



# **Cranberry**

## **EE396 Critical Design Review**



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# Overview

- Hardware Block Diagram
- Progress
- Cranberry Data
- Problems and Solutions
- Updated Schedule
- Planned Improvements
- Possible sensors
- Potential Problems
- Questions

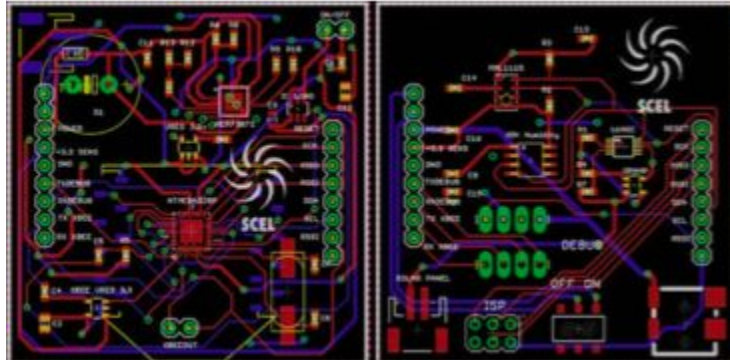


# Hardware Block Diagram



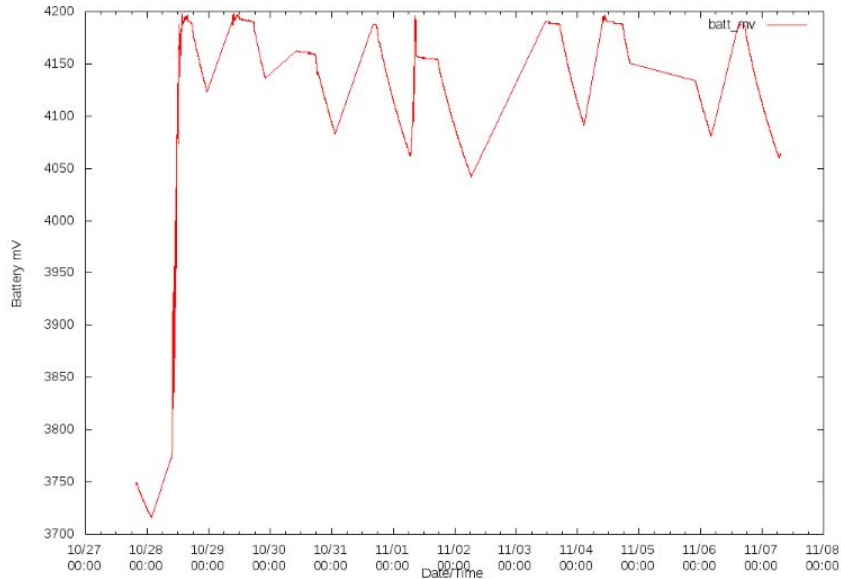
# Progress

- Deployed Cranberry 3.5 red
- Began planning improvements for Cranberry 4.0
- Began making new parts and packages in Eagle
- Began building another Cranberry 3.5

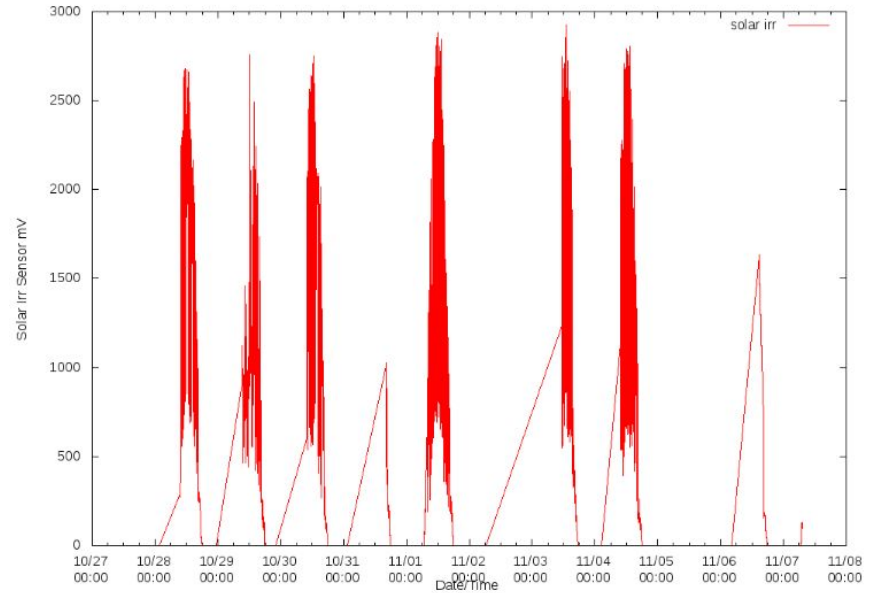


# Cranberry Data

## Battery Voltage



## Solar Irr



# Problems & Solutions

- Solar Irradiance
  - Scaling factor in code
- No voltage on XBee
  - Voltage regulator enable tied to XBee Sleep ON/OFF
  - Resoldered
- Battery voltage reading
  - Voltage divider



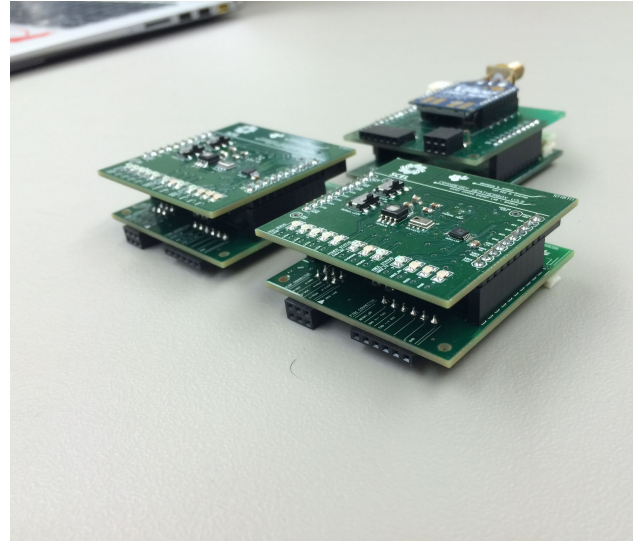
# Updated Schedule

|                        | 10/3 | 10/10 | 10/17 | 10/24 | 10/31 | 11/7 | 11/14 | 11/21 | 11/28 | 12/5 | Finals |
|------------------------|------|-------|-------|-------|-------|------|-------|-------|-------|------|--------|
| Finish Debug 3.2 & 3.5 | X    | X     | X     | X     |       |      |       |       |       |      |        |
| Deploy                 |      |       |       | X     |       |      |       |       |       |      |        |
| Research Improvements  |      |       |       | X     | X     |      |       |       |       |      |        |
| Making Parts on Eagle  |      |       |       |       | X     | X    | X     |       |       |      |        |
| Building 2nd Board     |      |       |       |       |       | X    | X     | X     |       |      |        |
| Redesign Board         |      |       |       |       |       |      |       | X     | X     | X    |        |
| 396 Paper              |      |       |       |       |       |      |       |       |       | X    | X      |



# Planned Improvements

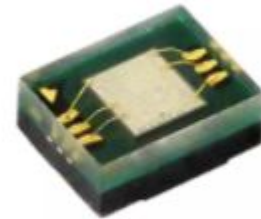
- Make PCB bigger (2.5 X 2.5 in.)
  - Create new parts, packages, and schematics
- Add more test points for debugging
- Change charging chip package
- Add additional sensors
- Talk to other teams





# Possible Sensors

- GPS: Copernicus II (12 Channel)
- Real Time clock
- External Temperature and Humidity
- UV: VEML 6070 (I2C Output)



# Potential Problems

- Time constraints
  - Eagle
  - Soldering boards
- Finding new sensors/parts



Any  
Questions?

