



Dragon Fruit Critical Design Review (CDR)

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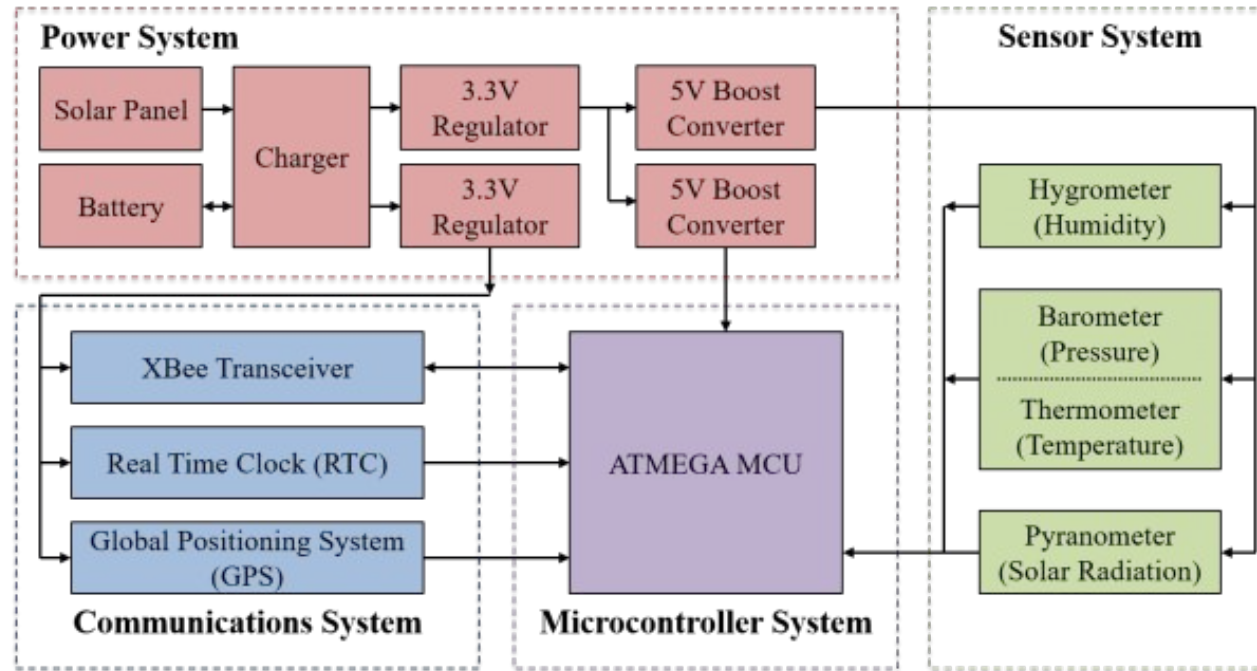
Overview

- Block Diagram
- Power Budget (Theoretical)
- Potential Problems
- Potential Solutions
- Team Progress
- V4 Board Design
- Housing Design
- Schedule



Overall Block Diagram

University of Hawaii at Manoa SCEL





Team Progress

- Soldered the first PCB V4 board
- Ready for programming
- Begin editing to our housing design



Power Budget



Part	Typical current draw (mA)	Average Current Draw (mA)	Average Power Consumed (mW)	Max Power Consumed (mW)
Xbee	205 mA	16.33 mA	49.568552	49.568552
Vreg 3.3V	0.35	0.175	0.5775	2.97
Atmega 328P (5V)	5.2	5.2	26	45
Solar Irradiance	0.3	0.3	1.5	1.5
Vreg 5v (Atmega)	0.07	0.07	0.35	0.5
ADC 16bit	0.155	0.07775	0.38875	0.95
Barometer	0.005	0.2525	0.83325	0.03
Humidity - HIH6131	0.65	0.3255	1.07415	5

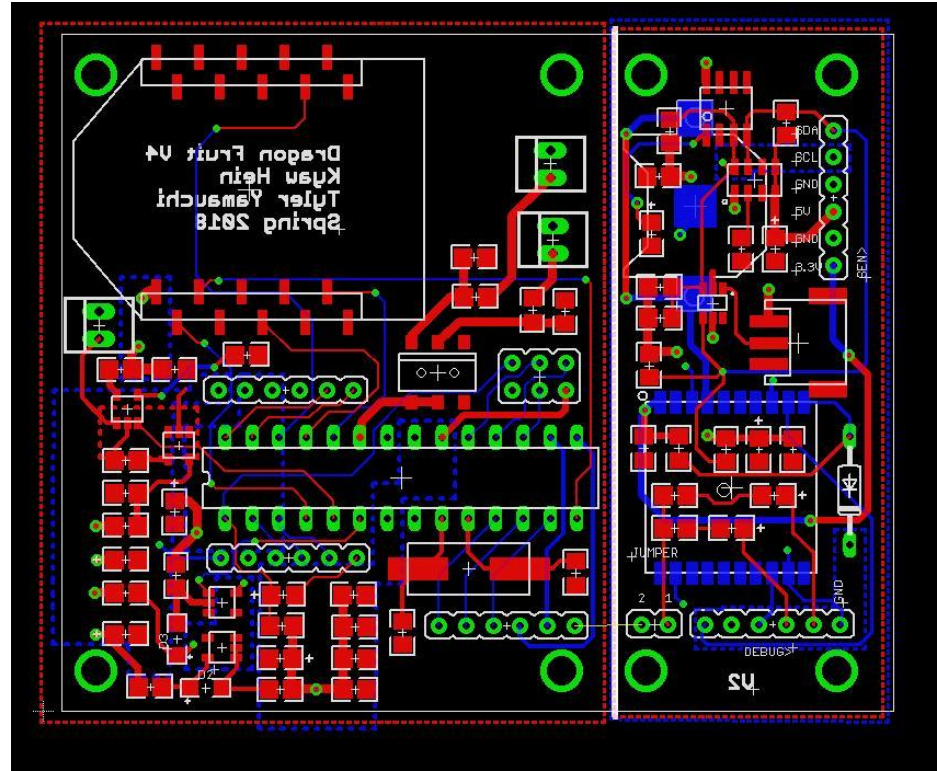


Potential Problems

- Programming the Atmega chip
- Validity of solar Irradiance data

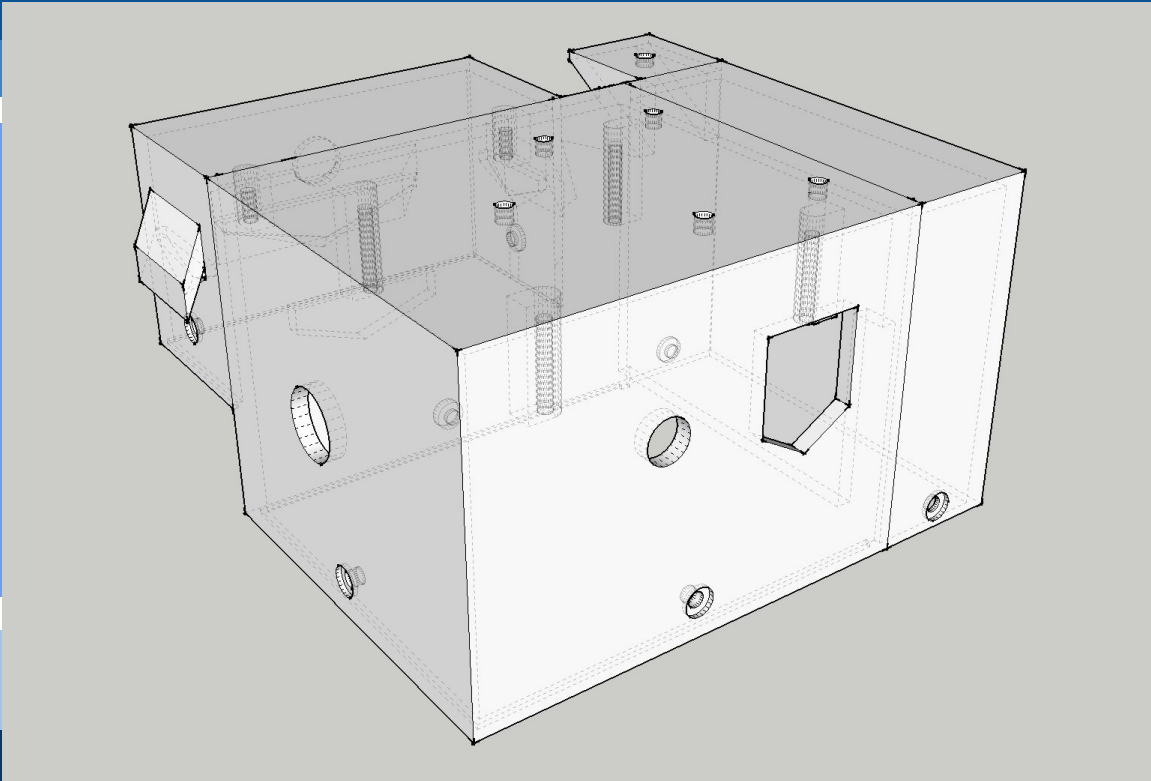
PCB V4

- Major Changes:
 - PTH Atmega chip
 - Removed onboard charging chip
 - Changed package sizes of inductors and diodes





Housing



Schedule



	(Gantt Chart)							
Week	10	Spring Break	11	12	13	14	15	16
Date	3/19/2018	3/26/2018	4/2/2018	4/9/2018	4/16/2018	4/23/2018	4/30/2018	5/7/2018
Presentations								
Proposal								
Preliminary Design (PDR)								
Critical Design (CDR)								
Final Design (FDR)								
PCB (Version 4.1)								
Analyze Board Design								
Make Board Edits								
Get Board Milled								
Solder Parts								
Programming								
Program Board v3								
Program Board v4								
Housing								
Make Edits								
Print needed parts								
Tests (Current Board)								
Transmission/Battery								
Current, Voltage, Diode)								
Deployment								
Version 3								
Version 4								
Report								Report DUE!



Questions?



Image Sources

<http://cryptid-creations.deviantart.com/art/Daily-Paint-1081-Dragon-Fruit-Keeper-570702189>

<http://www.michaelleestallard.com/wp-content/uploads/Hello-My-Name-Is-Name-Badge.jpg>