Practicum Brainstorming:

1. LOTO w/indicators
    a. Concept of Operation: The Lock-out Tag-out box is a safety system which uses keys to indicate if anyone is working on the Test Stand and if anyone is, then it prevents the Test Stand from being powered. There are LED indicators to show who has not returned their key to the box which should be powered via an isolated power supply to prevent any power from leaking into the system. There should also be an emergency stop button present. The system should be housed with enough room for all the components inside.
        i. Sensor: Key lock
        ii. Controller: Logic and power regulators (could be a microcontroller)
        iii. Actuator: LEDs, POE, and POE+
2. TSAR Regulator Board
    a. Concept of Operation: There are four different power domains for the system: the BB-AI, the Marionette DAQ input board, pressure sensor, and temperature sensors.
        i. Sensor: POE, POE+, Ethernet
        ii. Controller: Power Regulator
        iii. Actuator: Pressure sensors, temperature sensors, thrust plate, beaglebone AI, and Marionette DAQ input board.
3. Light Tower
    a. Concept of Operation: Receive data from sensor regarding current valve state, compare the state with the expected state. If they do not match, sound an alarm and display the error code.
        i. Sensor: Hall effect
        ii. Controller: STM32
        iii. Actuator: LEDs