Team Mango Final Presentation

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Project Background and Motivation

Background

- Design and fabricate a weatherbox
- Requirements:
  - Run on photovoltaic panels
  - Collect data on weather conditions at various locations around campus

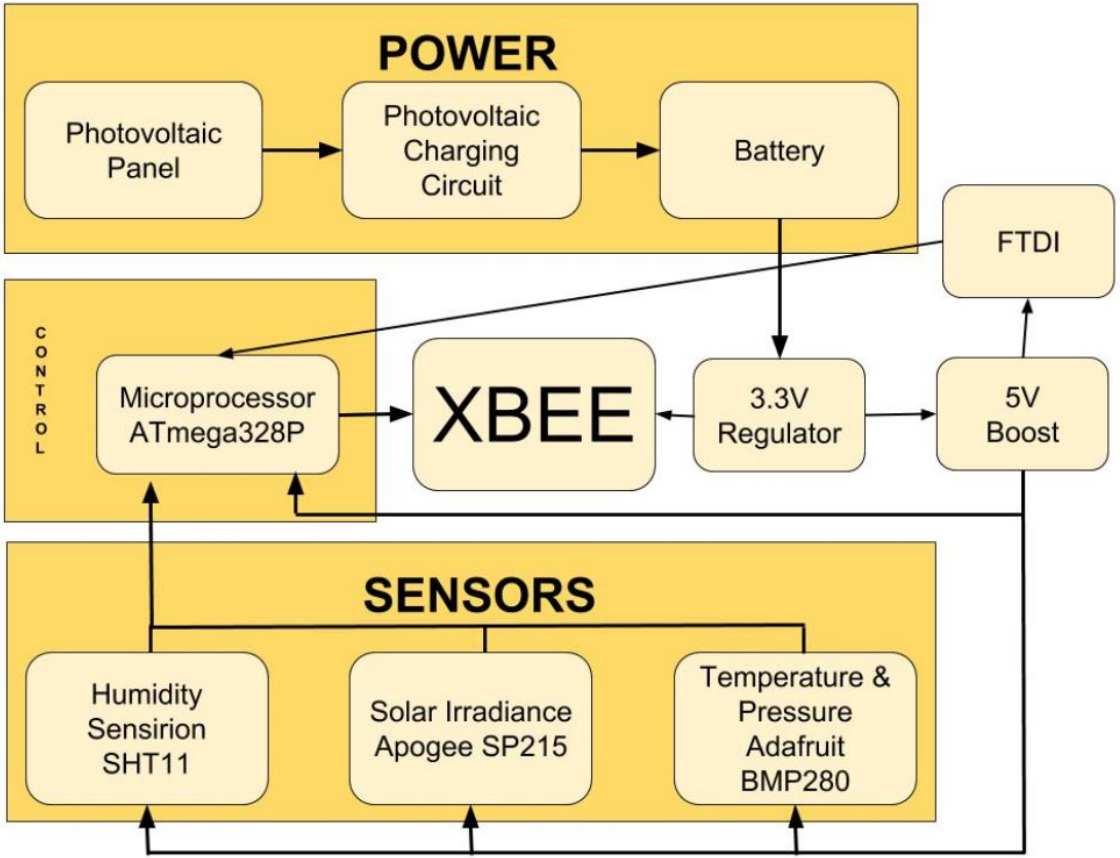
Motivation

- Work with renewable energy technology
- To help advance Hawaii's Clean Energy Initiative
  - To become 100% reliant on renewable energy sources
- Gain experience working on a team project

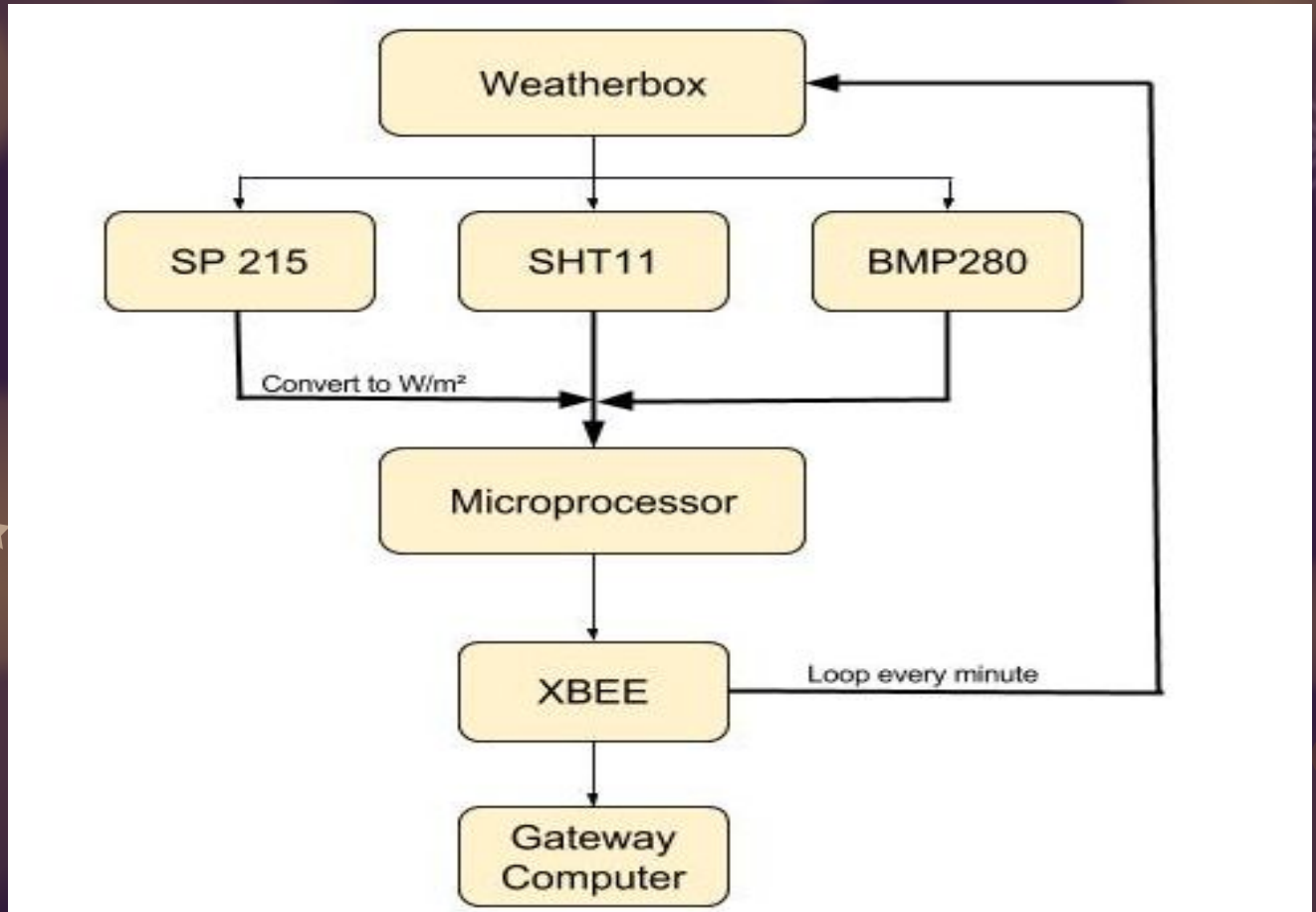
Project Goals

- Our overall goal for this semester was to create a self sustaining weatherbox
- Some soft skills we wanted to acquire and improve on:
  - Soldering
  - Arduino
  - Teamwork
  - Organization
  - Presentation
  - Communication
  - Time Management

Hardware block diagram



Software Block Diagram

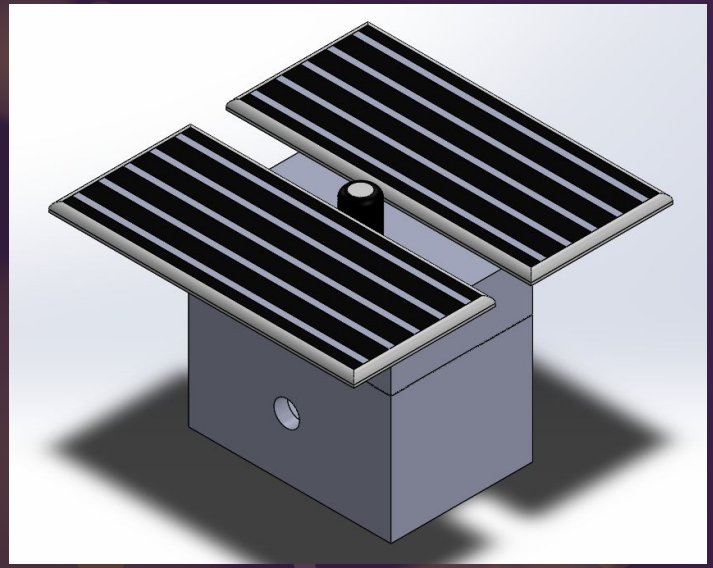


PSEUDOCODE/ALGORITHM

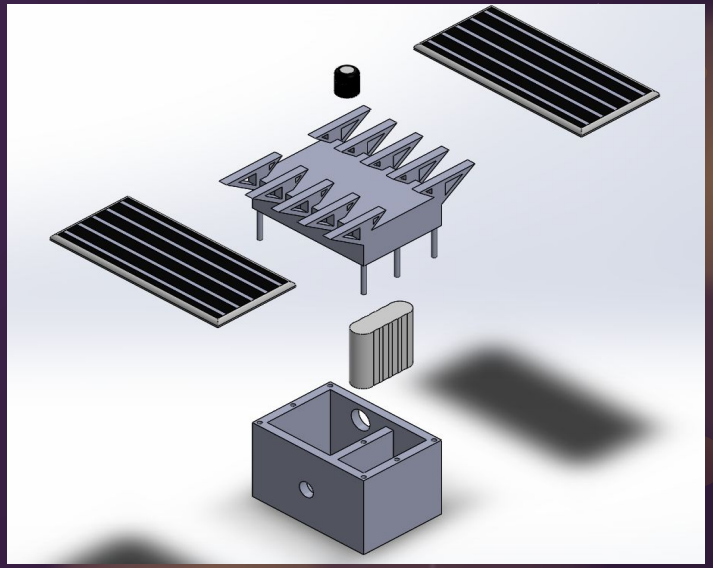
- Main Driver - Initializes and loops the routine
- Routine - Constructs and transmits the packet every minute
- Transmit - Clears and initializes packet, constructs packet, transmits packet, and has debug for bare arduino
- Sensors - Runs the sensors, battery, and panel values
- Config - Sets the pins of the ATmega
- Schema - Defines the structs that are used to send packets

Latest Housing Design

Collapsed view



Exploded view



Final status of your project

- Completed Housing Version 2
- Code was Verified
- Code works with Bare Arduino Circuit
  - Only tested sensors did not transmit using XBEE
- Completed EAGLE Gerber Files

Remaining Problems

- No PCB to debug
- Can't print housing without PCB

Future Improvements

- Minimizing the PCB layout
- Housing
- Replace all parts for SMD version
- Learn about Power budgeting

Questions/ Comments/ Recommendations?

Have a Merry Holiday