Preliminary Design Review

Firmware

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Recap - Goals

- Modular Code
- Verifiable with unit testing
- Well documented
- Testable independent of hardware
- Complete the following on any generation:
  - Collect data from sensors
  - Transfer data to server
  - Run health diagnostics

Algorithm

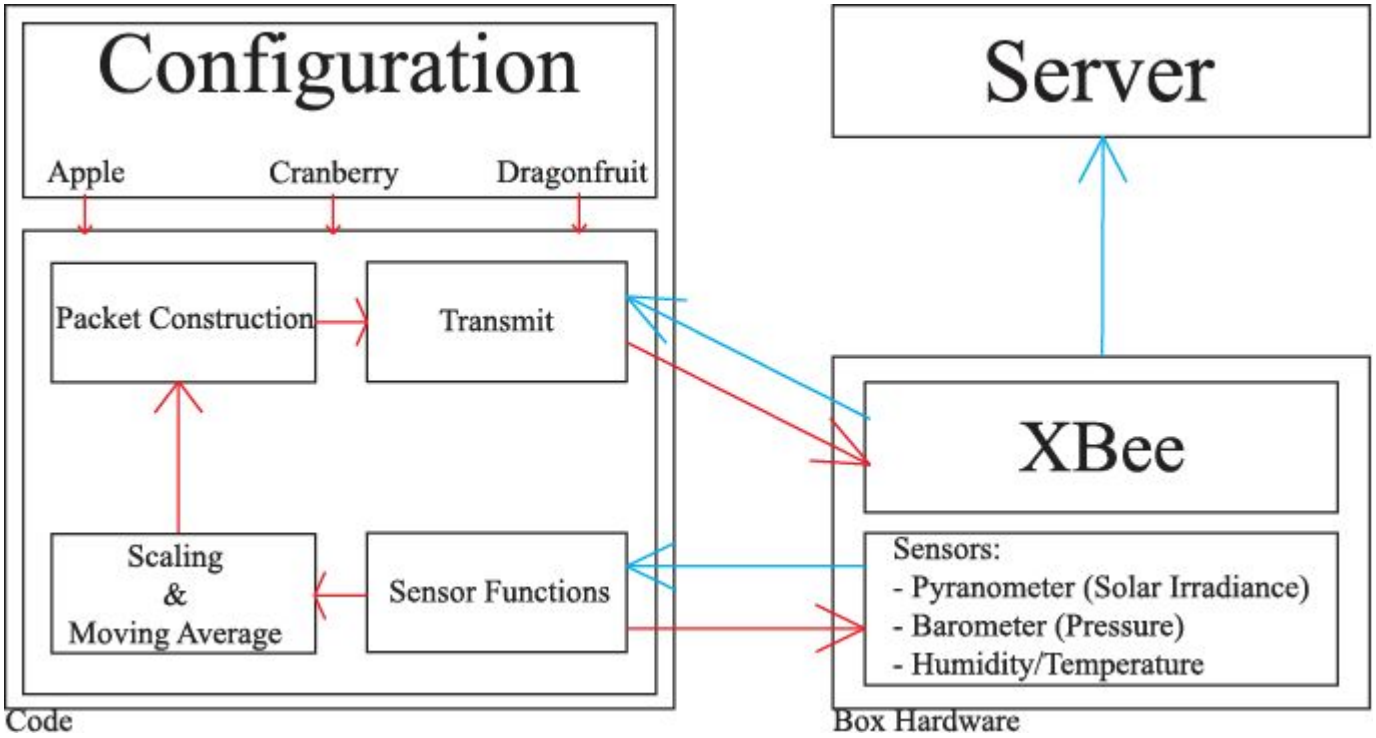
Initialization

1. Generation Check
2. Initialize corresponding functions & variables
3. Initial health check

Execution

1. Poll sensors
2. Average polled data
3. Organize packet
4. Transmit packet
5. Get acknowledge of transfer
6. Clear buffer
7. Health check
8. Loop

Block Diagram



Progress

- Finish examination of previous Apple code
- Tested sensor code
- Obtained noise readings (incomplete board)
- Algorithm for new code

Current State

(this week and next week)

- Looking into Moving Average algorithms
- Looking into Transmitting algorithm
  - Arduino XBee Library
  - Researching packet debug method

Problems/Issues

Experienced:

- Arduino library configuration
- Testing with Apple board
- Debugging packet transmission

Anticipated:

- Modularity
- Code efficiency

Schedule

Week of 10/19

- XBee transmission test
- Moving average function

Week of 10/26

- Finalize sensor code
- Write packet transfer code
- Unit test

What awaits...

- Begin coding
  - Modularize code
  - Proper documentation
  - Test after each implementation
- Unit testing
- Get code to work for Apple
- Configure for other generations

THANKS!

Questions?