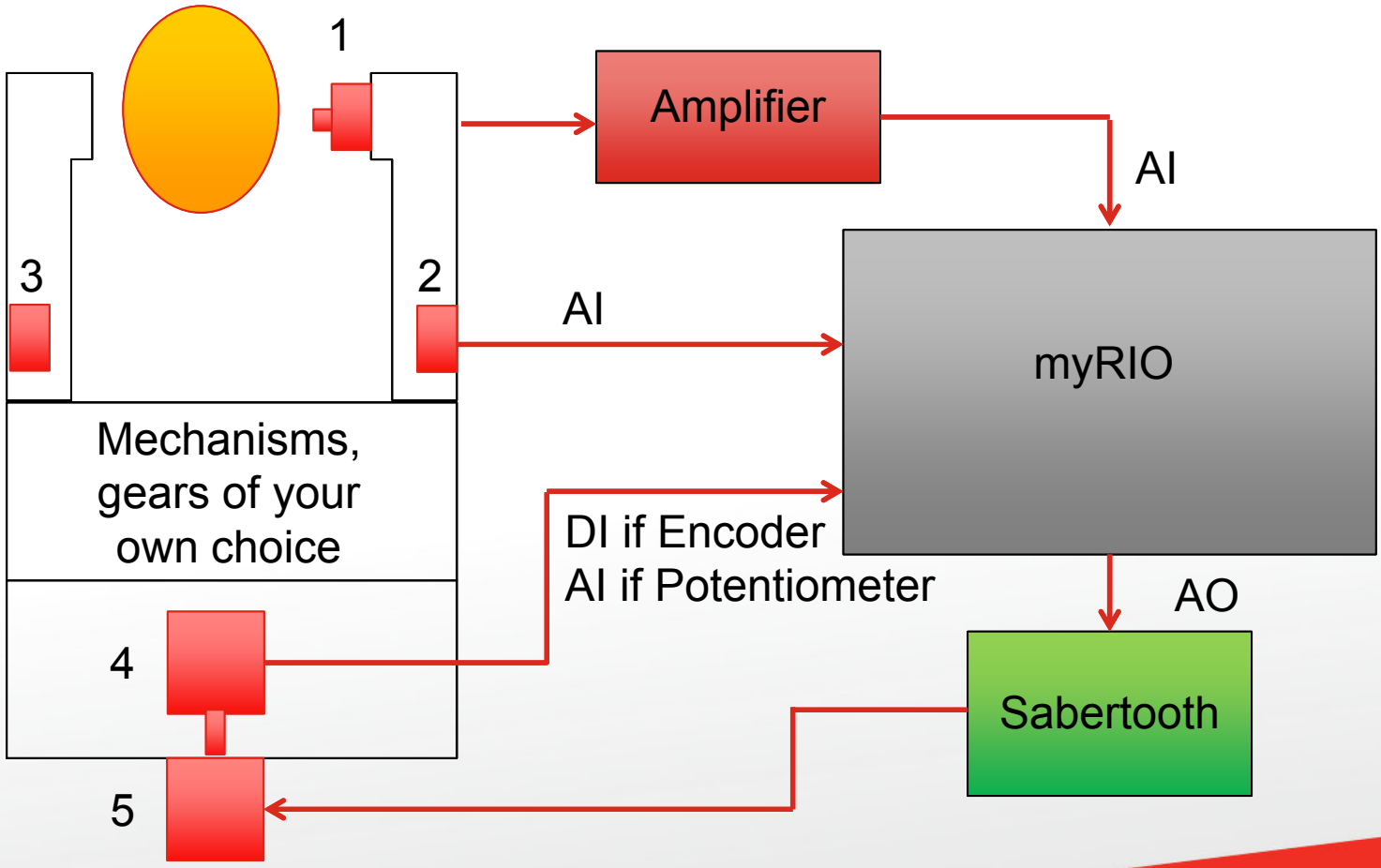
Gripper Project

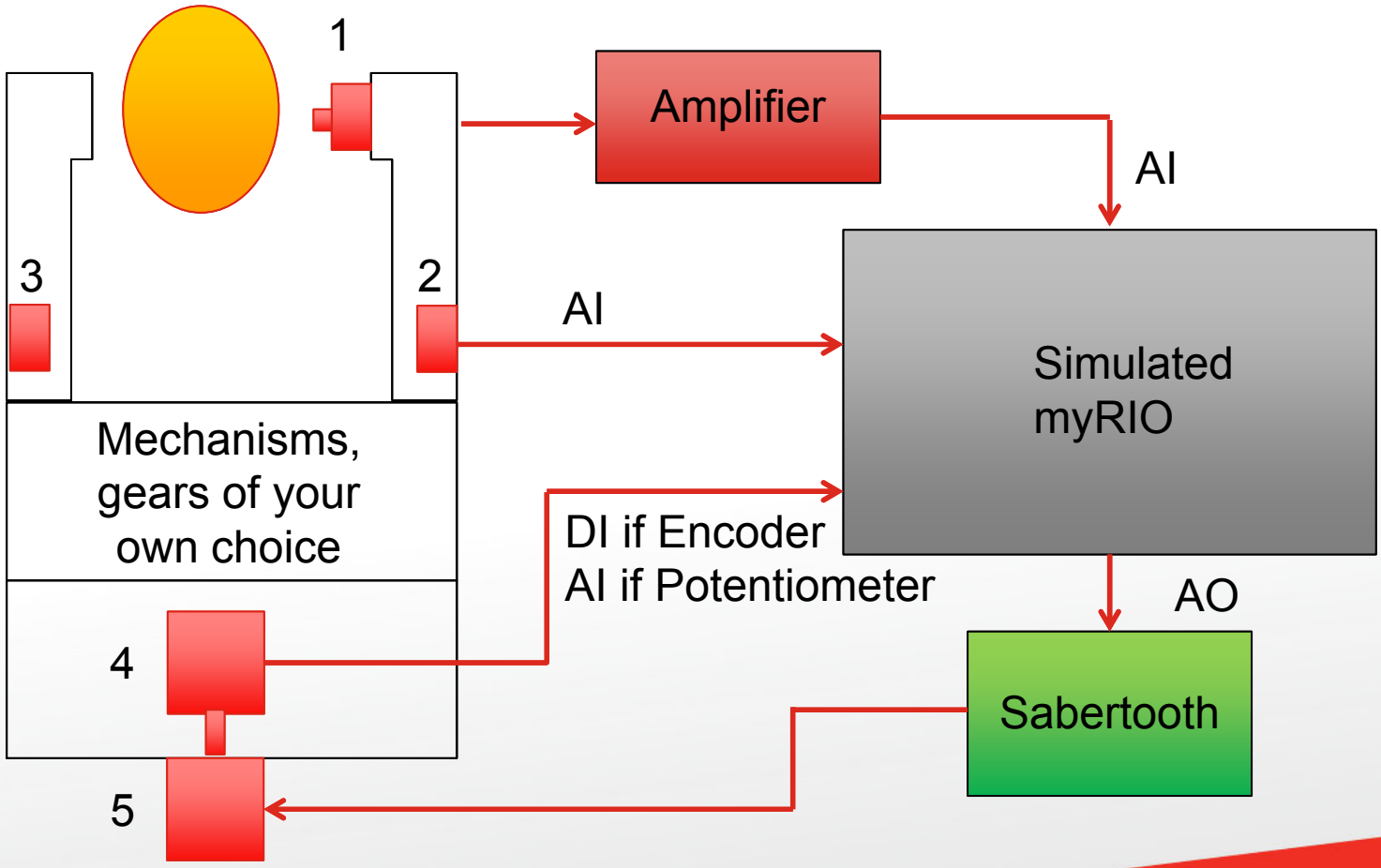
Simulations

Gripper Project with myRIO

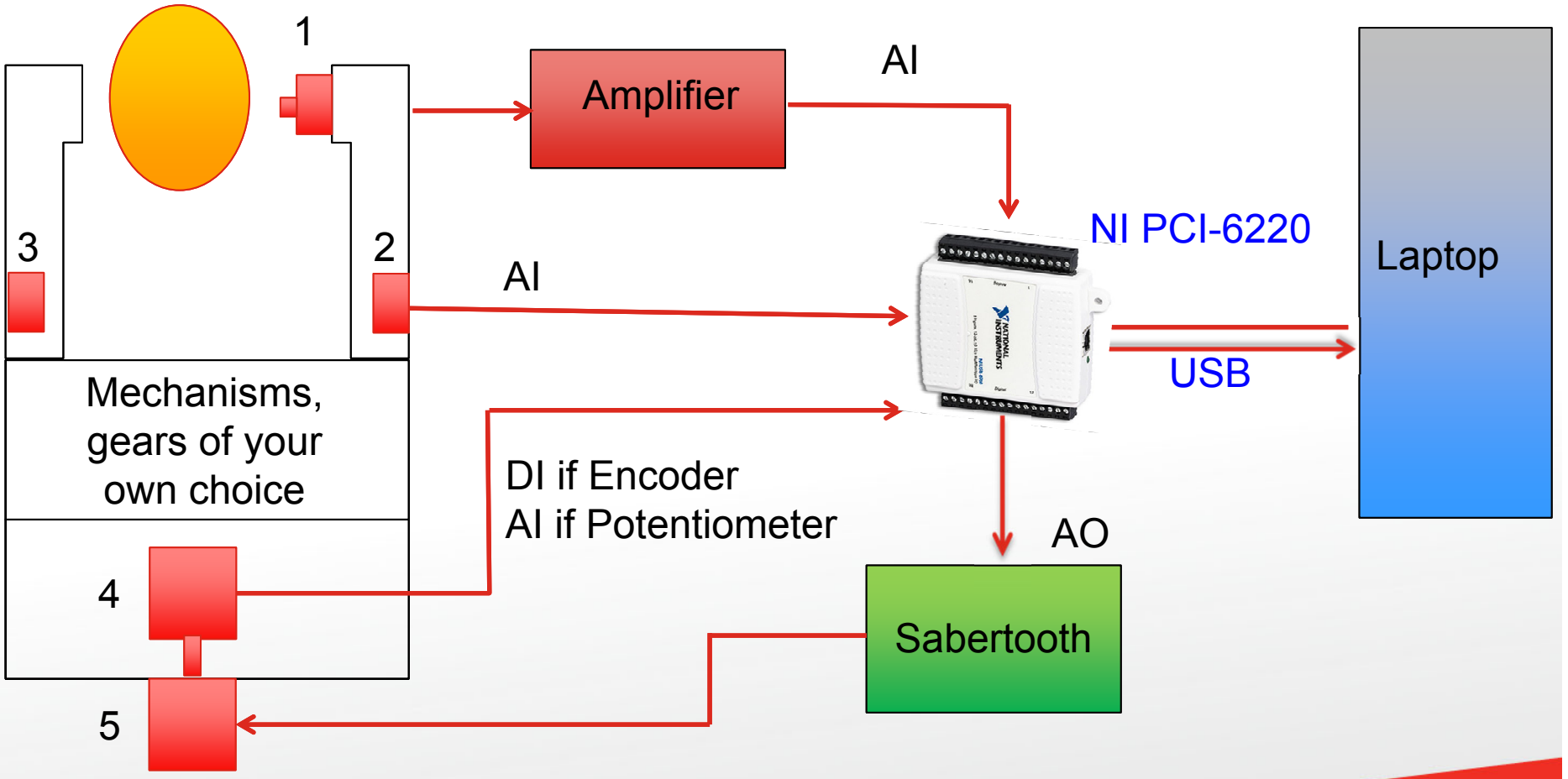
- Connections:



Project with Simulated myRIO



Gripper Project with NI USB DAQ



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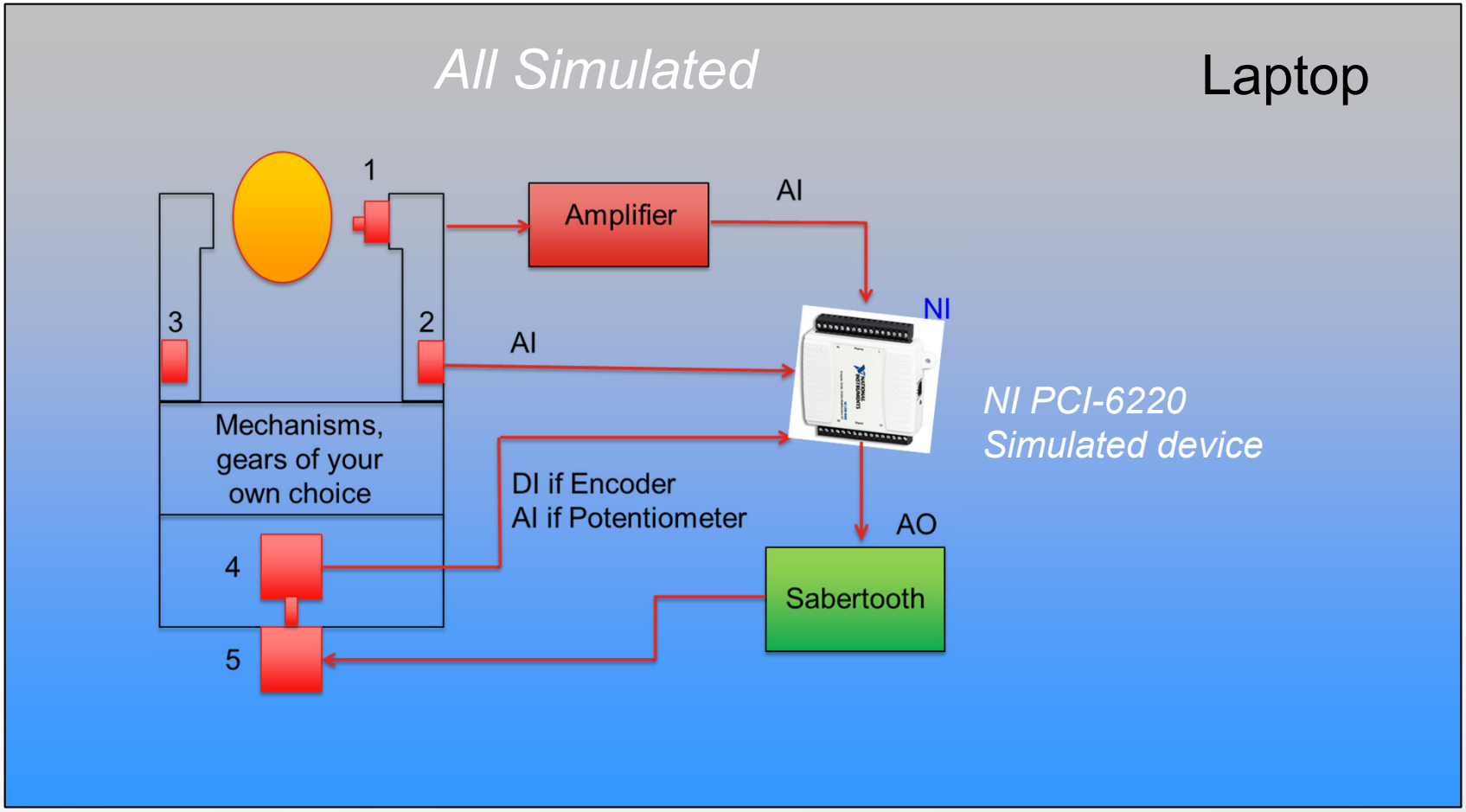
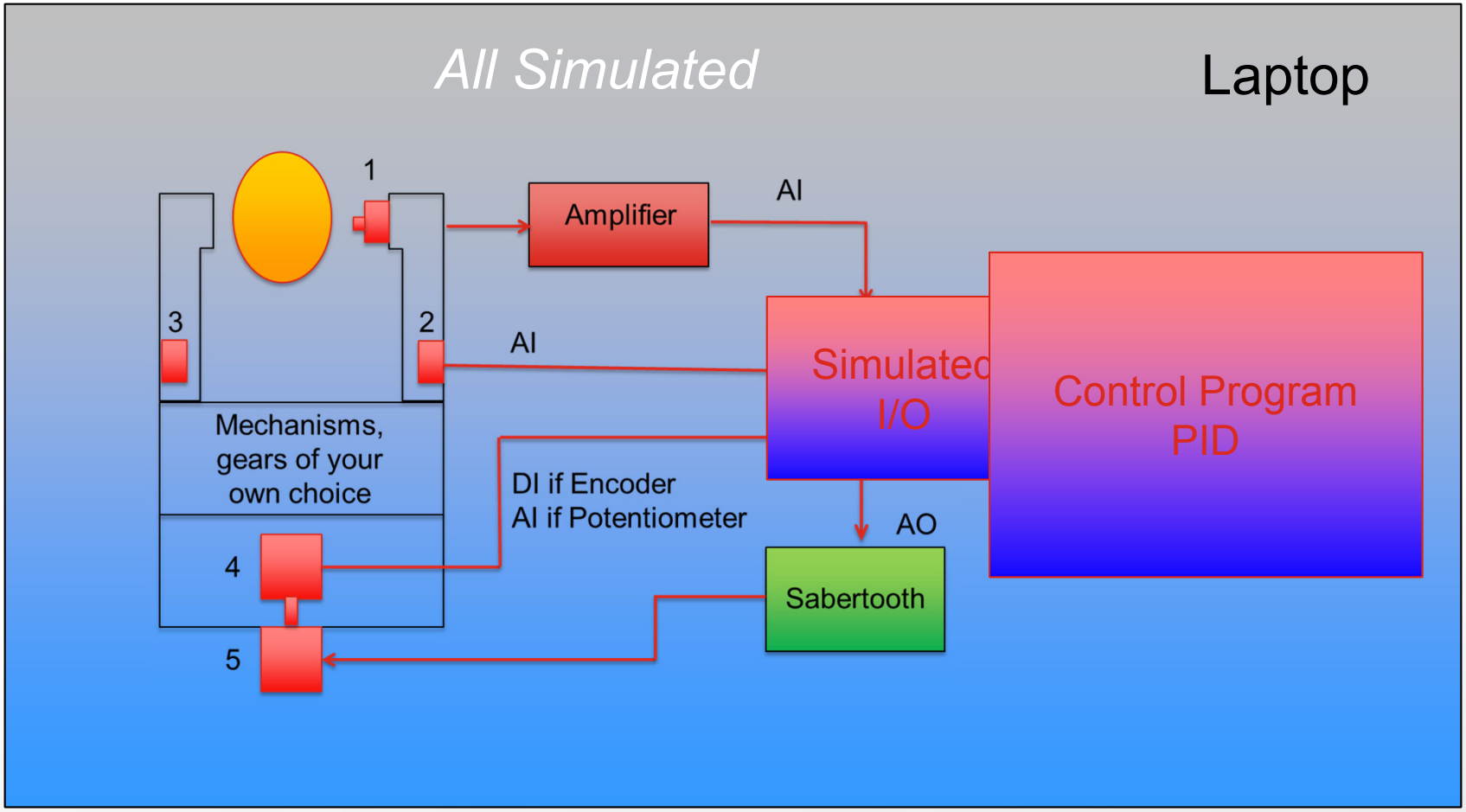
Gripper With Simulated NI DAQ



Gripper Fully Simulated

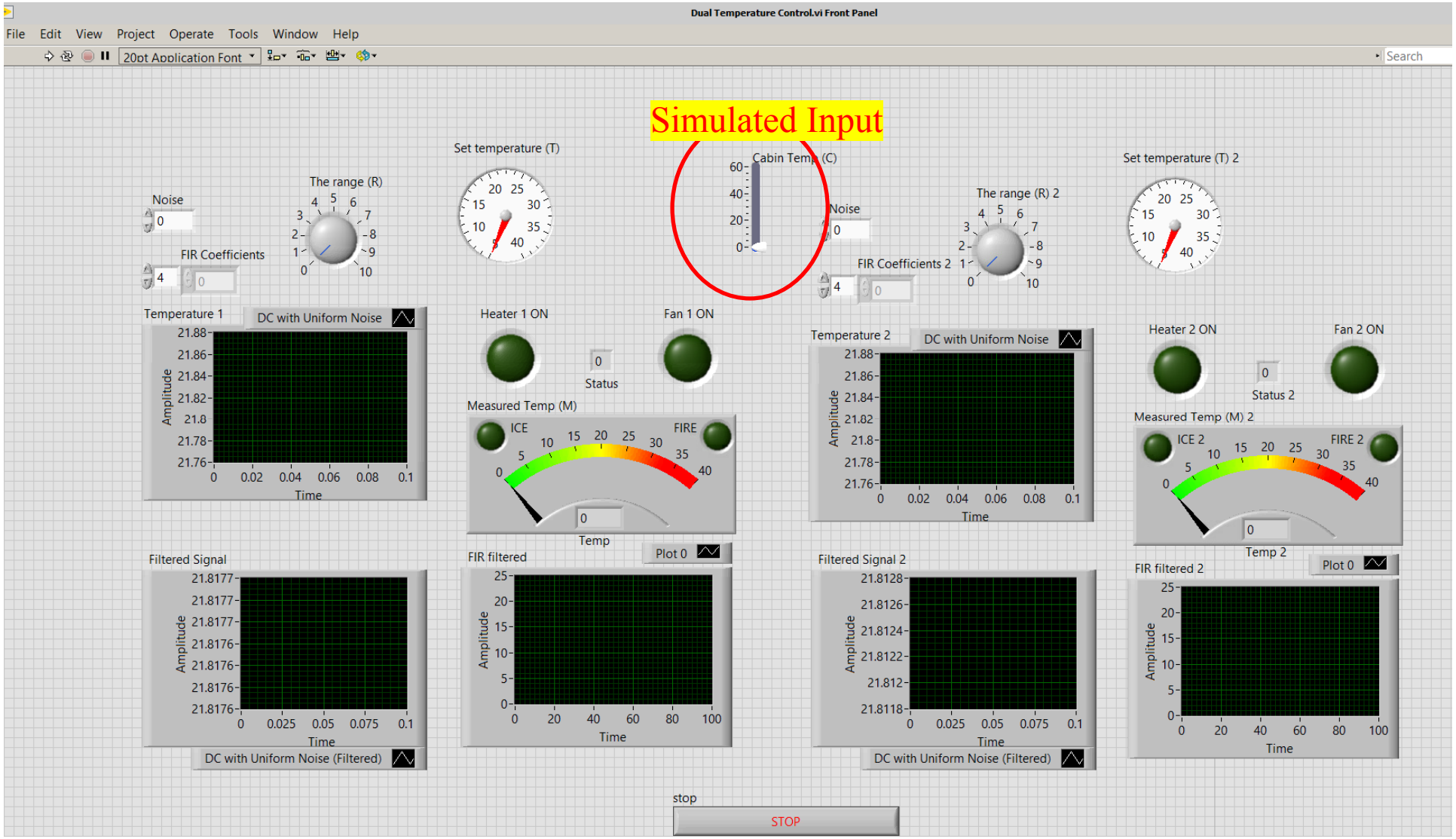


A Control System Design

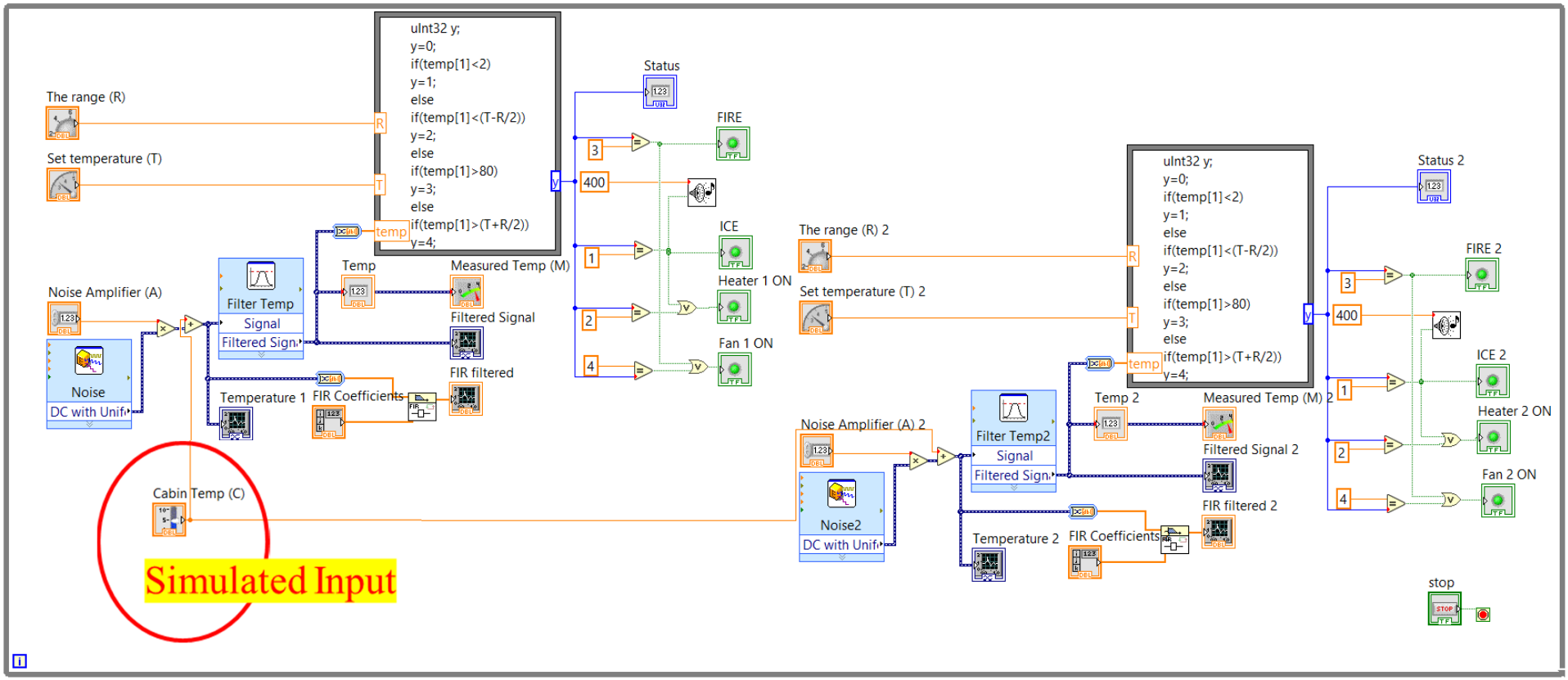
Your task is to design a control system. Use LabVIEW to simulate temperature data acquisition and control, in modern cars, where you have two temperature control loops. Controlled variables are temperatures, T_1 and T_2. Your program should perform the following:

- Simulate data acquisition, with noise,
- Has an interface to set up the target value of the controlled variable, and offset
  $T=T_{target} \pm T_{offset}$ for example $T=20\pm1\ ^0C$
- Filter the signal using FIR filter, or other,
- Display the temperature value before and after the filtering using graph representation,
- Display the temperature value using a numerical indicator,
- If the measured (simulated) value is below the target activate the heater, simulated by a red diode
- If the measured value is above the target activate the fan, simulated by a blue diode
- When the controlled variable is at the target range both diodes should be OFF
- Add two more diodes for warning when the temperature is too low ($T<2^0C$), or too high ($T>80^0C$)
- BONUS, for HD: Add sound warning for both cases: ($T<2^0C$) & ($T>80^0C$).
- If your control system for the temperature T_1 is working well, add one more control system for the temperature T_2.

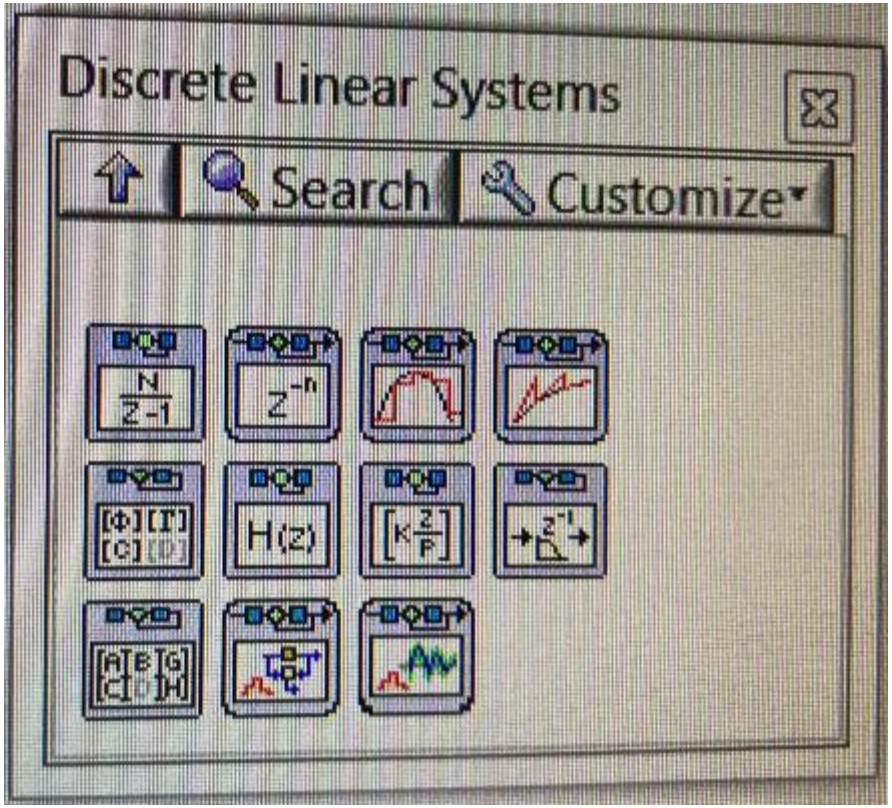
Dual Temperature Control



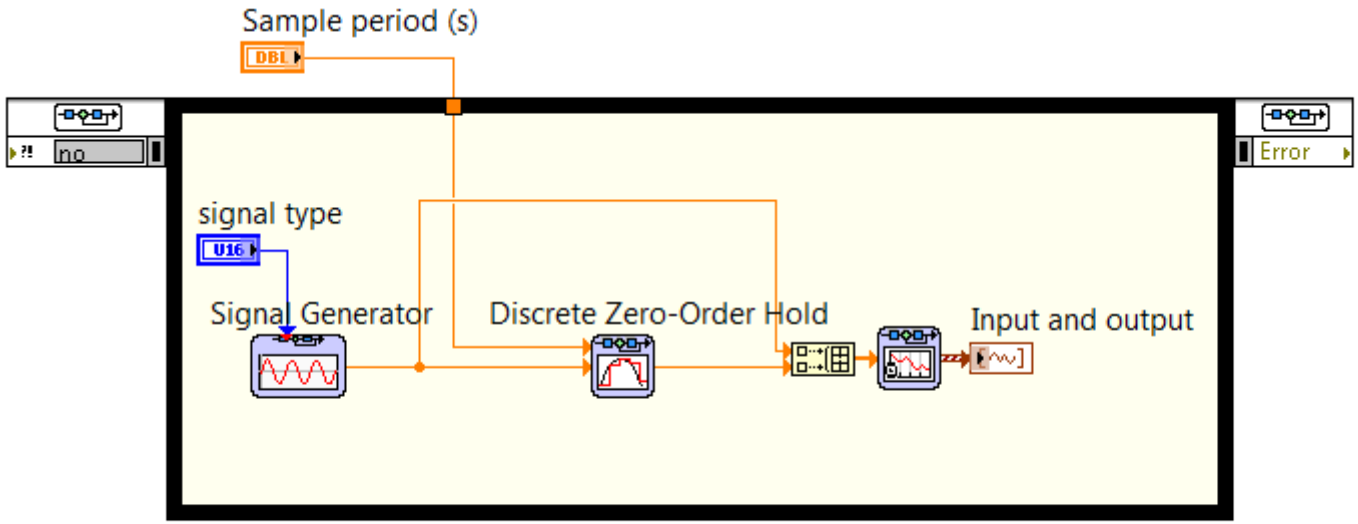
Dual Temperature Control



Transfer Functions in LabVIEW



Transfer Functions in LabVIEW



Thank you,
Questions