SnowMAN 2.0

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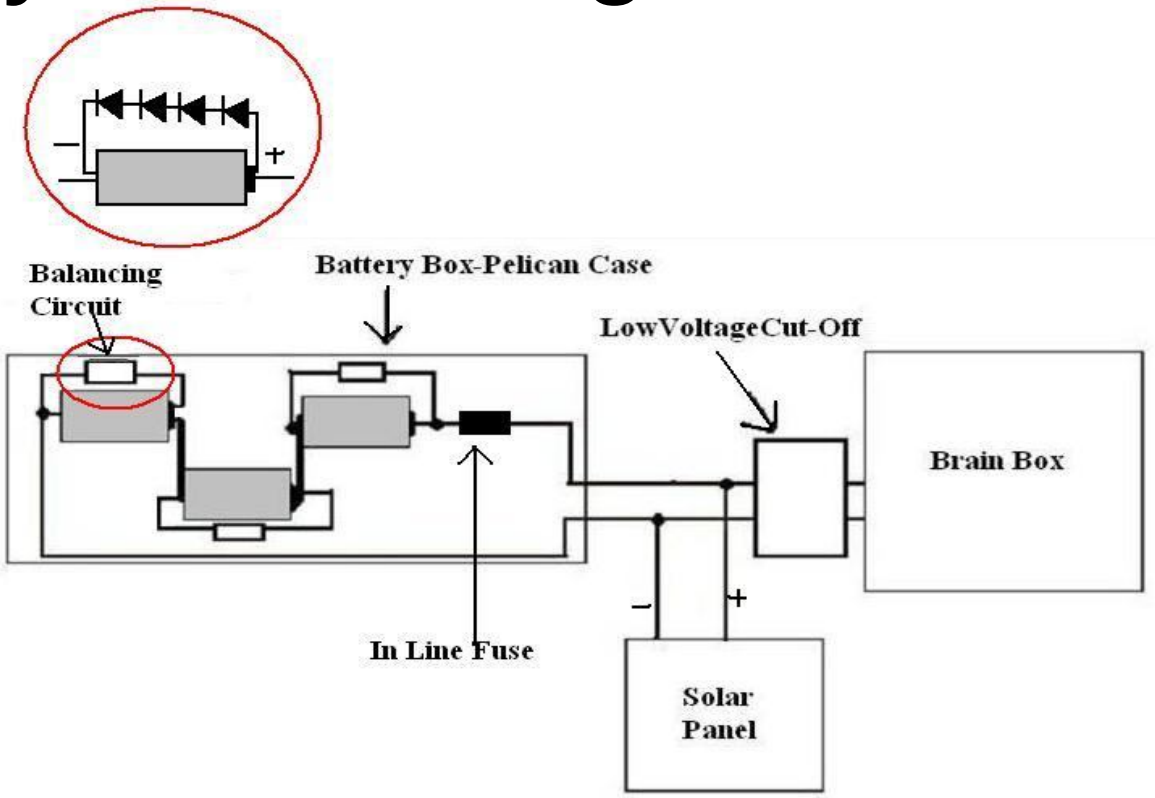
Overview

- We are building the structure and power system for the Brain Box that the SnowMAN group built last year.
- Conditions: Freezing Temps, 6 months deployment, 2 man crew to pack in and set up 6 units

Power Systems Diagram

- During Testing:
- The testing simulated 1.25 days in 1 hr.
- It was found that the solar panel averages 15V.
- Batteries did not exceed 3.3V
- All batteries stayed balanced



PSpice Simulations

The PSpice simulation showed that when the cell voltage was at a nominal value or greater, the diodes were turned on; when the cell voltage was below the nominal value, the diodes are off, allowing the battery to charge.

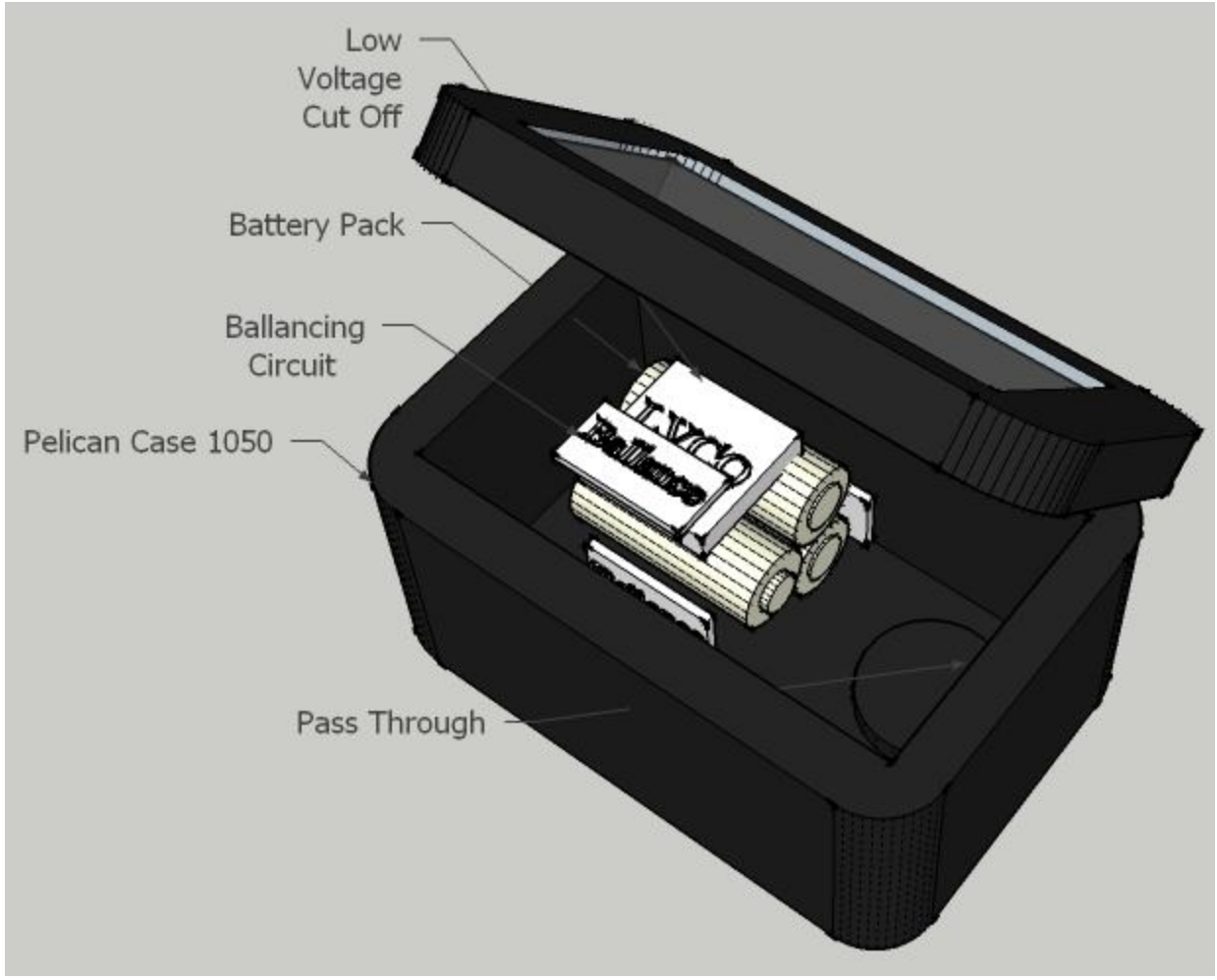
Cell Voltage	Current Across Diodes
Nominal Value	5.5 mA
Below Nominal Value	200 uA
Above Nominal Value	11 mA

Battery Box Assembly

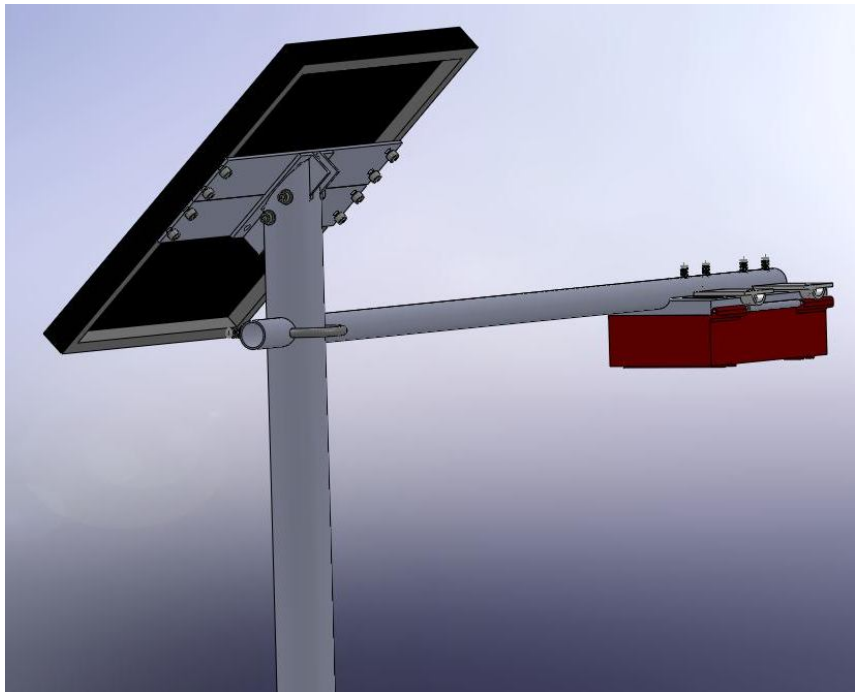
A visual of how the battery pack, 3 balancing circuits, and LVCO fit into the Pelican case.

There is foam padding that the batteries were delivered in, surrounding the battery management system.

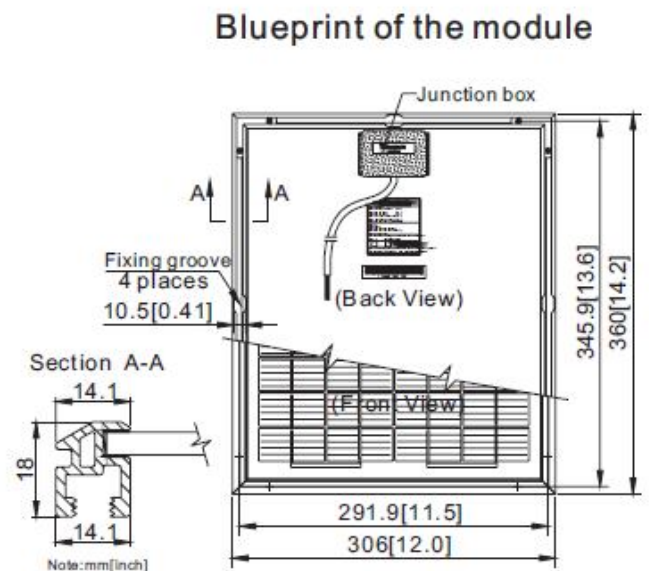
This will stop the batteries from shifting while they are being hiked in to a location.

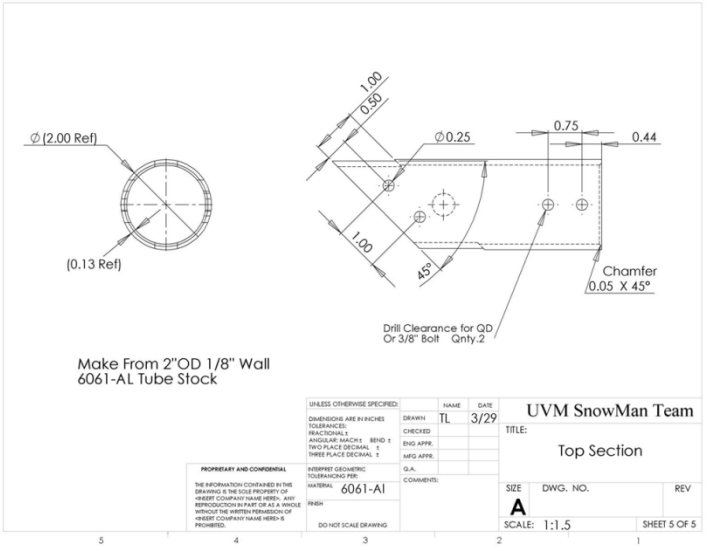


Solar Panel Mounting Fixture

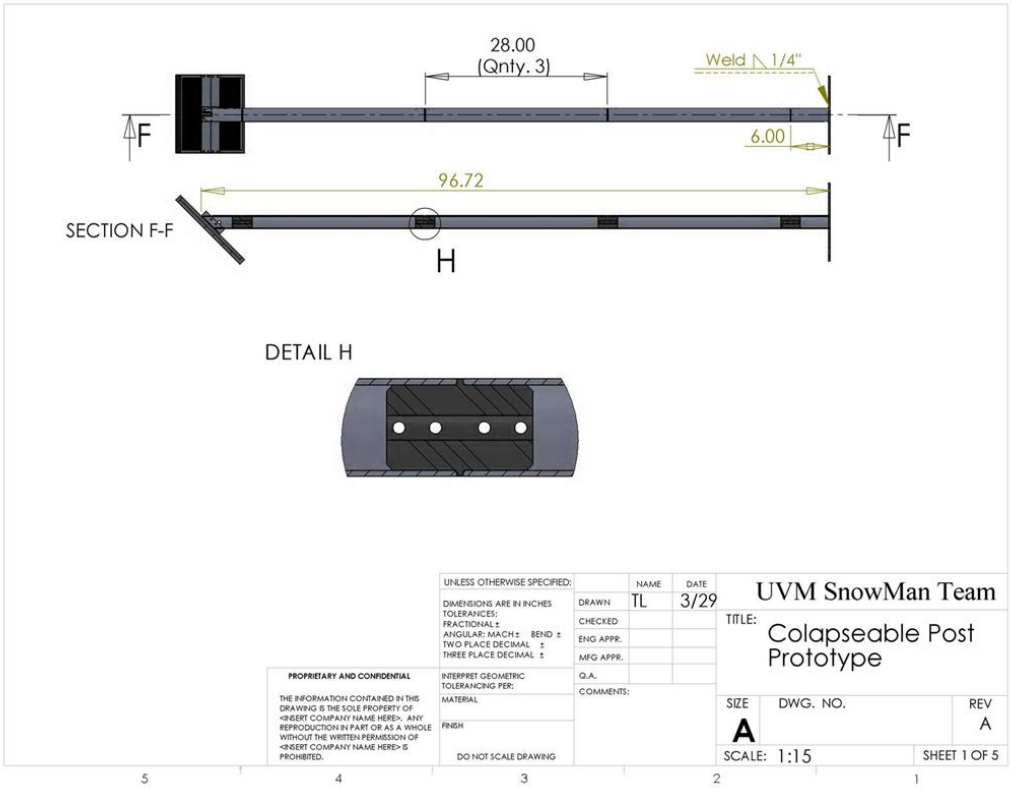


(Fabrication Completed)



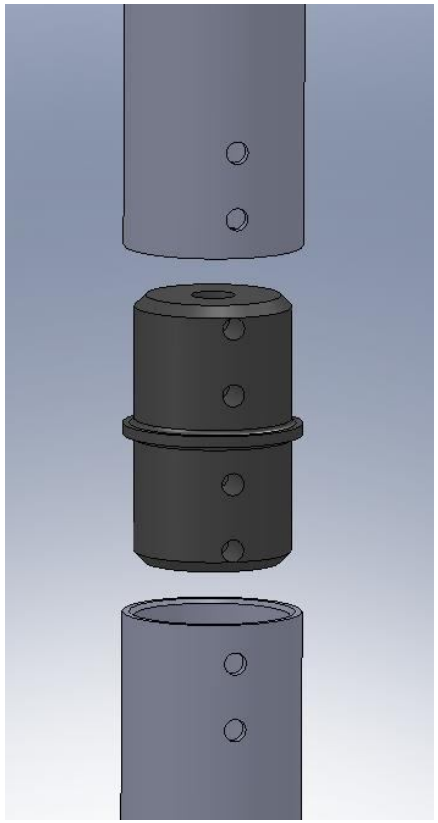


Collapsible Post Design

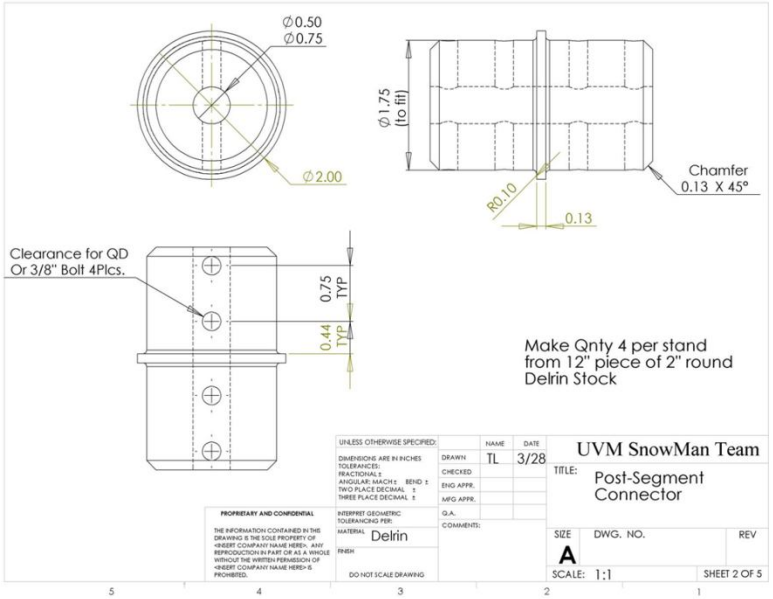


- Three interchangeable, packable 28 inch sections
- One 6 inch section on top will accept solar panel mounting fixture
- Another 6 inch section on the bottom will be TIG welded to the base

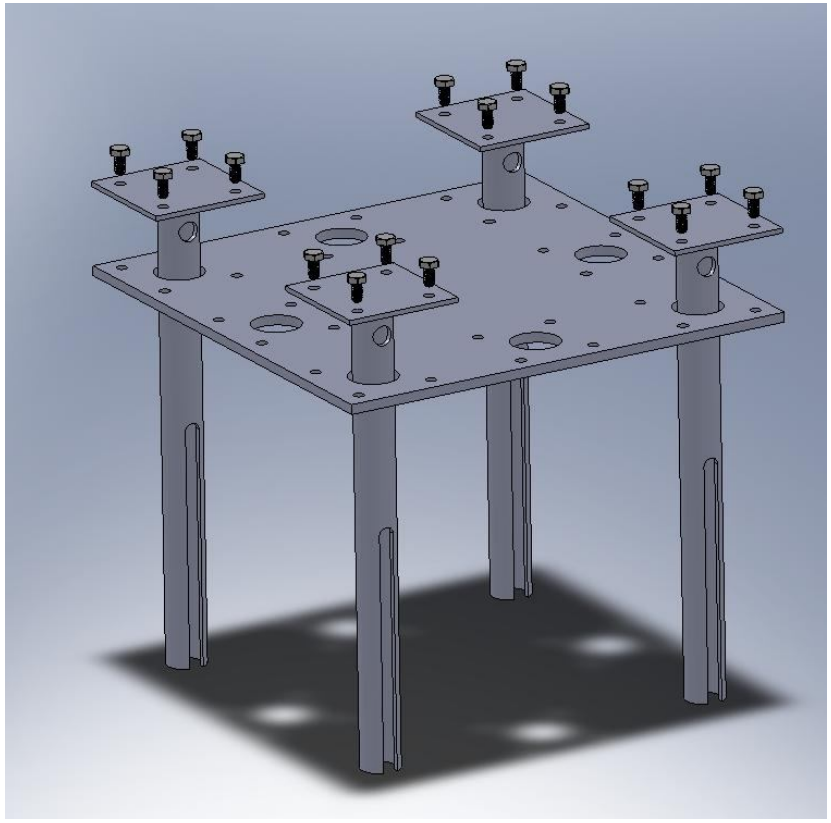
Collapsible Post Design



- 2 inch Diameter Delrin Pieces will mate joining segments of aluminum tubing which comprise the main vertical post



Base Design



- 4 identical legs able to bolt into any 8 holes
- Legs are slotted to help move debris out of the way
- Hole near flange capable of accepting rod to drive and twist leg into the ground
- Short Base piece of Vertical Post welded to center

Overview

- The Brain Box and solar panel mounts have been finished
- The Battery and BB cable have been equipped with cable pass throughs

Works in Progress:

- Building collapsible pole system for easy packing and deployment of vertical support
- Development of deployment protocol
- Full system testing with software, power system and structure