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System Design: Functional Decomposition

High-Level Block Diagram:

Low-Level Block Diagram:

Insert pics from git hub

Next-Level Block Diagram:
Level 0: EARS (Electromechanical Automatic Pressure Relief System)

Module	EARS
Inputs	DC Power: 3.3V and 12V Internal Pressure Gauge: signal to Control/Data Aquisition
Outputs	Pressure Relief Solenoid: psi or barr? Pressure Display: Peak or live view?
Functionality	To real the pressure from inside a solenoid and then release at *'X'* PSI or BARR.

Level 1: Pressure Relief Solenoid

Module	Pressure Relief Solenoid
Inputs	N/A
Outputs	PMW: Out from chip
Functionality	Set a pressure at which once it is surpassed it will release pressure from the solenoid.

Level 1: Pressure Sensor

Module	Pressure Sensor
Inputs	N/A
Outputs	ADC: into out chip
Functionality	Take measurements of pressure in out solenoid and give info to our chip for calculations.

Level 1: Local Display

Module	Local Display
Inputs	I2C: PSI or BARR displayed
Outputs	N/A
Functionality	Display peak or live pressure in our solenoid.

Level 1: Power In [3V3 Regulator]

Module	Power In [3V3 Regulator]
Inputs	DC Power in: 12V?
Outputs	3v3 Regulator takes output to '*X*'v?
Functionality	Takes Power in and steps it down for our needs?

Level 1: STM32L151xE Chip

Module	STM32L151xE Chip
Inputs	Power: 3v3 regulator Pressure Sensor: ADC in
Outputs	Local Display: I2C Pressure relief solenoid: PMW Out
Functionality	

Level 2: maybe?