

Final project

- Rotation speed measurement using encoder and rotation speed control using real time operating system (including hardware interrupt for emergency).
- Application:



External Supply

Via truck or pipeline

Or local production via water electrolysis



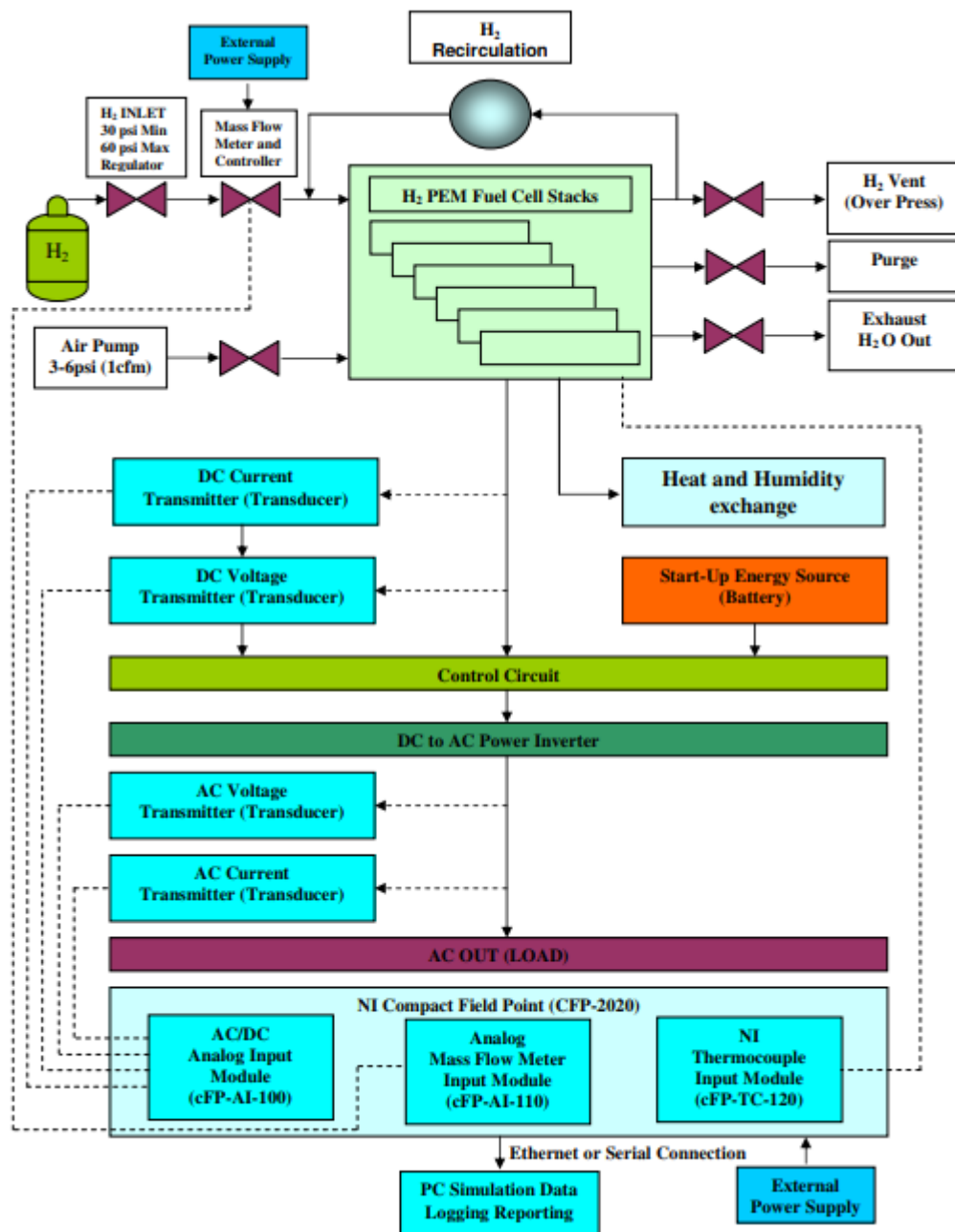
Storage Area
(20 bar up to 500 bar)

Compression Area
Pressure increase in
cascades up to filling
pressure

Cooling System
For H_2 supply to
dispenser ($-40^{\circ}C$)

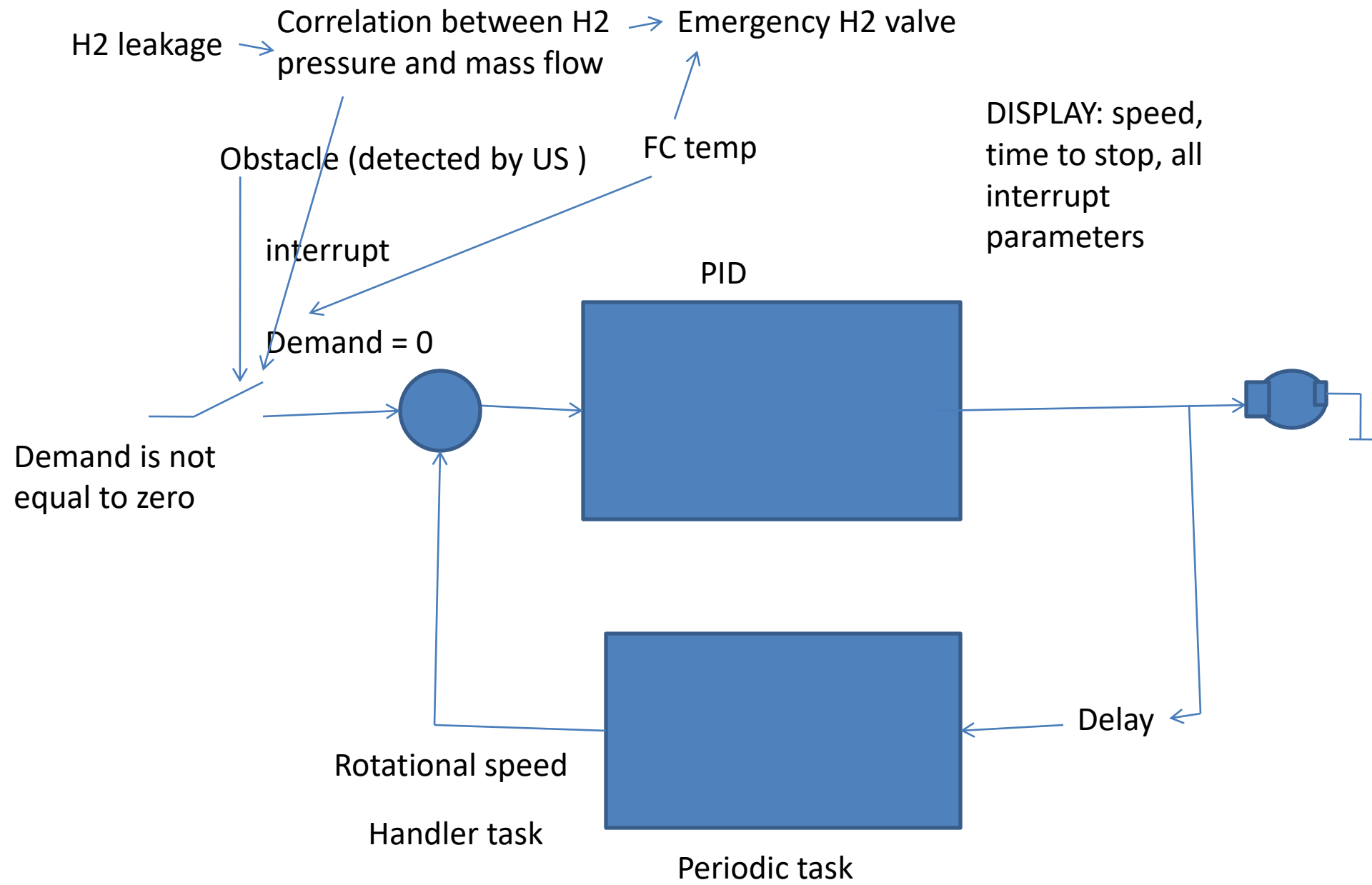
Dispenser
350 or 700 bar nominal pressure
(incl. safety level requirement for
500/1050 bar instruments)





Proton-exchange or Polymer
Electrolyte Membrane (PEM) fuel
cell

- Correlation between H₂ pressure and mass flow – base for software simulation
- Correlation between mass flow and produces DC electric current + temperature (for Fuel Cell – type EPAC-500 Hydrogen fuel cell) – base for software simulation
- Software speed simulation of 2 motors
- Speed control using PID control algorithm, demand from user entry



$$Q = k * (P_{in} - P_{out})$$

