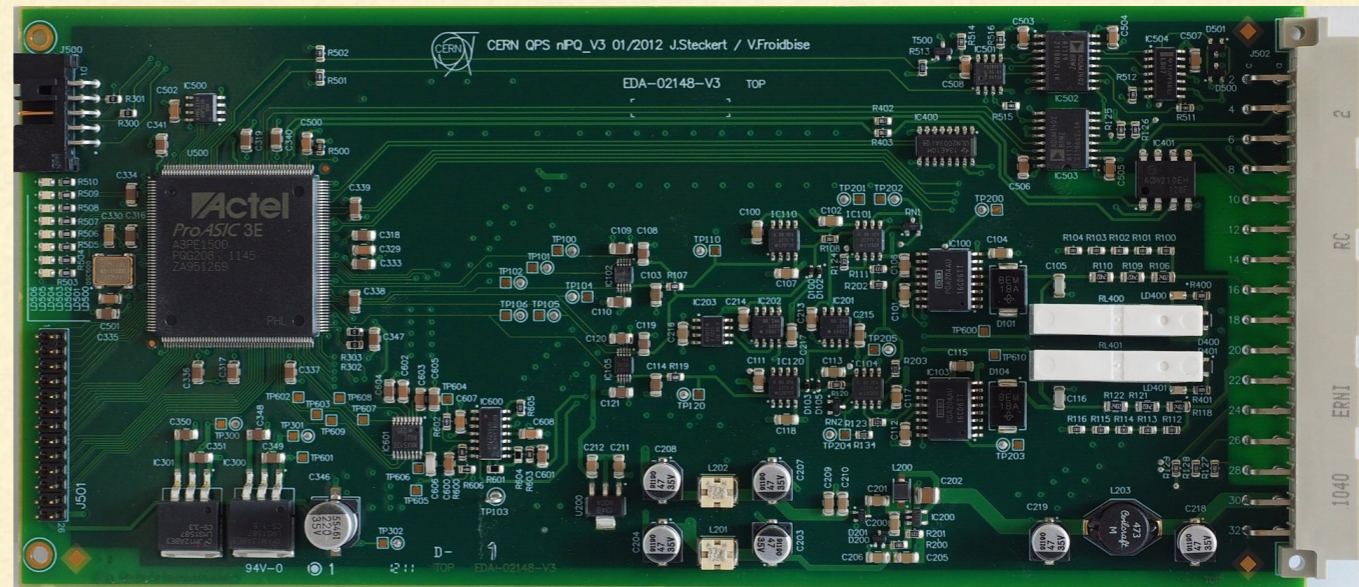
- To terminate the operation, the quench must be detected
 - Measuring the voltage across the magnet



- The quench electronics has to be tested
-

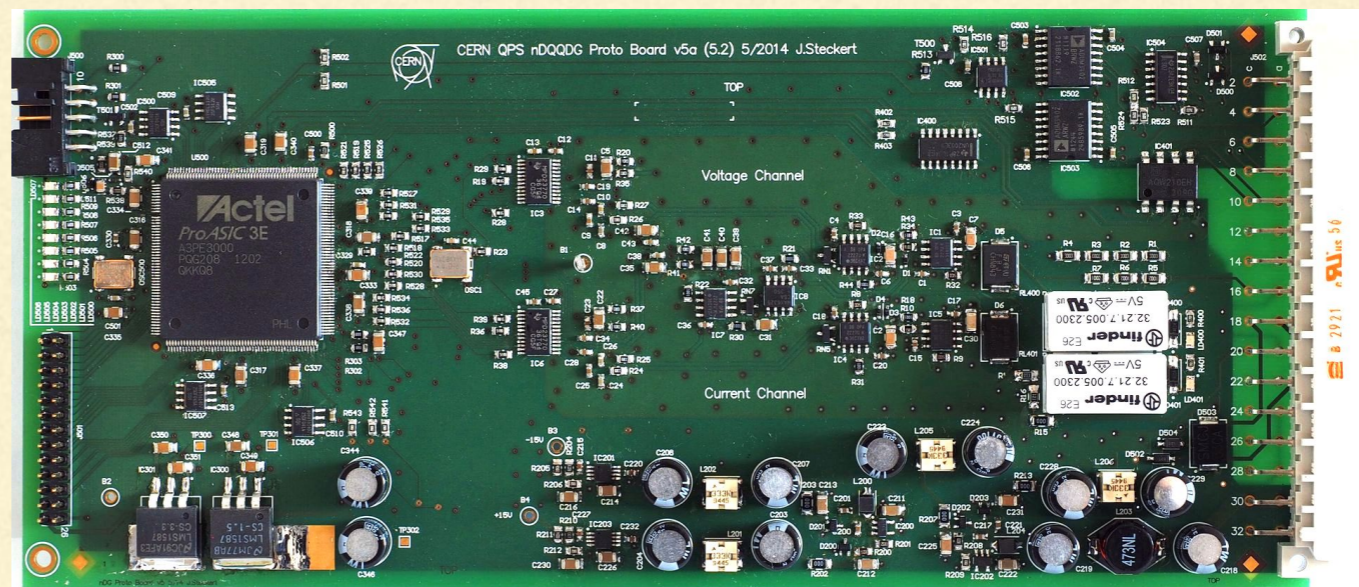
Quench Protection

Two voltage measurement channels



Internal TE-MPE-EP wiki

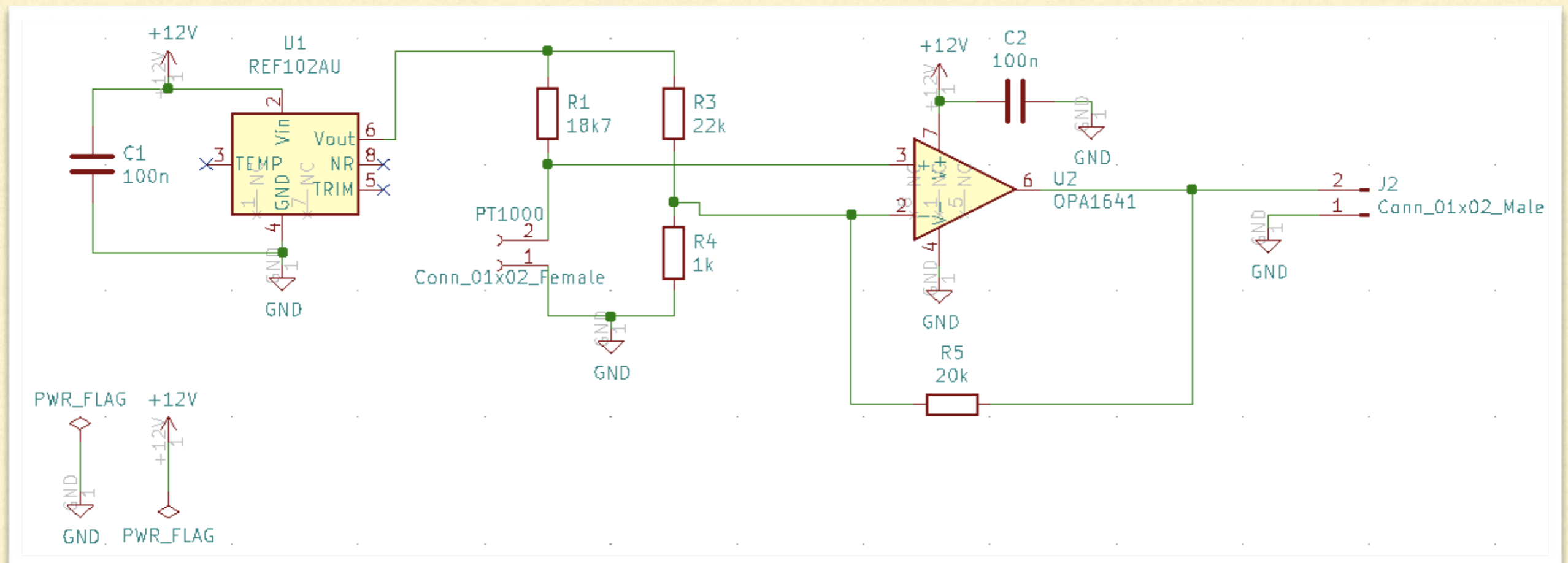
One voltage and one current measurement channel



Internal TE-MPE-EP wiki

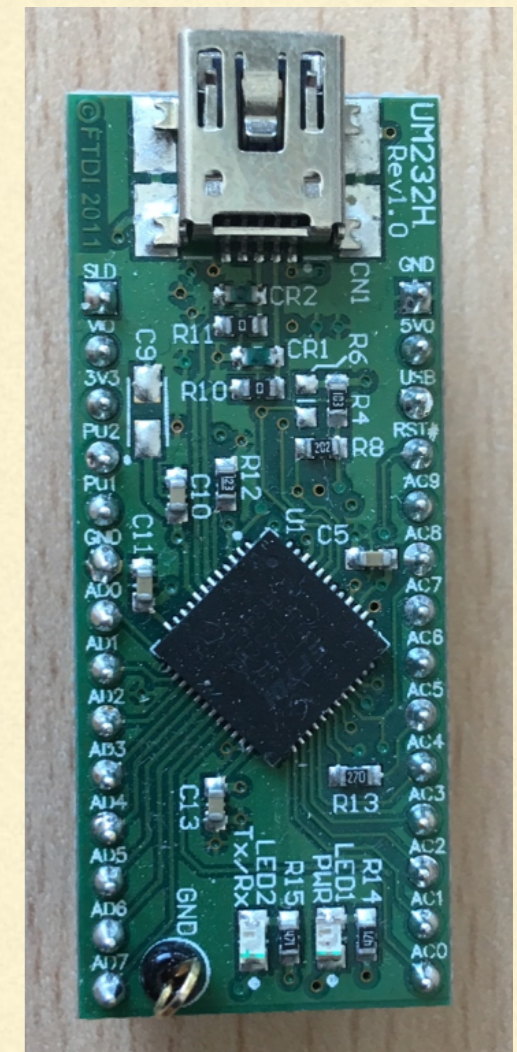
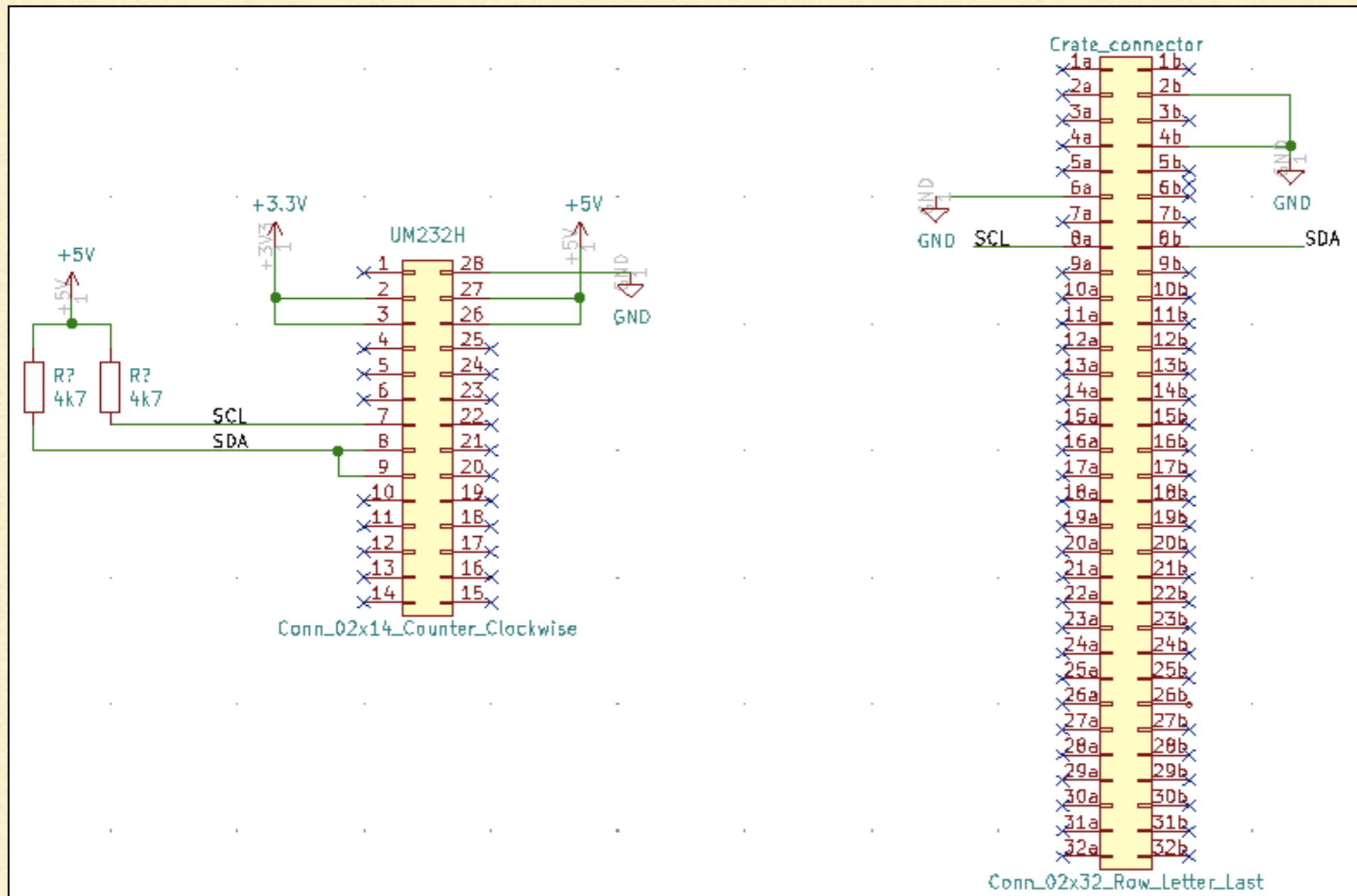
Kicad - Creating a circuit diagram

Learning to use Kicad - Temperature sensor



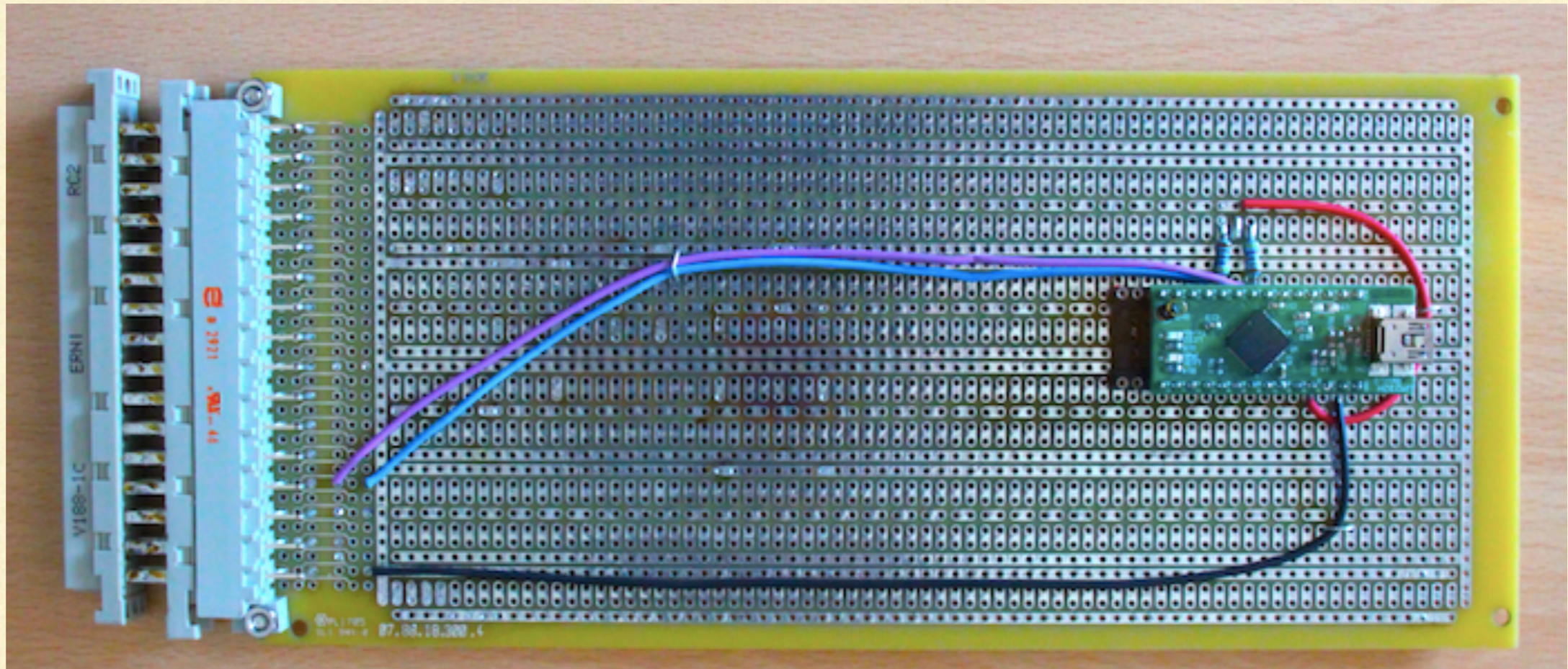
Communication bridge

Needed to connect the test setup on a computer with the quench electronics

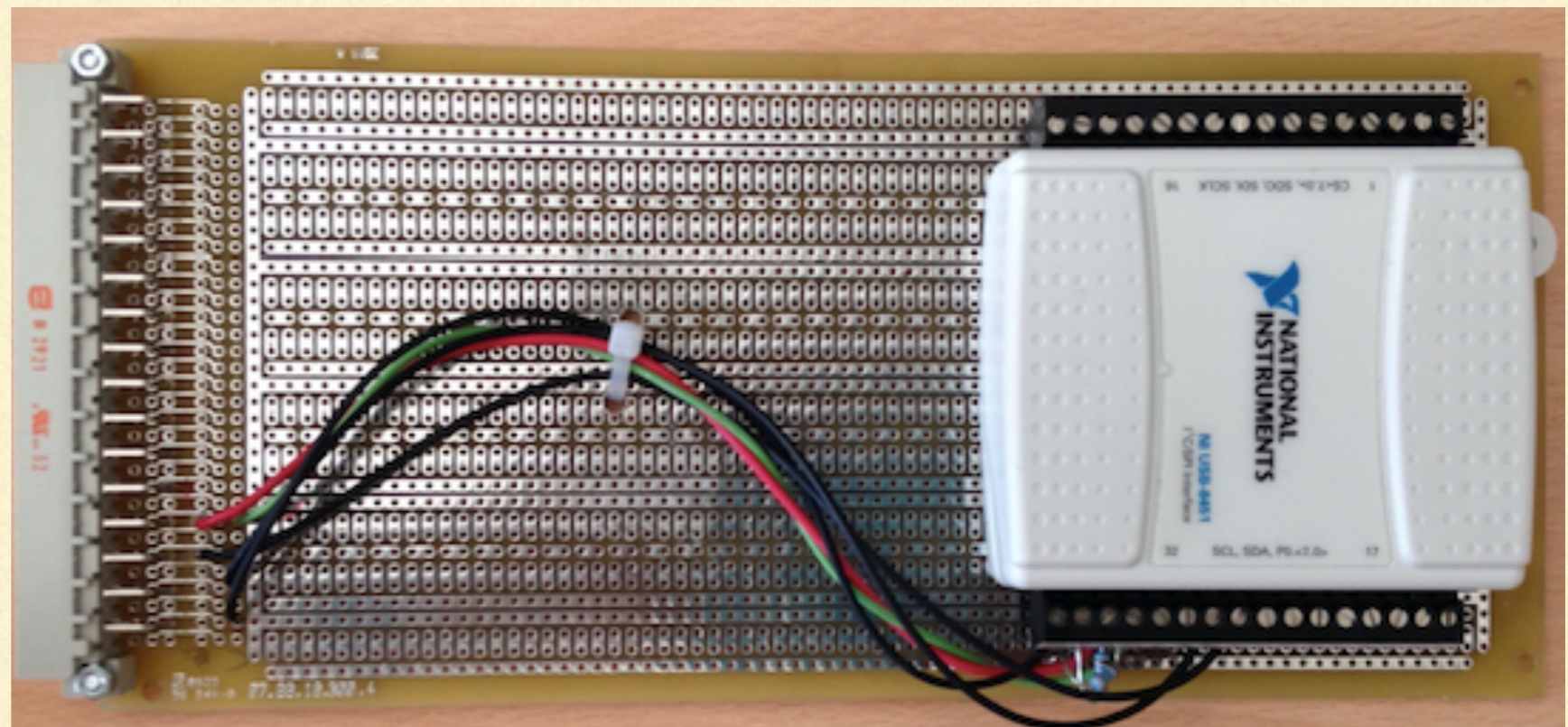


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Soldered Board

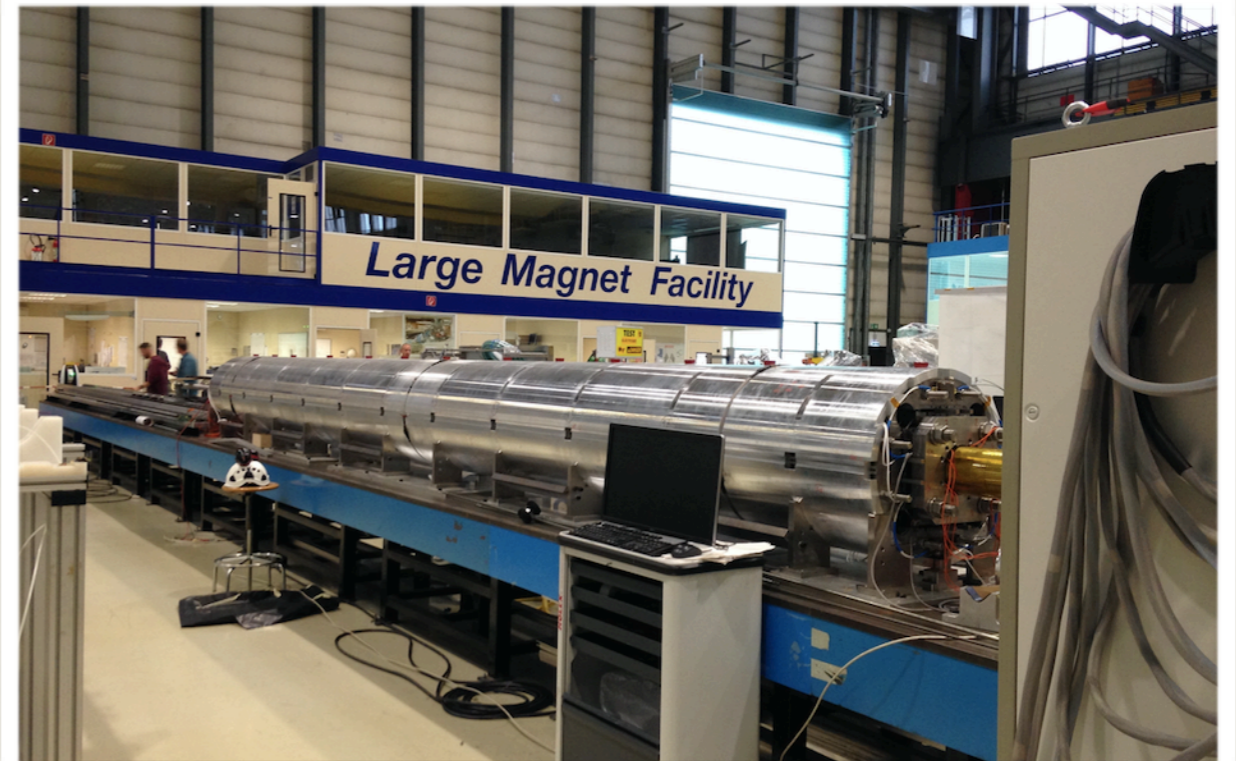


Based on
this model which
shall be replaced

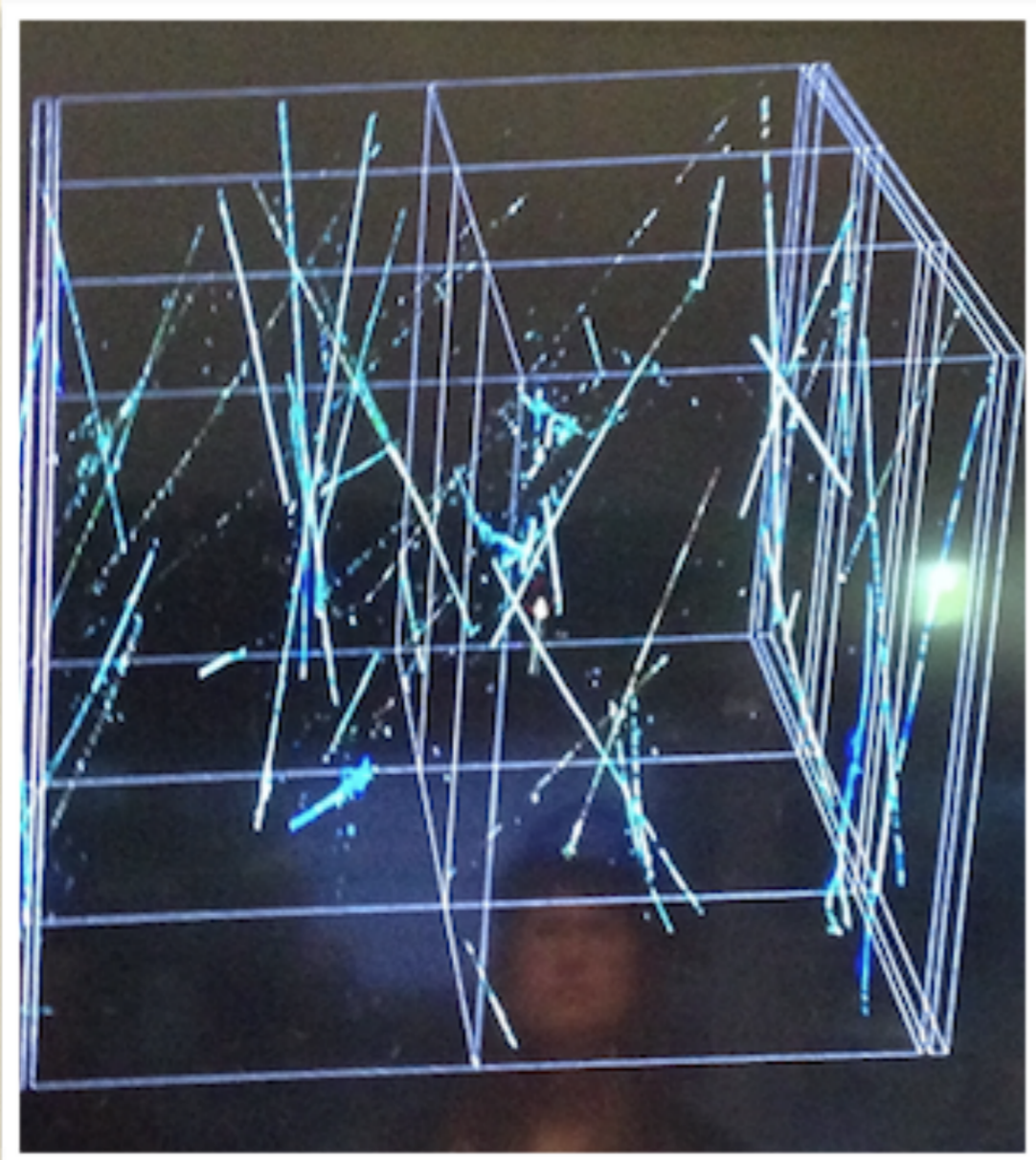


Visits

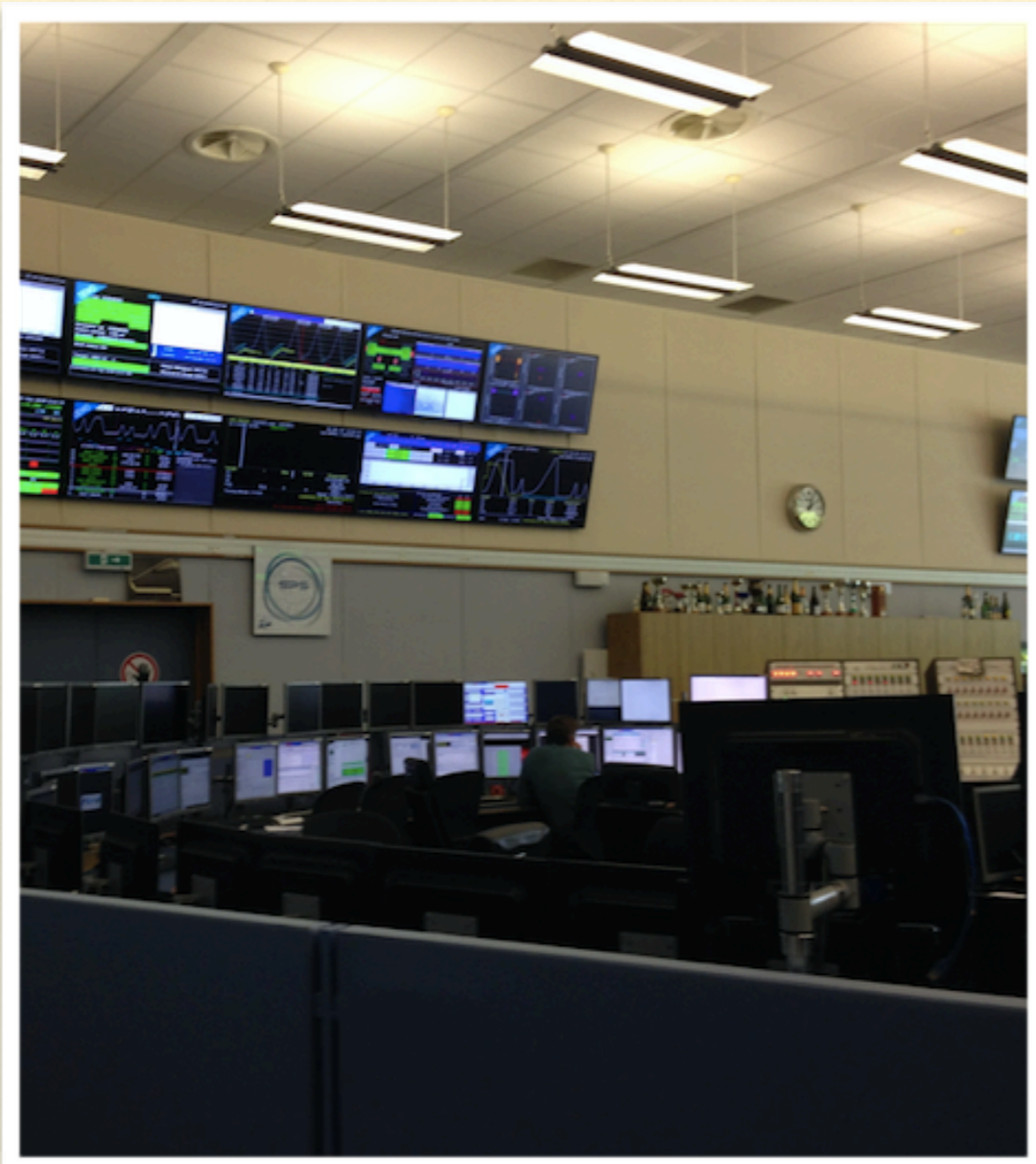
Large Magnet Facility



Neutrino Platform



Control Center



Thank you for listening

Are there any questions?
