

TESTBED FOR MEASUREMENT AND CONTROL OF GENERATOR POWER OSCILLATIONS



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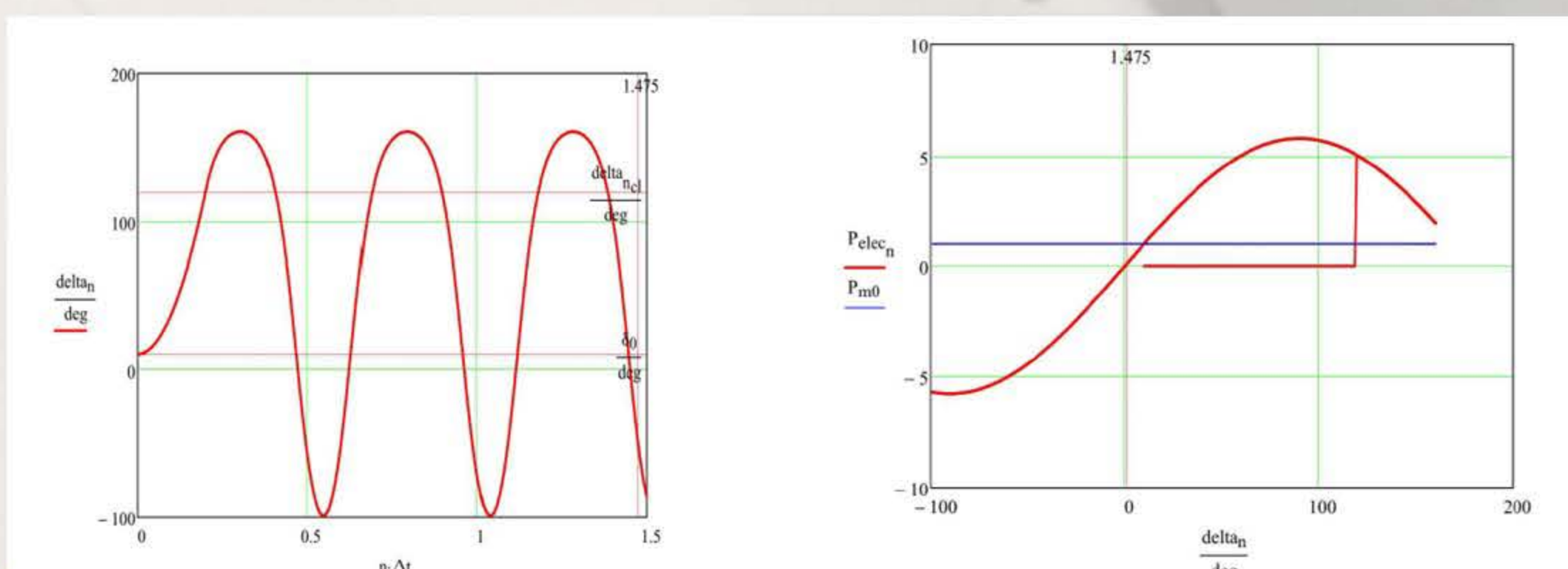
Mentor: Hussain Beleed, Aljabrine Abdulwahab

Objective

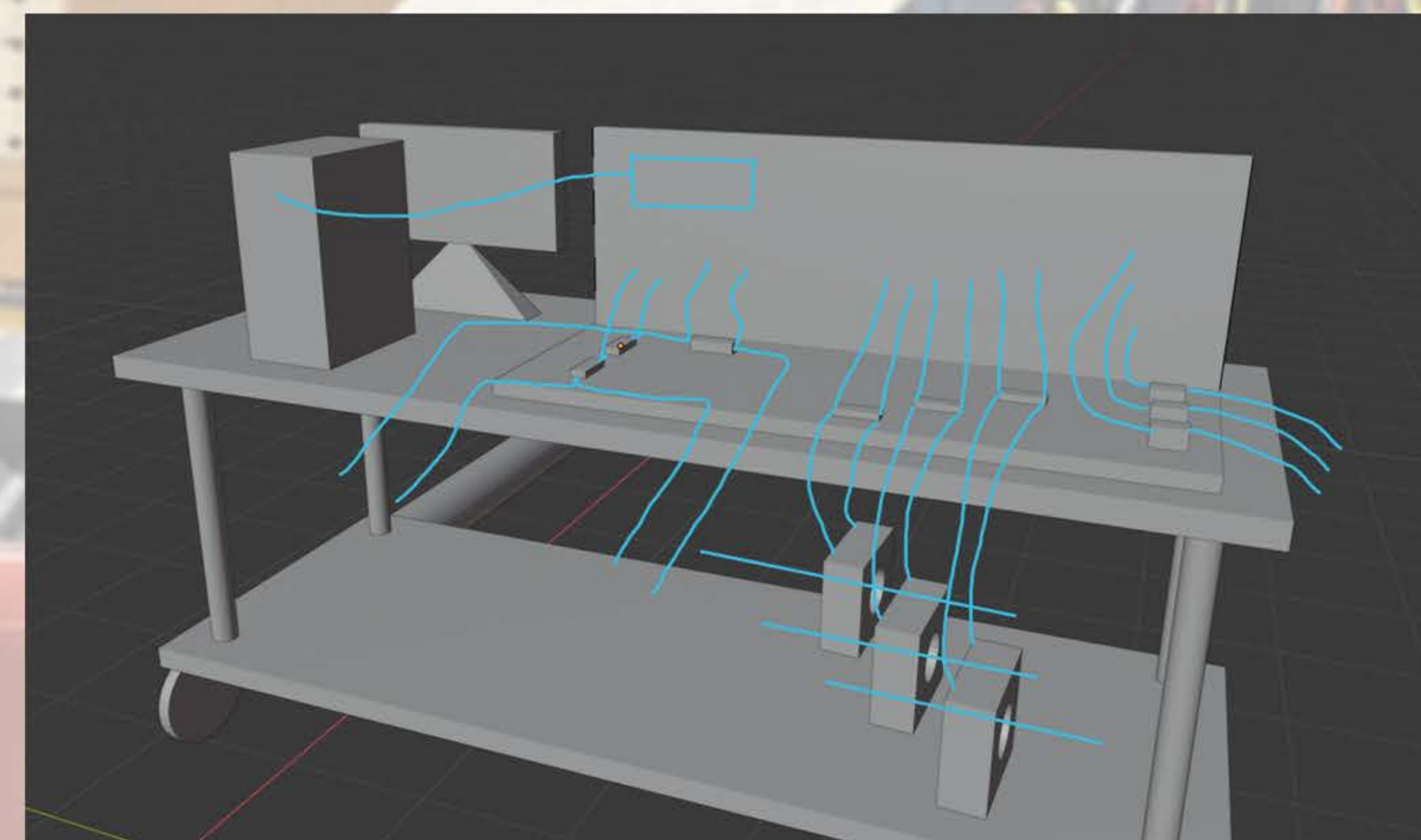
The objective of our project is building on the data acquisition system designed by a 2018-2019 senior design team design a test bed and test plan for testing generator performance during power swings, especially those near boundary of pole slipping.

Background

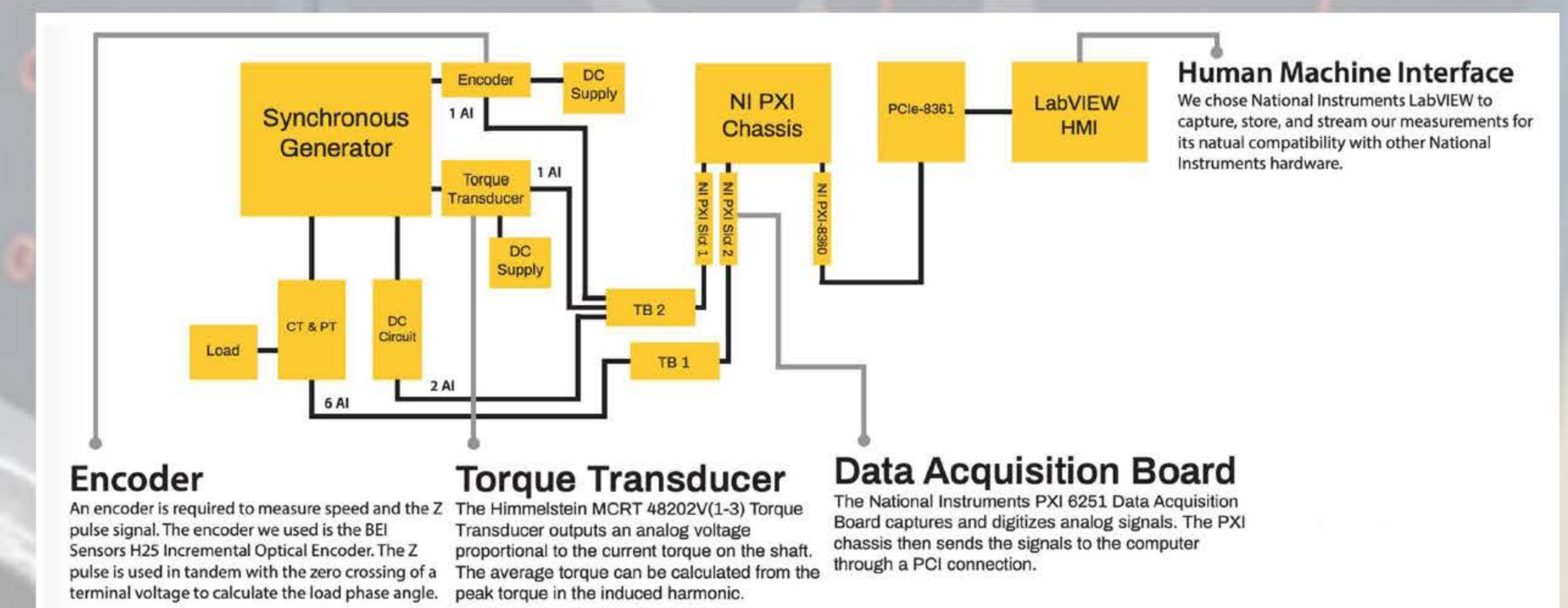
If the system is loaded more heavily or the protection and control response is slower, the response is more severe, and the generator may near its transient stability limit. Conventional wisdom is that the generator will slip a pole if the system swings any further. However, recent field data has demonstrated that some machines have been not done so and their excitation control has pulled them back to stability.



Design Solid model



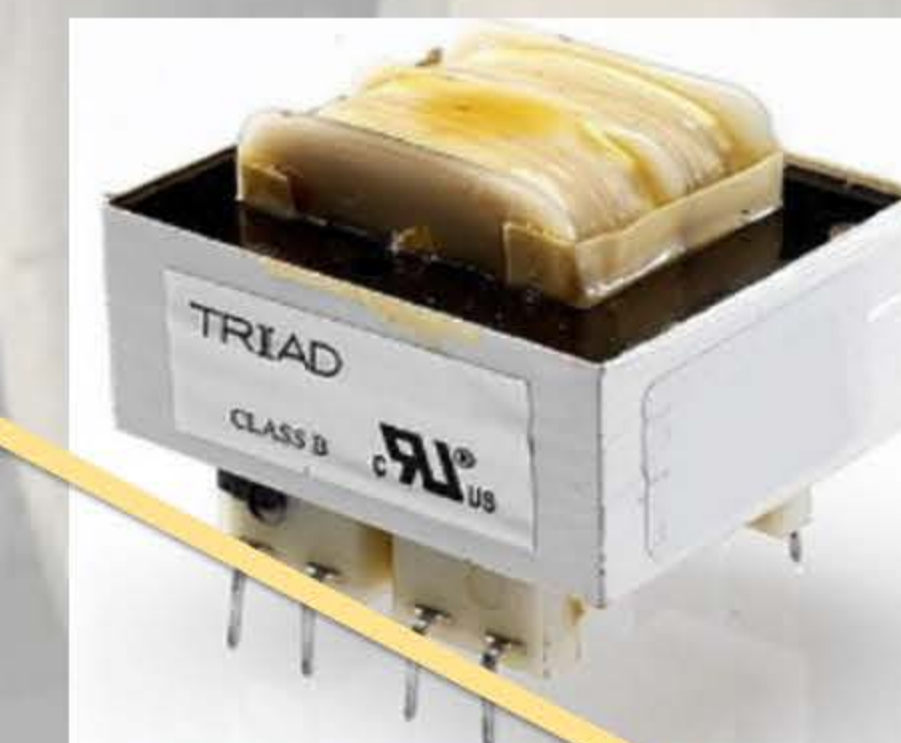
Measurement system topology



Terminal strip:
Allow for the replacement of wires or equipment and solve the problem of circuit clutter



Potential transformer:
230V : 12V



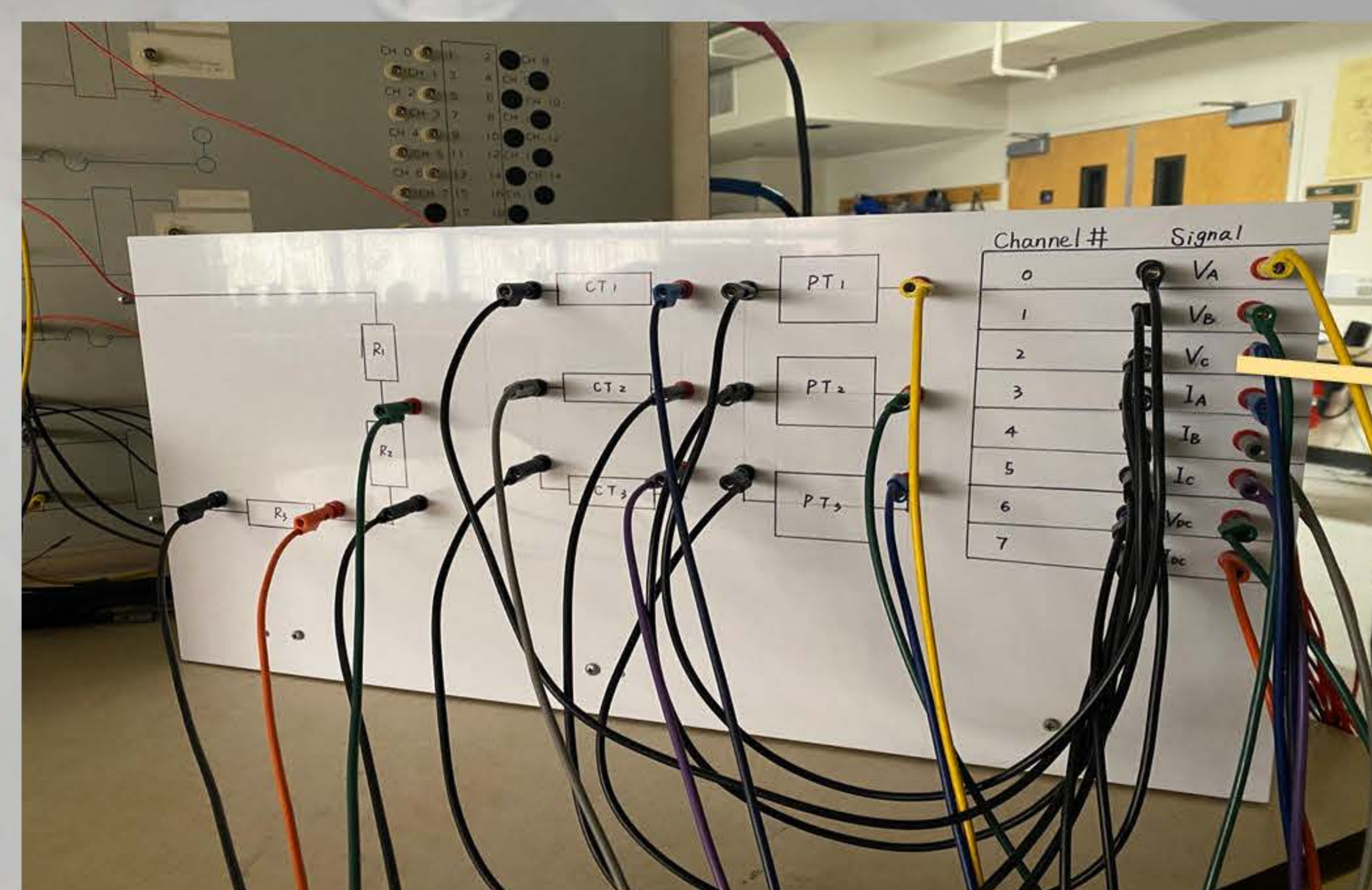
Brass Adapter:
Replace the test table and easy to connect synchronous machine and potential transformer with plug cable.



Current transformer:
Parallel with 1 Ω , 50 W resistance



Testbed



PXI 6289	
Channel #	Signal
0	V _A
1	V _B
2	V _C
3	I _A
4	I _B
5	I _C
6	V _{DC}
7	I _{DC}

