Trap Control

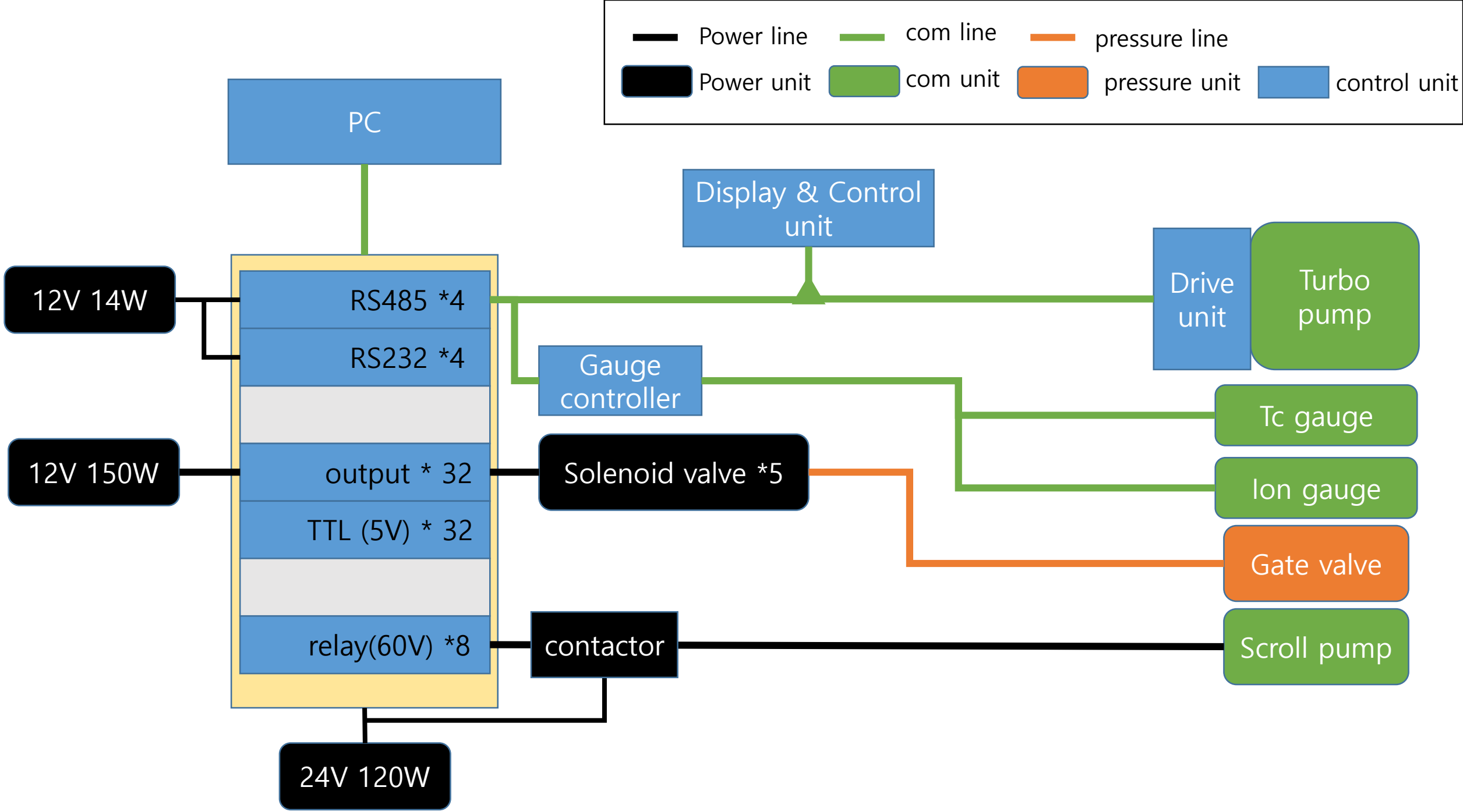
박관형

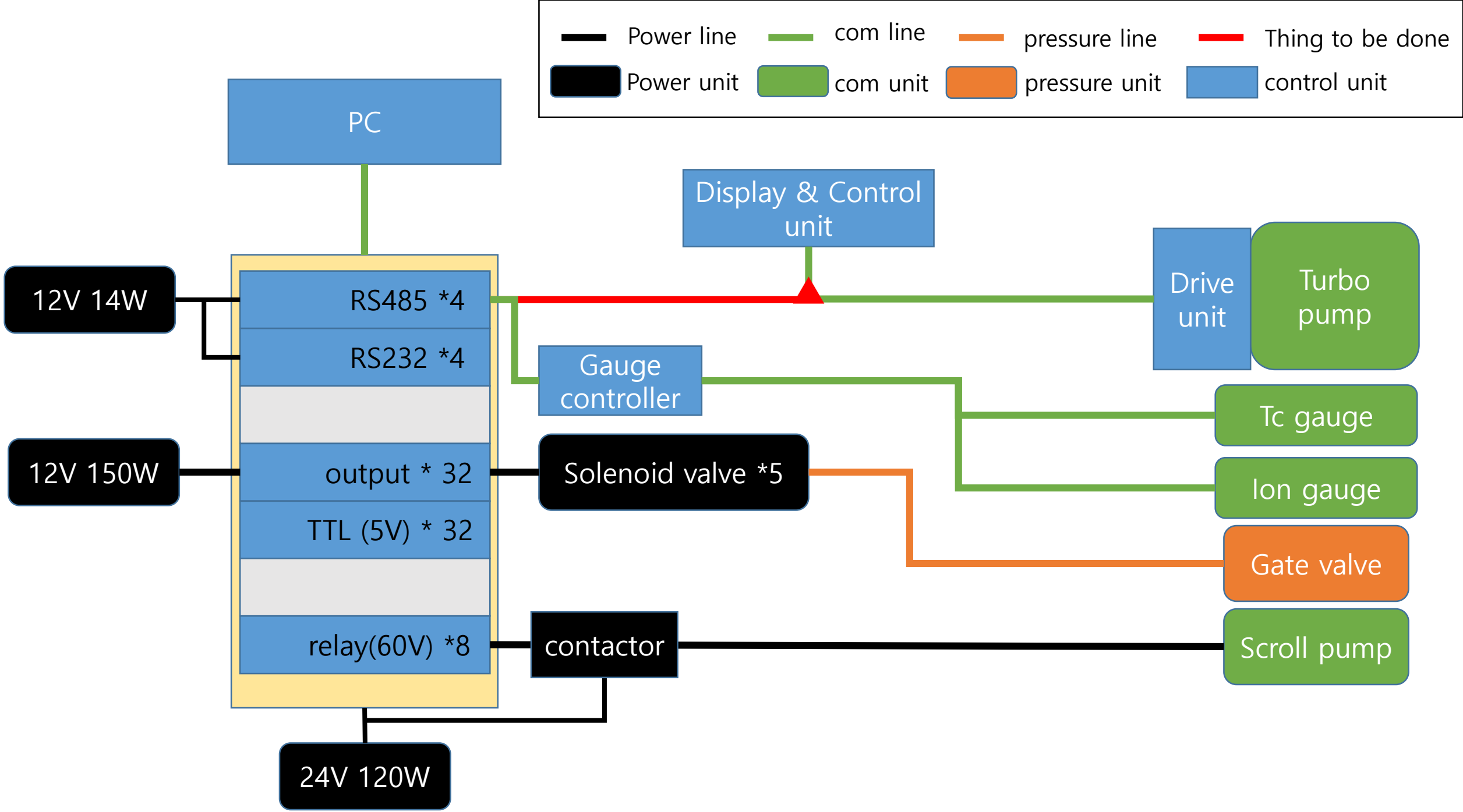
Work

Work

- Hardware control with NI Labview 2015.
  - Vacuum pumping and ventilation automation
  - MRE control

Status


Power line
com line
pressure line
Power unit
com unit
pressure unit
control unit
PC
Display & Control unit
12V 14W
RS485 *4
RS232 *4
Drive unit
Turbo pump
Gauge controller
Tc gauge
12V 150W
output * 32
Solenoid valve *5
Ion gauge
TTL (5V) * 32
Gate valve
relay(60V) *8
contactor
Scroll pump
24V 120W


Power line
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RS232 *4
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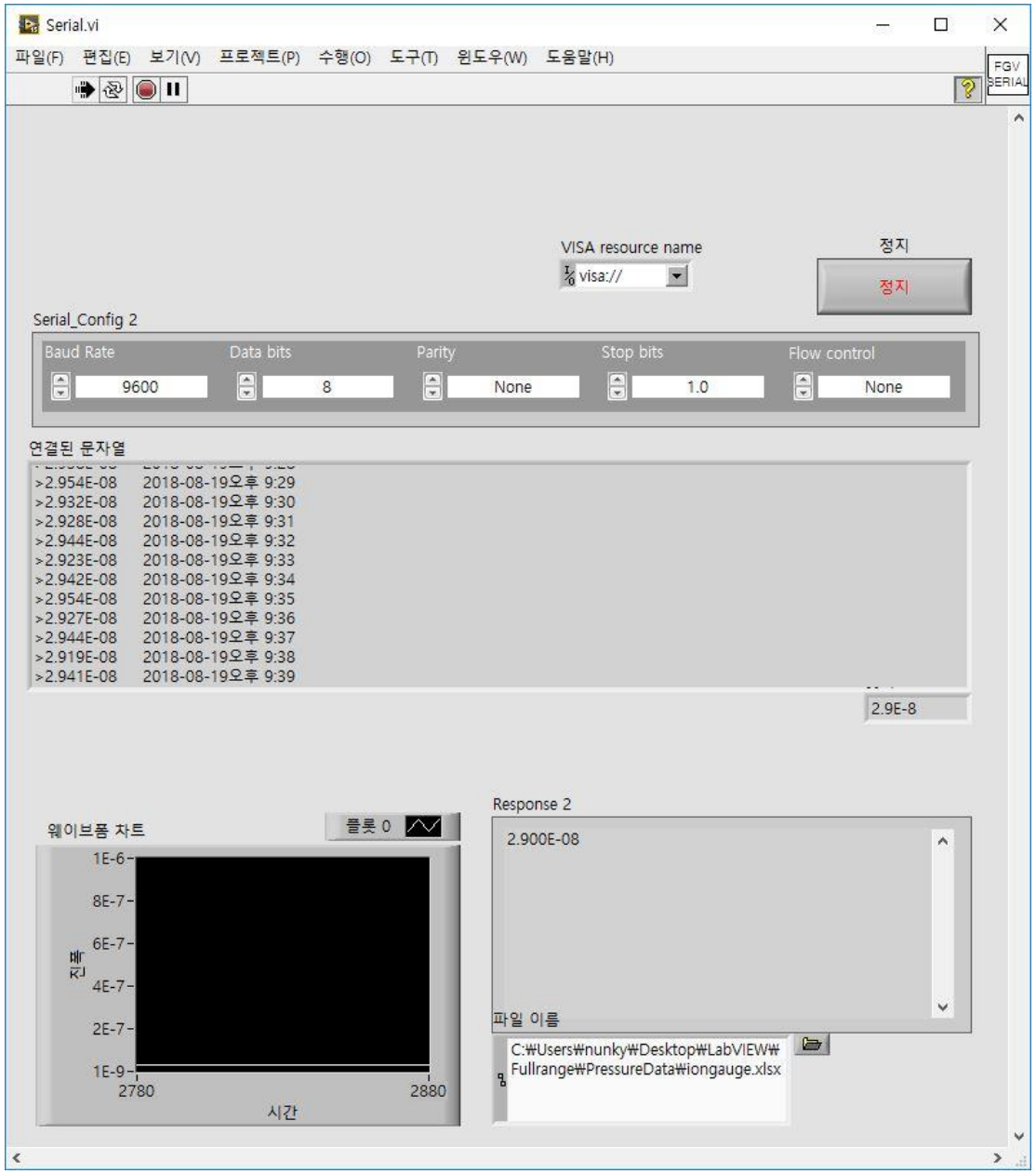


- Air pressure record program built in Labview.
- Pressure data is measured by Ion gauge and transfer to CompactRio via gauge controller

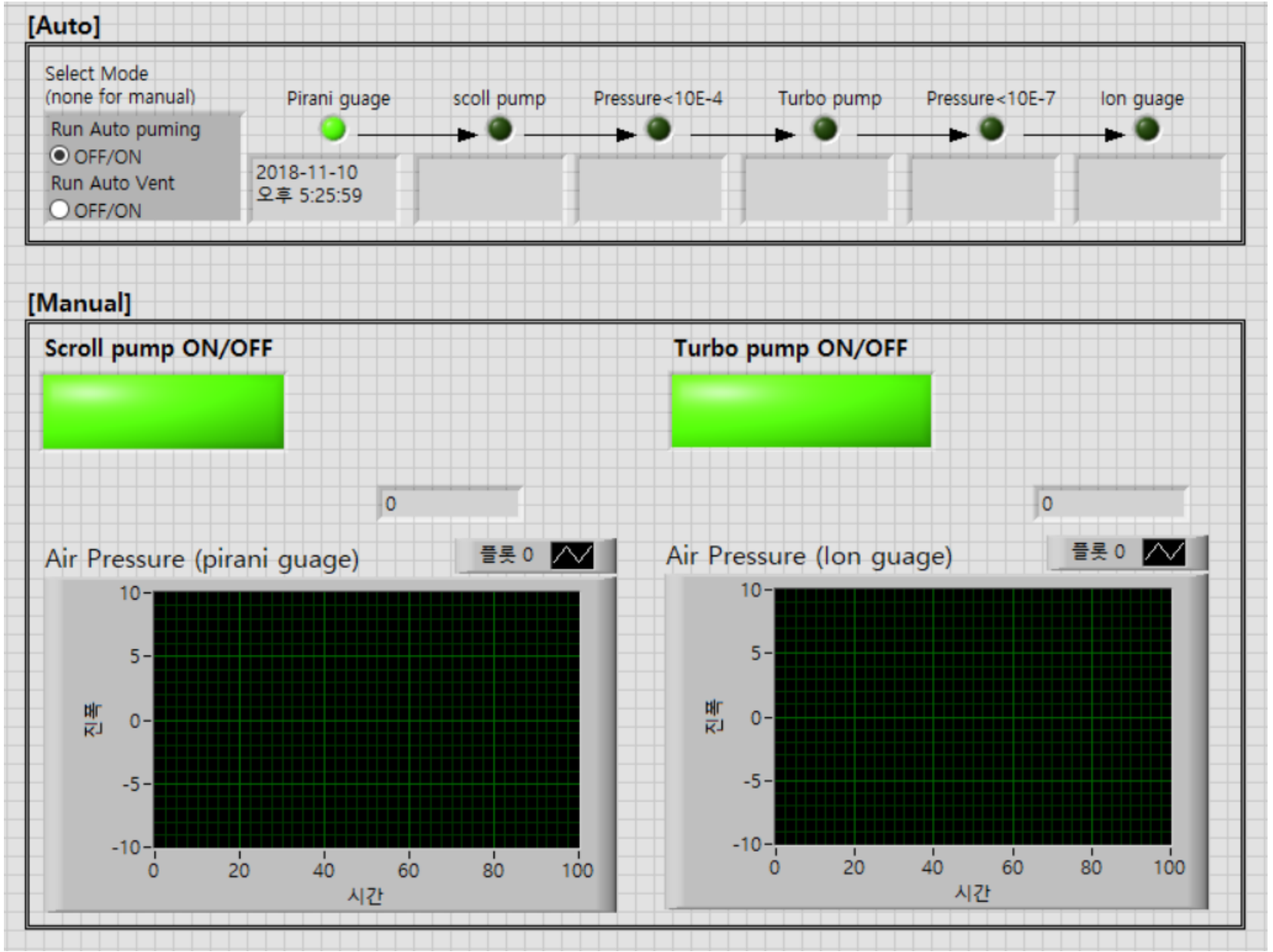
Plan

Short term goal

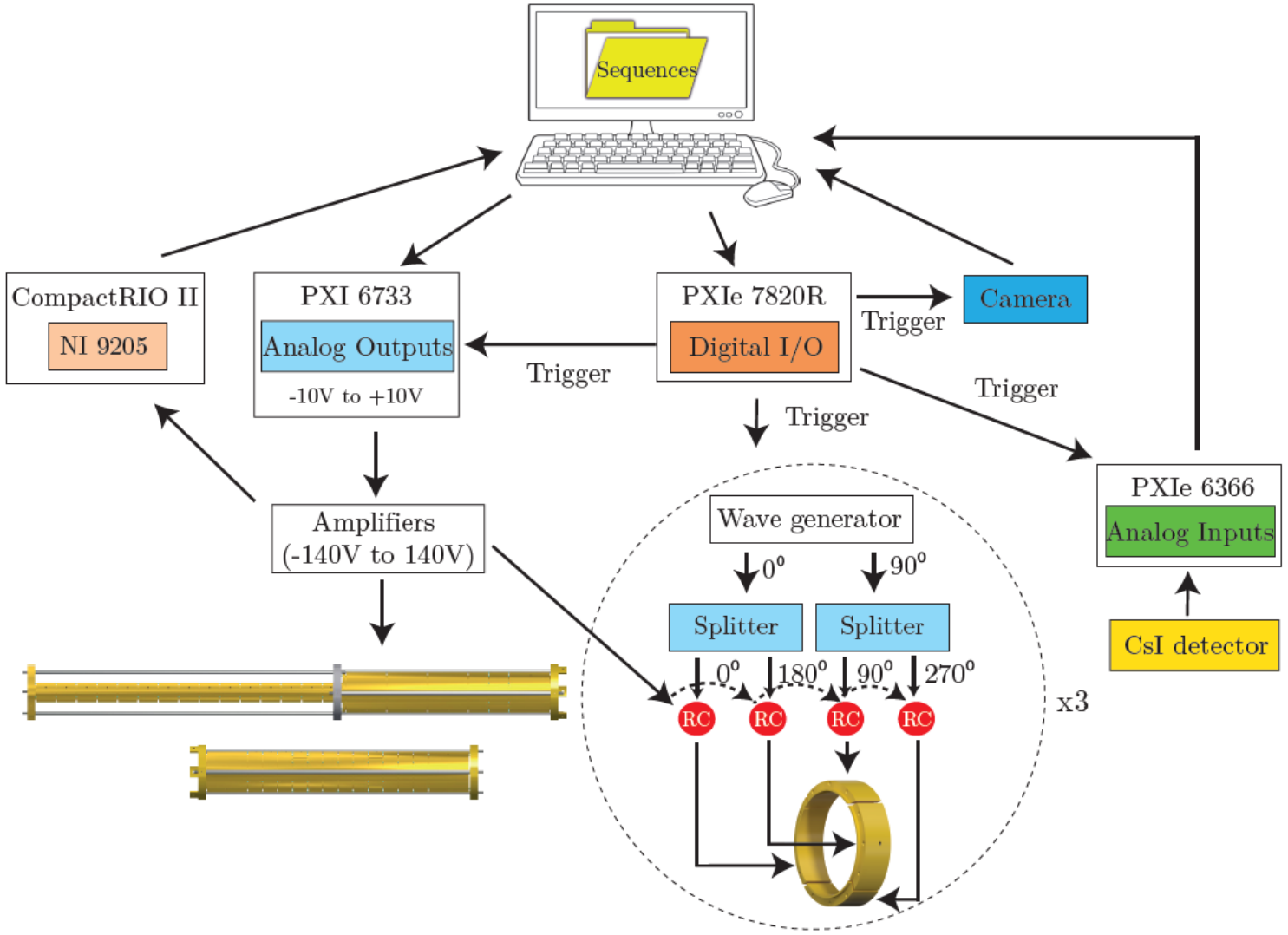
- TMP control
- Build Vacuum & Ventilation sequence
- Implement safety condition with FPGA

Long term goal

- Build MRE control system (Include PXI, Amplifier)
- Sequence editor for optimization



Prototype of Vacuum & Ventilation sequence interface



MRE control system

Image from Maia Leite, A. M.
Development of a buffer gas trap for the confinement of positrons and study of positronium production in the GBAR experiment
(Doctoral dissertation, Université Paris-Saclay (FR)).

Sequence editor Labview program

Image from Maia Leite, A. M.
Development of a buffer gas trap for the confinement of positrons and study of positronium production in the GBAR experiment (Doctoral dissertation, Université Paris-Saclay (FR)).

Short term goal →Schedule

- TMP control →~11/20
- Vacuum & Ventilation sequence →~11/30
- Safety condition with FPGA →~12/15

Long term goal

- MRE control system (Include PXI, Amplifier) →~1/25
  (can be done only after MRE, PXI, Amp)
- Sequence editor →~2/1

Short term goal →Time required

- TMP control →1 day
- Vacuum & Ventilation sequence →1 day/2weeks for test
- Safety condition with FPGA →4-5days

Long term goal

- MRE control system (Include PXI, Amplifier) →about 1month
- Sequence editor →1 month