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# Team Bumblebee Critical Design Review

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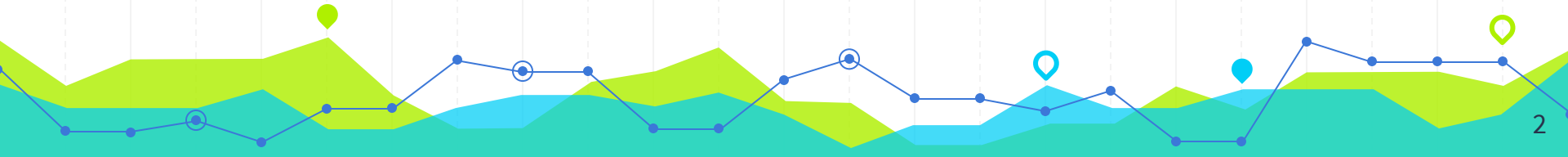


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# Overview

- Block Diagram
- Team Progress
- PCB layout
- Updated Gantt Chart
- Problems and Solutions
- What we have yet to finish
- Questions

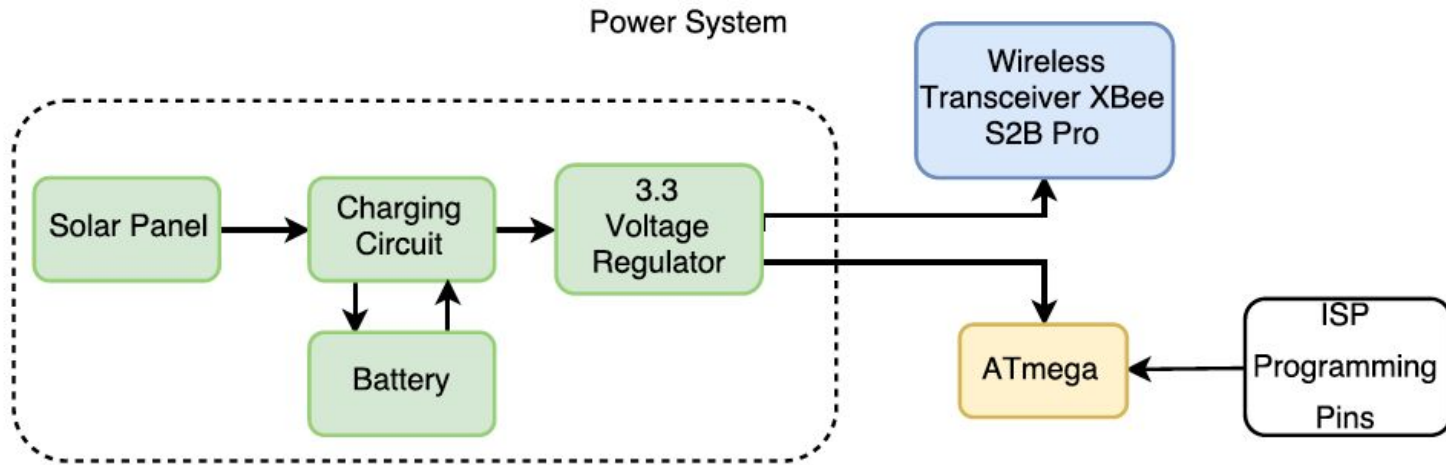




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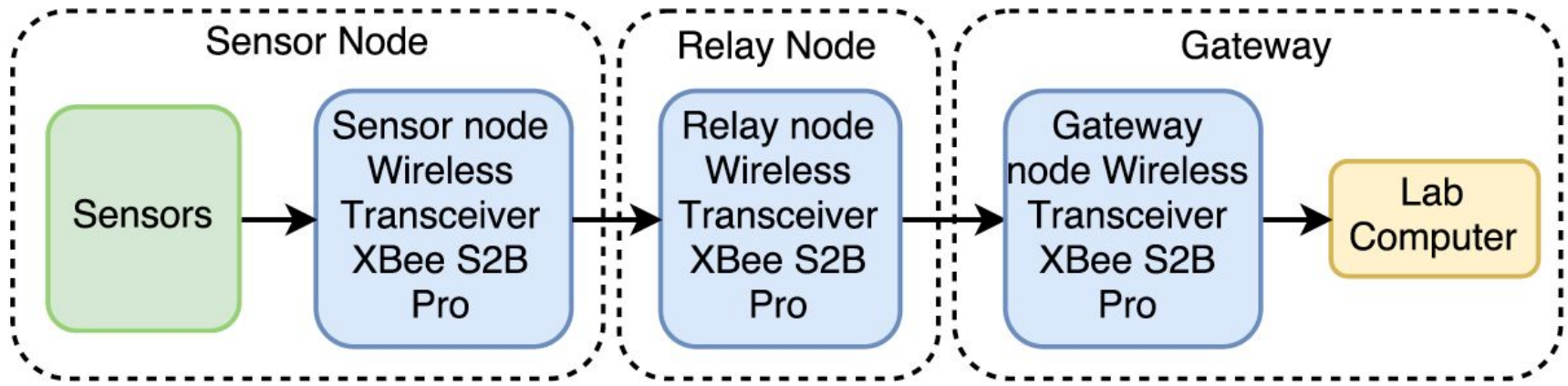
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# Block Diagram (Power)





# Block Diagram (Signal/Communication)



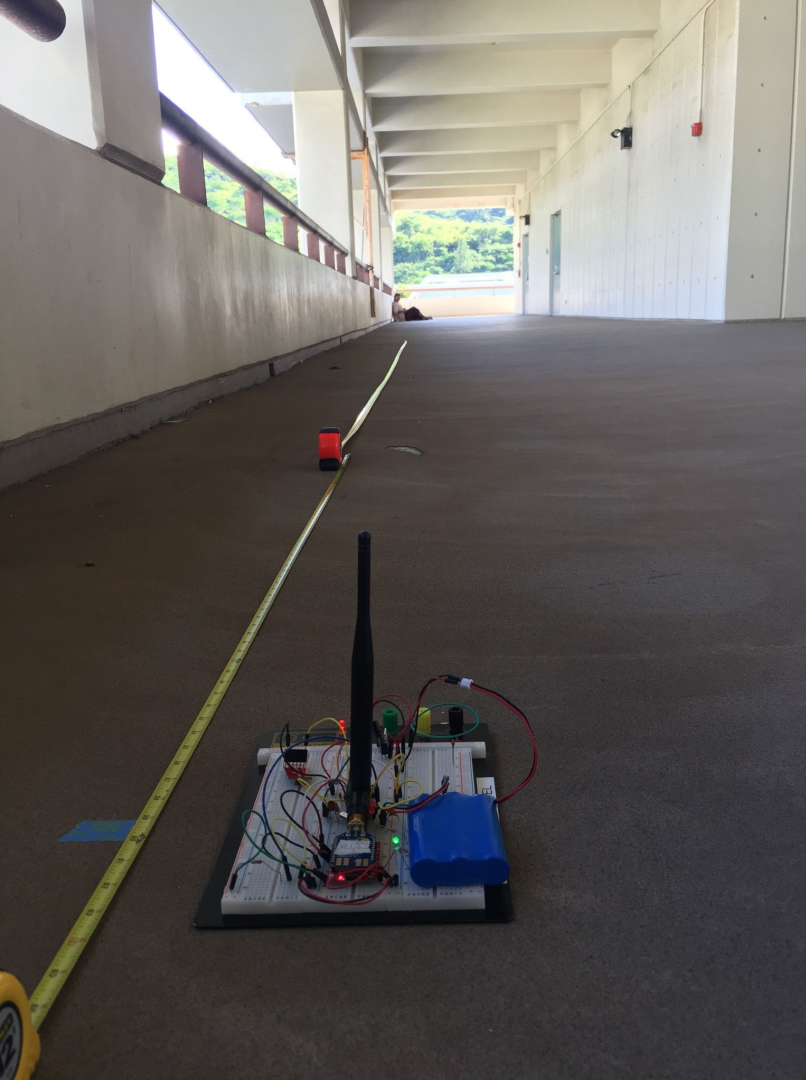


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# Team Progress

- Successfully debugged Xbee configuration
- Received ordered part
- Range Testing with bare arduino board
- Finished and ordered our PCB board
- ~~Successfully~~ deploy our bare Arduino board



## Range Testing

- I. Line of sight
- II. Holmes Hall floors
- III. Not in line of sight





# Range Testing Results



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Distance (ft)	signal Strength		sent	recieved	Packets		percentage	other variables	date
	local	remote			Tx Error	Packets Lost			
	<b>LINE OF SIGHT</b>								
30	-41	-42	15	15	0	0	100	Sunny	10/23
60	-54	-55	15	15	0	0	100	Sunny	10/23
90	-62	-61	15	15	0	0	100	Sunny	10/23
120	-67	-67	15	15	0	0	100	Sunny	10/23
150	-73	-76	15	15	0	0	100	Sunny	10/23
180	-63	-65	15	15	0	0	100	Sunny	10/23
210	-63	-65	15	15	0	0	100	Sunny	10/23
240	-72	-72	15	15	0	0	100	Sunny	10/23
270	-68	-67	15	15	0	0	100	Sunny	10/23
300	-74	-75	15	15	0	0	100	Sunny	10/23
330	-67	-68	15	15	0	0	100	Sunny	10/23
	<b>HOLMES HALL FLOORS</b>								
Distance (ft)									
4th-3rd	-54	-55	30	30	0	0	100	Less wind	10/24
	-60	-61	30	30	0	0	100	Less wind	10/24
	-63	-64	30	30	0	0	100	Less wind	10/24
4th-2nd	-80	-82	30	19	9	1	65.52	More wind coming in	10/24
	-65	-65	30	29	0	1	96.67	More wind coming in	10/24
	-67	-66	30	27	0	3	90	More wind coming in	10/24
4th-1st	-76	-75	30	29	0	1	96.67	People coming by, no barrier	10/24
	-69	-66	30	29	0	1	96.67	People coming by, no barrier	10/24
	-69	-69	30	25	0	5	83.33	People coming by, no barrier	10/24
elevator	-33	-53	22	21	0	1	95.45	For fun	10/24
	<b>THROUGH WALLS MCCARTHY MALL</b>								
Distance (ft)									
63	-66	-69	30	30	0	0	100	Drizzling	10/26
123.5	-73	-75	30	30	0	0	100	Drizzling	10/26
193.5	-82	-75	30	30	0	0	100	Drizzling	10/26
274	-75	-78	30	22	8	0	73.33	Drizzling, students walking by	10/26
329	-85	-85	30	26	2	2	86.67	Drizzling, students walking by	10/26
402.5	-81	-86	30	30	0	0	100	Drizzling	10/26



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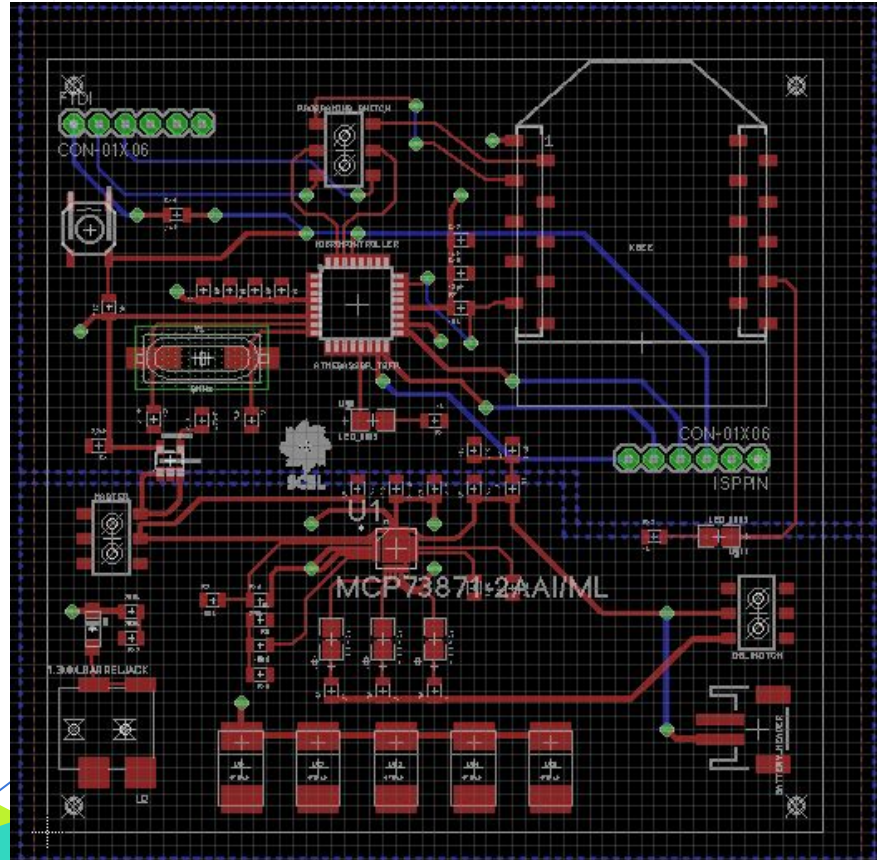
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# Problems and Solutions

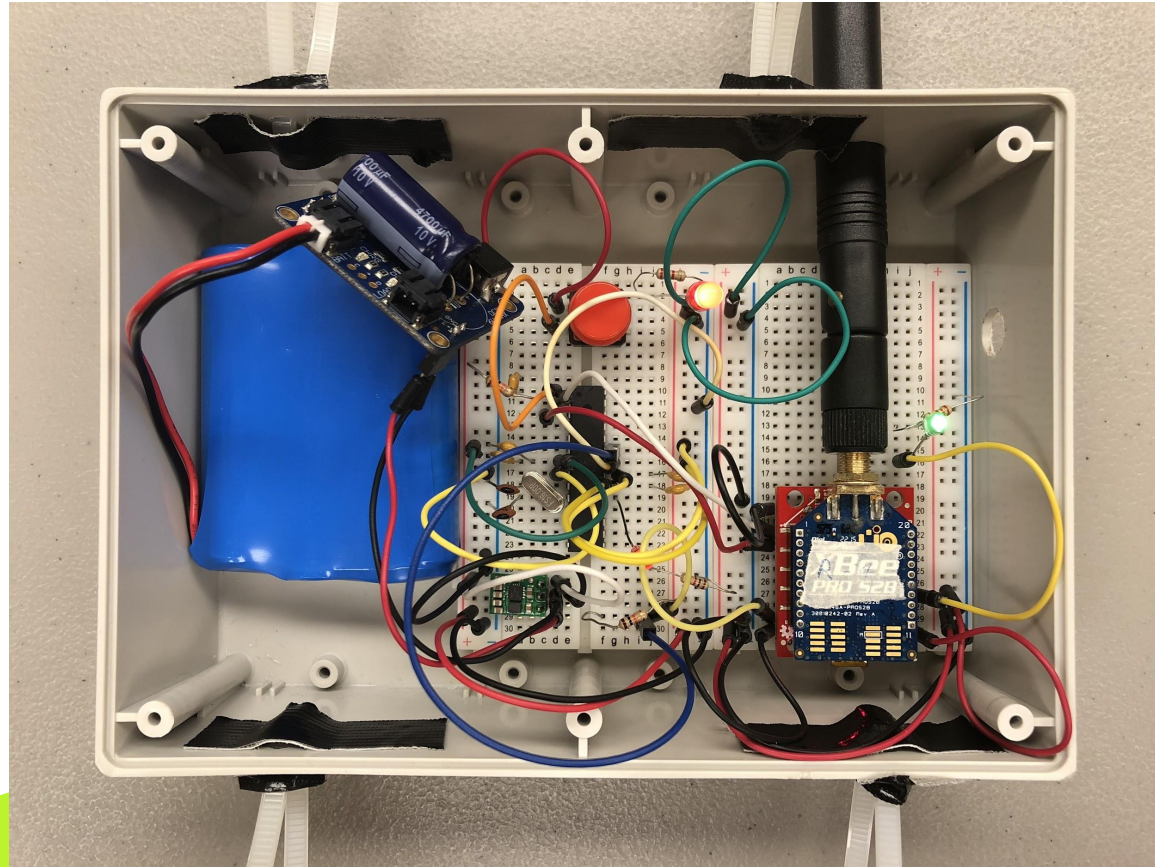
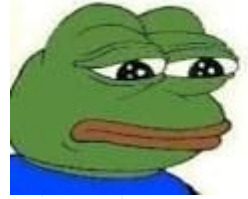
- Xbee configuration
  - Couldn't recognize other xbees with same PAN ID
    - Change API mode from 1 (default) → 2
- Deployment
  -



# PCB Layout



# Bumblebee Bare Board

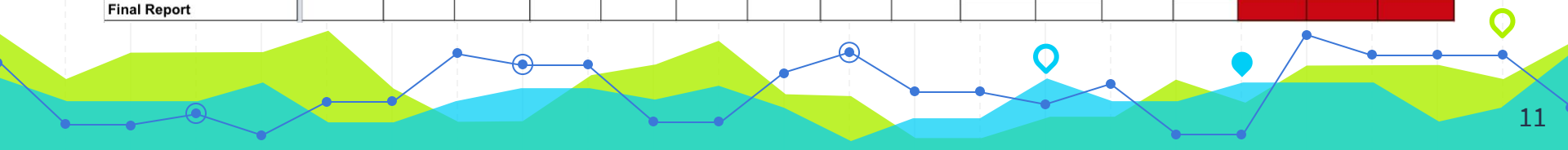
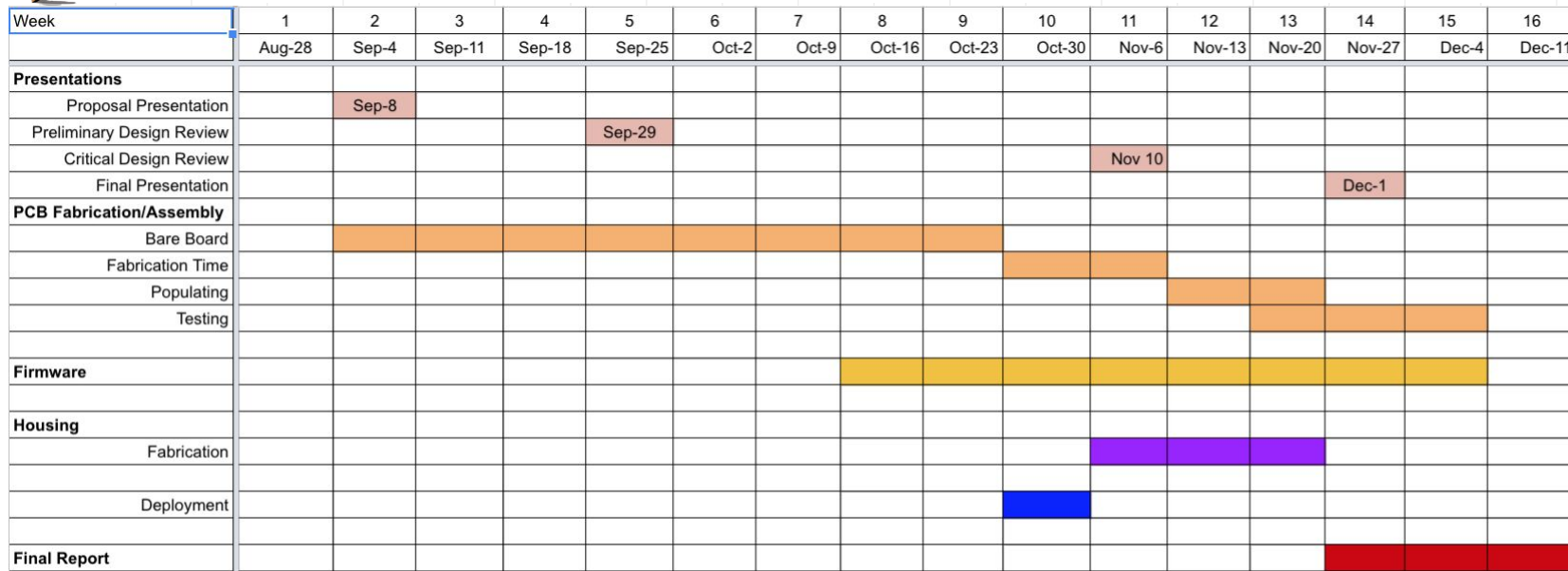




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# Updated Gantt Chart





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# What Needs to Be Finished

- More range testing with bare Arduino board
- Populate PCB board
- Range test PCB board
- Deploy with PCB board
- Start working with Xbee S2C pro



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# QUESTIONS?

