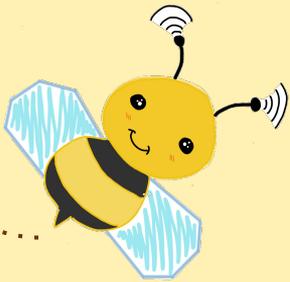


Final Presentation

Team Bumblebee
Fall 2020



Members



Arnold Flores
EE496, EE-EP



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EE396, EE- EP



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EE496, EE- Systems



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EE396, EE-EP



Presentation Overview

- Background and Motivation
- Team Progress
- Block Diagrams
- PCB Layouts
- Range Testing of XBee
- Problems We Encountered
- Final Status
- Future Work
- Questions

Background and Motivation



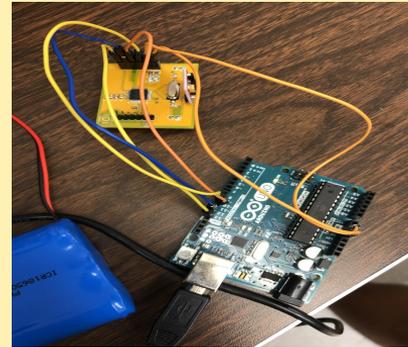
Bumblebee is the second generation communication module designed to relay meteorological data collected by other weather boxes. The purpose of bumblebee is to help increase the effective range of each weather box that is being used.



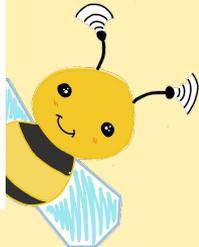
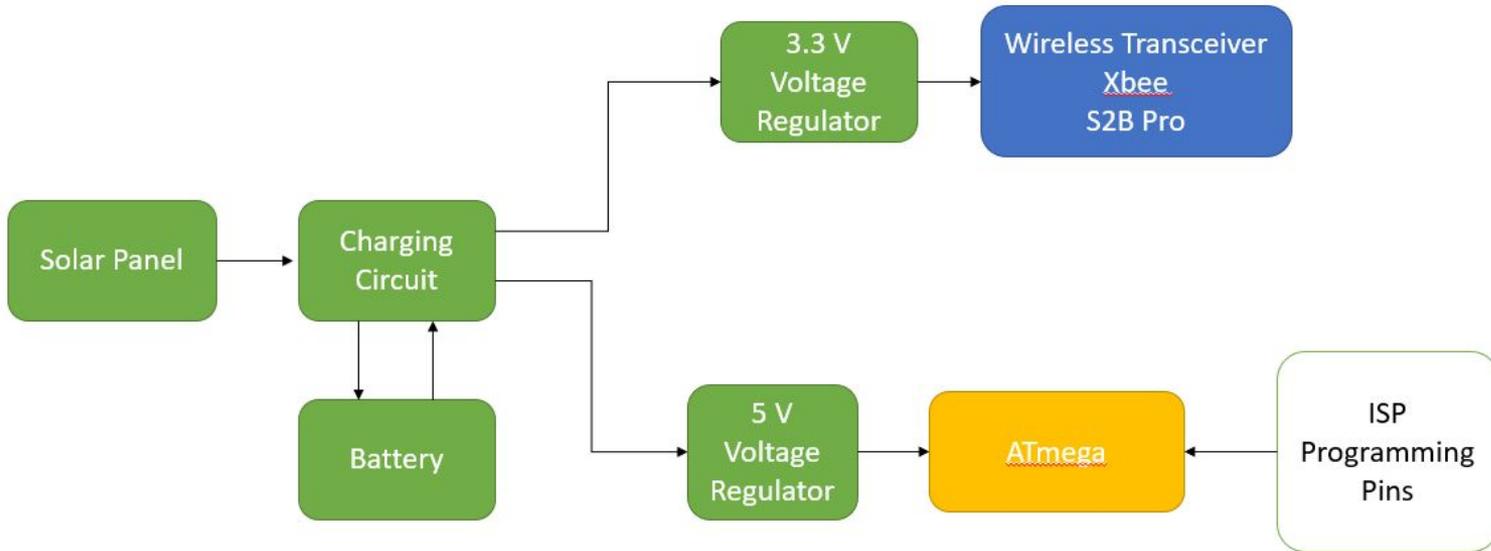
Team Progress



- Finished populating v4.0 and v4.1
- Attempted to bootload
- Range testing

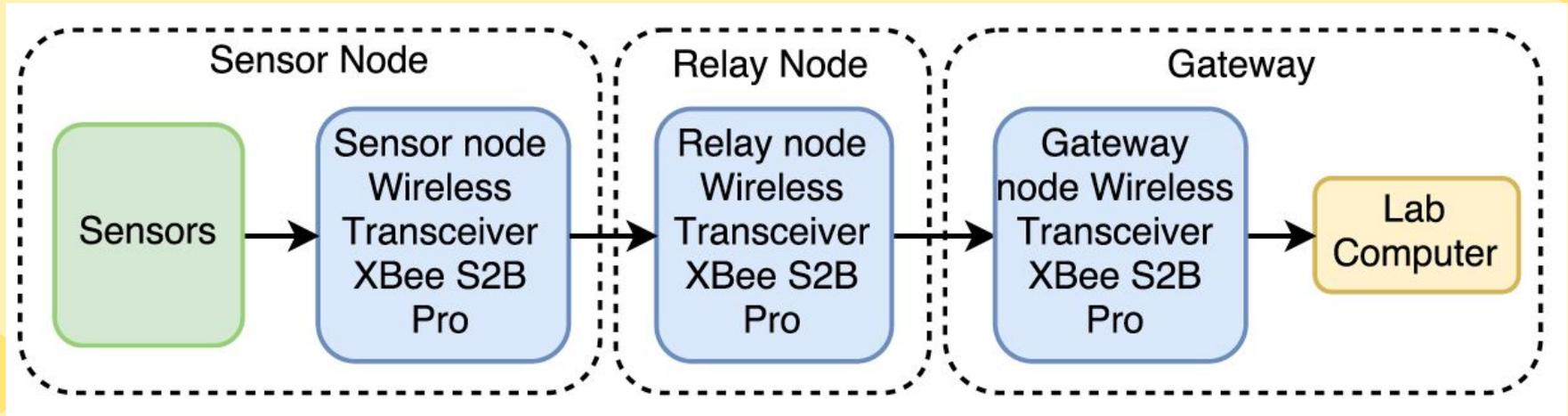


Block Diagram- Power

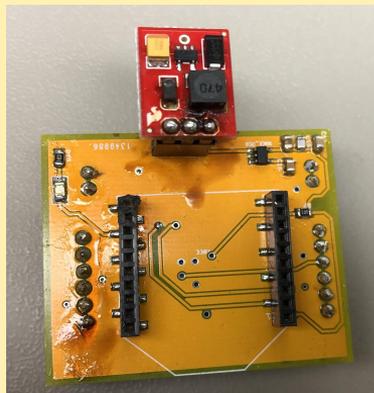
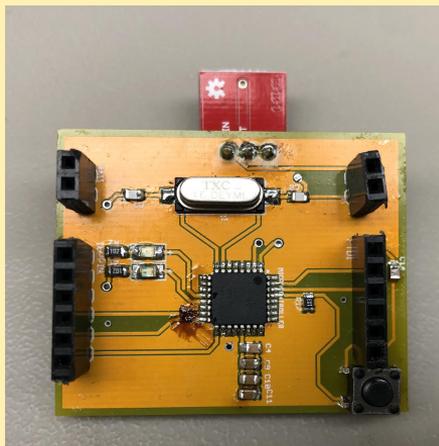




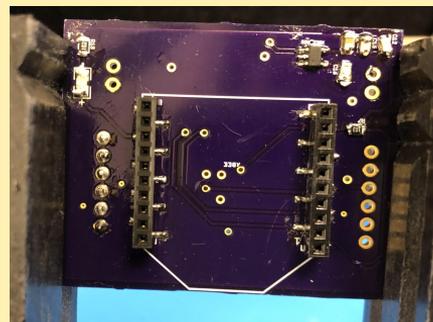
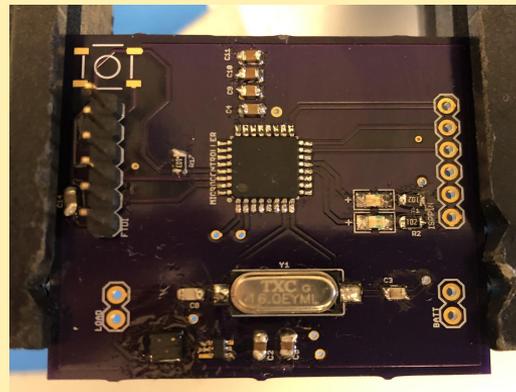
Block Diagram- Signal/ Communication



Version 4.0

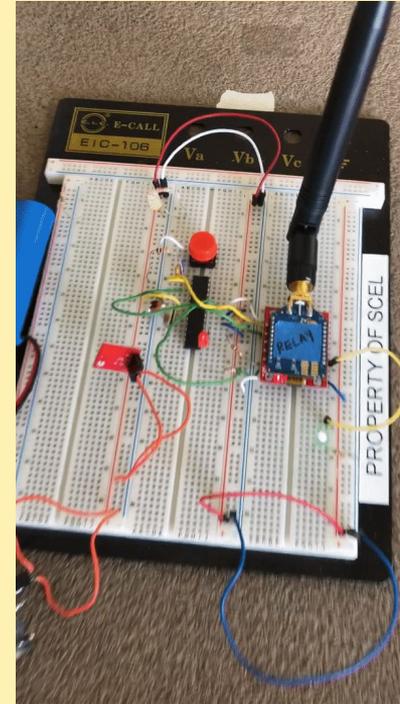


Version 4.1



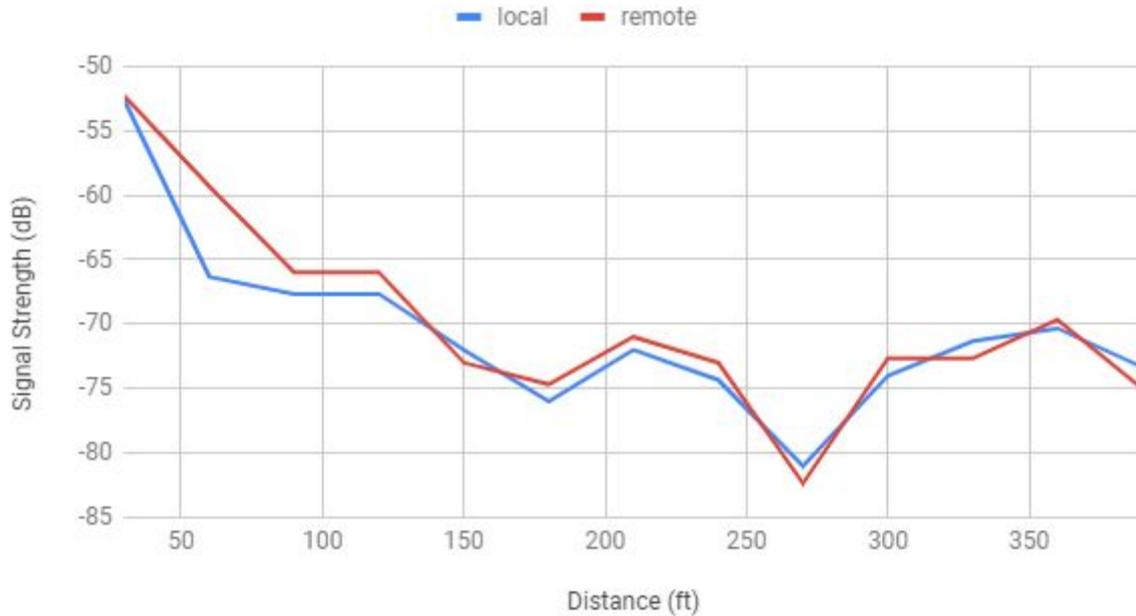
Range Testing

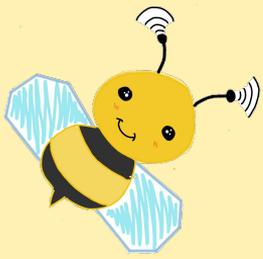
Distance (ft)	local	remote
30	-52.66666667	-52.33333333
60	-66.33333333	-59.33333333
90	-67.66666667	-66
120	-67.66666667	-66
150	-72	-73
180	-76	-74.66666667
210	-72	-71
240	-74.33333333	-73
270	-81	-82.33333333
300	-74	-72.66666667
330	-71.33333333	-72.66666667
360	-70.33333333	-69.66666667
390	-73.33333333	-75



Range Testing

Average Line of Sight

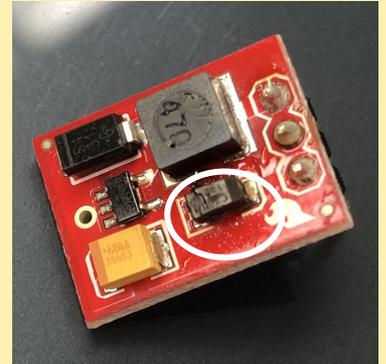




Problems

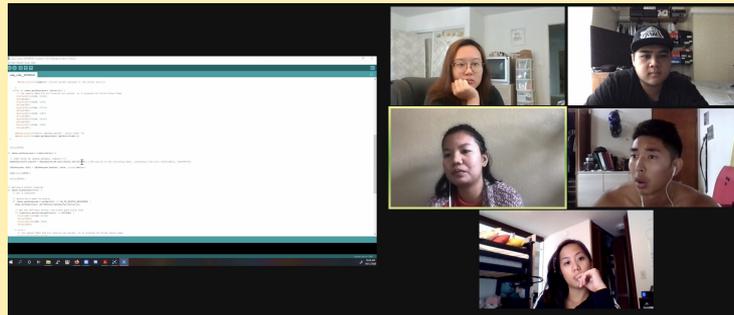


- Issue with boot loading
 - Worked on V4.0
- Uploading code
 - After bootloading, simple blink test wouldn't work
- Voltage Regulator problems
 - For V4.0, XBee had to be attached to PCB in order for it to work
- Soldering issues
 - Soldered wrong parts on to V4.0
- Range Testing issues
 - XBee's not detecting each other remotely



Final Status

- Prepared Francis and Lauryn to take over Team Bumblebee
- Finished populating both v4.0 and v4.1
 - Both boards are able to power
- Range testing
 - Conducted more testing
 - Compiled previous and this semesters data



Future Work

- Boot load code
- Soldering more PCB
 - 2x v4.0
 - 3x v.41
- Range testing w/ PCB
- Create version 4.2
 - Reset LED



 Questions? 