



# Team MANGO CDR Presentation

EE296

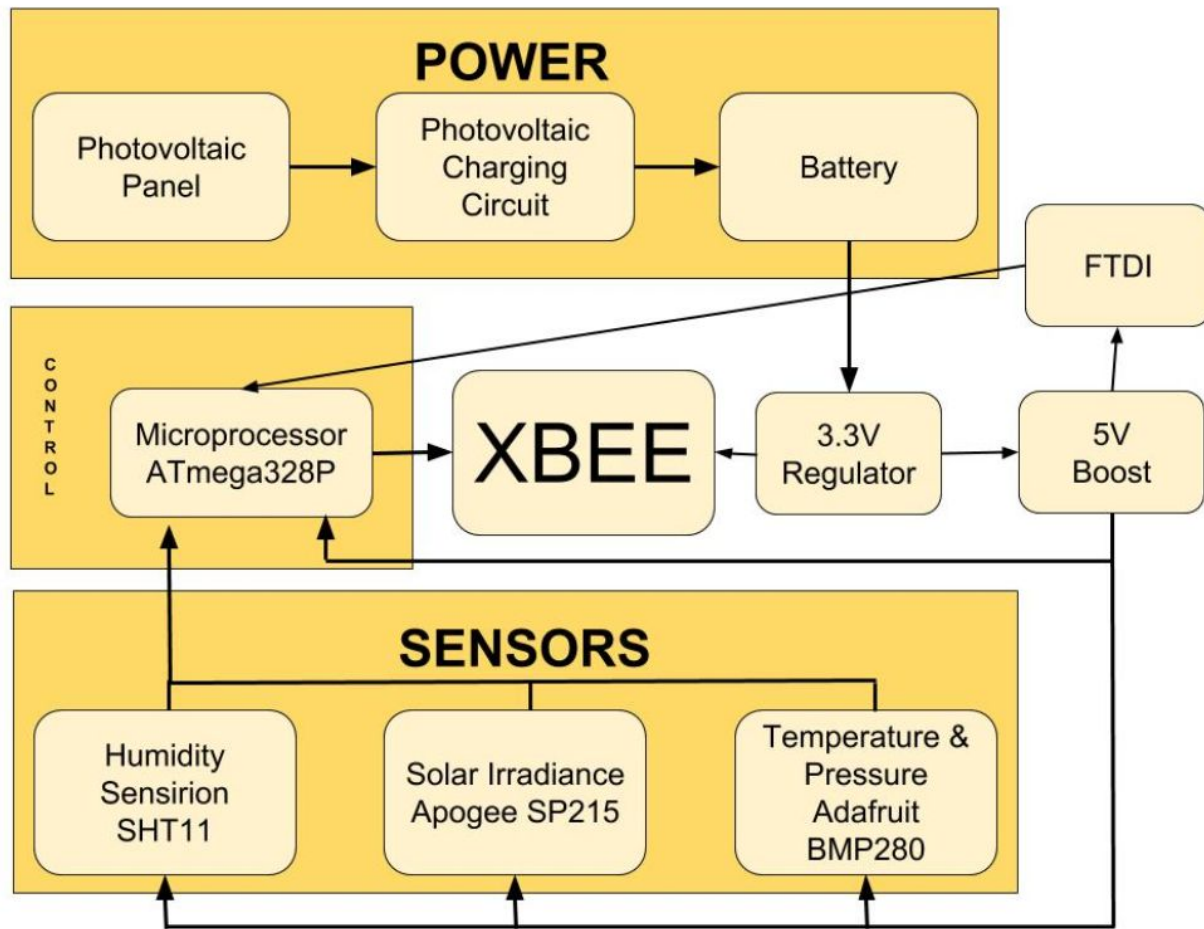
“Drop Baby Drop”



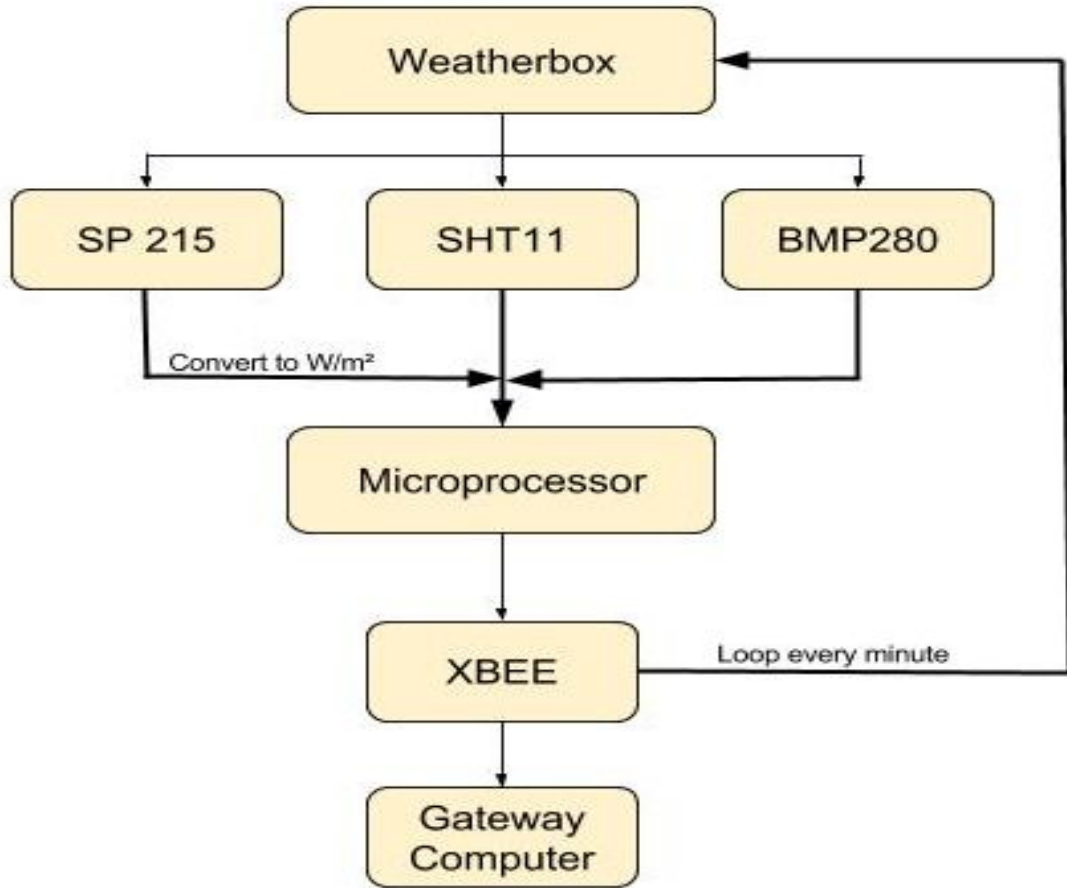
# Overview

- Block Diagrams
- Schematic Overview
- Board Design
- Algorithm for code
- Housing Design
- Progress
- What's Left?
- Problems Encountered





# Hardware Block Diagram

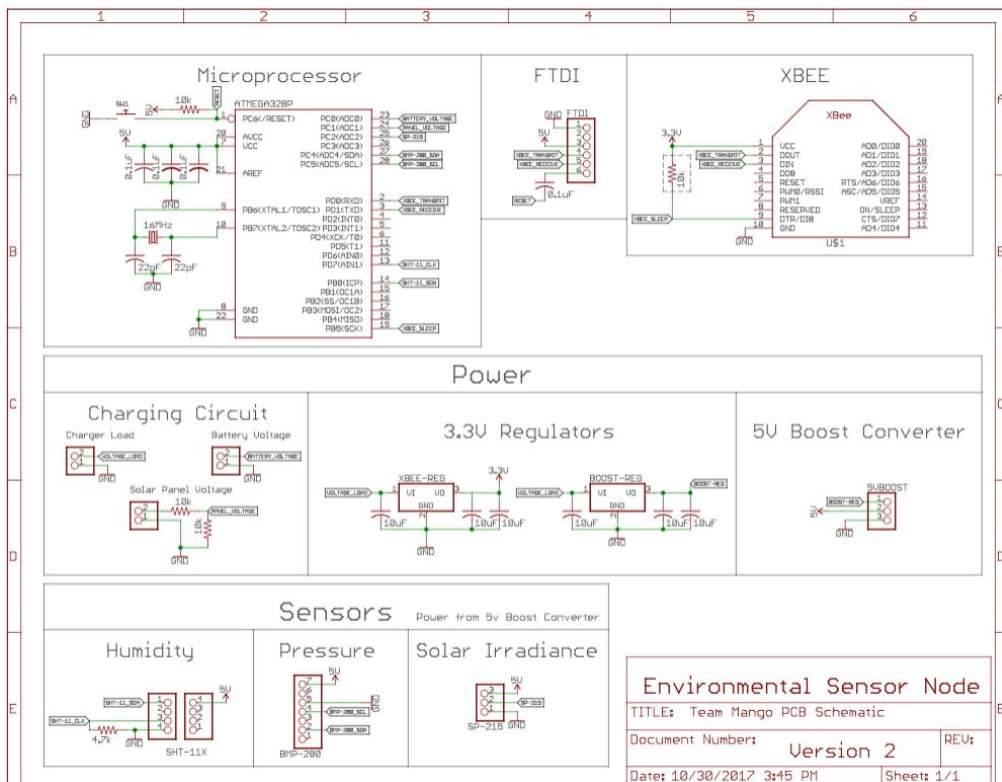


# Software Block Diagram



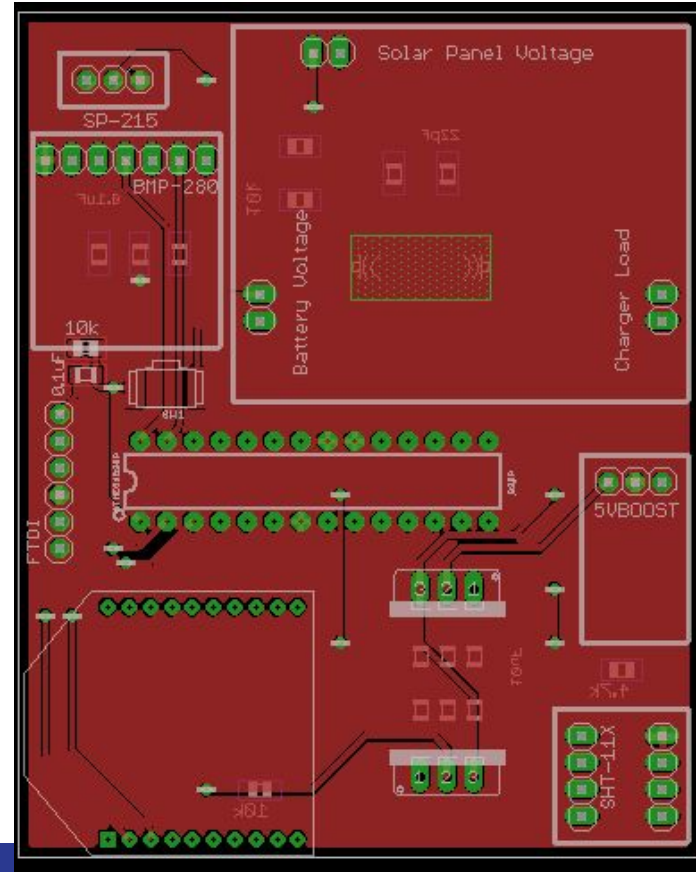
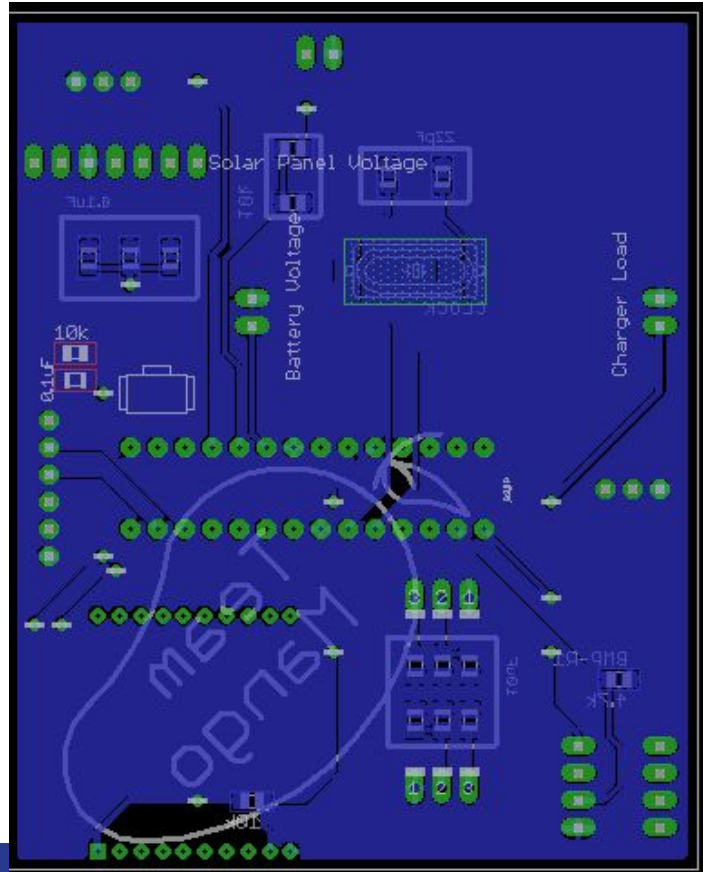


# Schematic





# PCB Design





# Programming Algorithm

While weatherbox is powered, loop every minute

- Read data from BMP280

  - If begin() is FALSE, then return ERROR

  - Else, save temp (in °C) and pressure (in Pa)

- Read data from SHT11

  - If humidity is less than 0, then return ERROR

  - Else, save temp (as percentage)

- Read data from SP-215

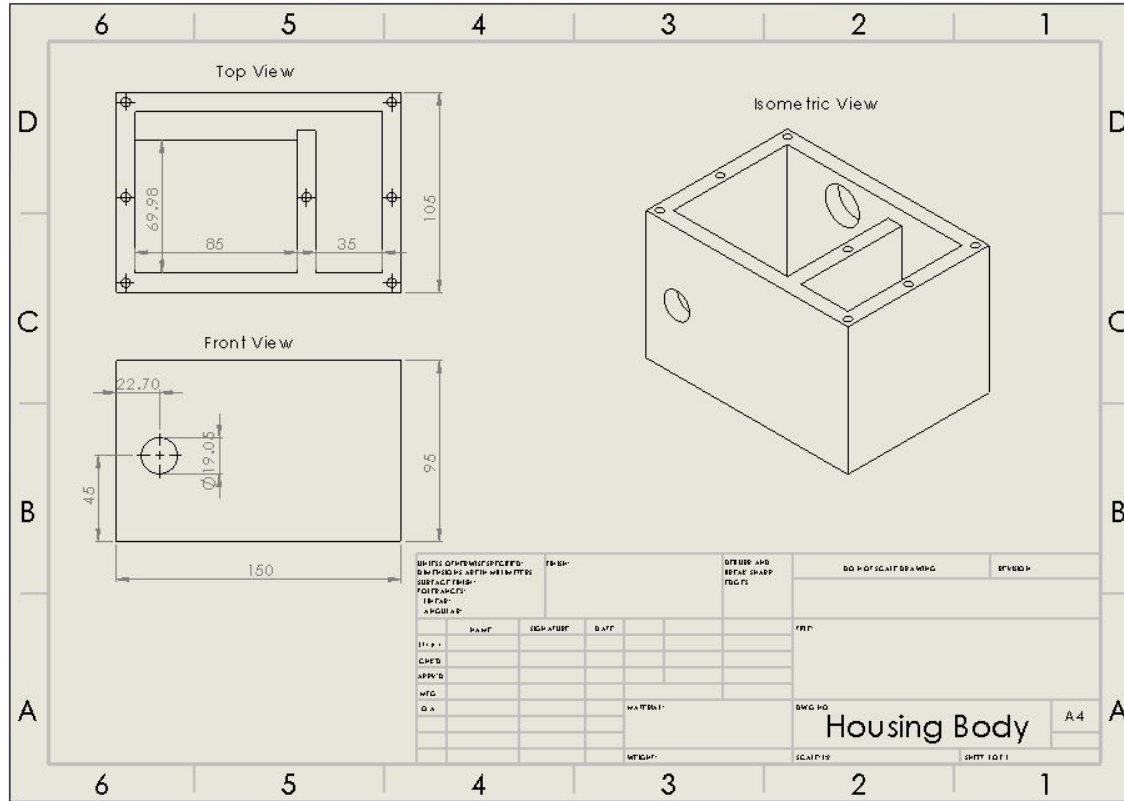
  - If voltage less than 0 or greater than 5, then return ERROR

  - Else, convert voltage value into  $W/m^2$  and save solar irradiance (in  $W/m^2$ )

- XBEE sends data to gateway



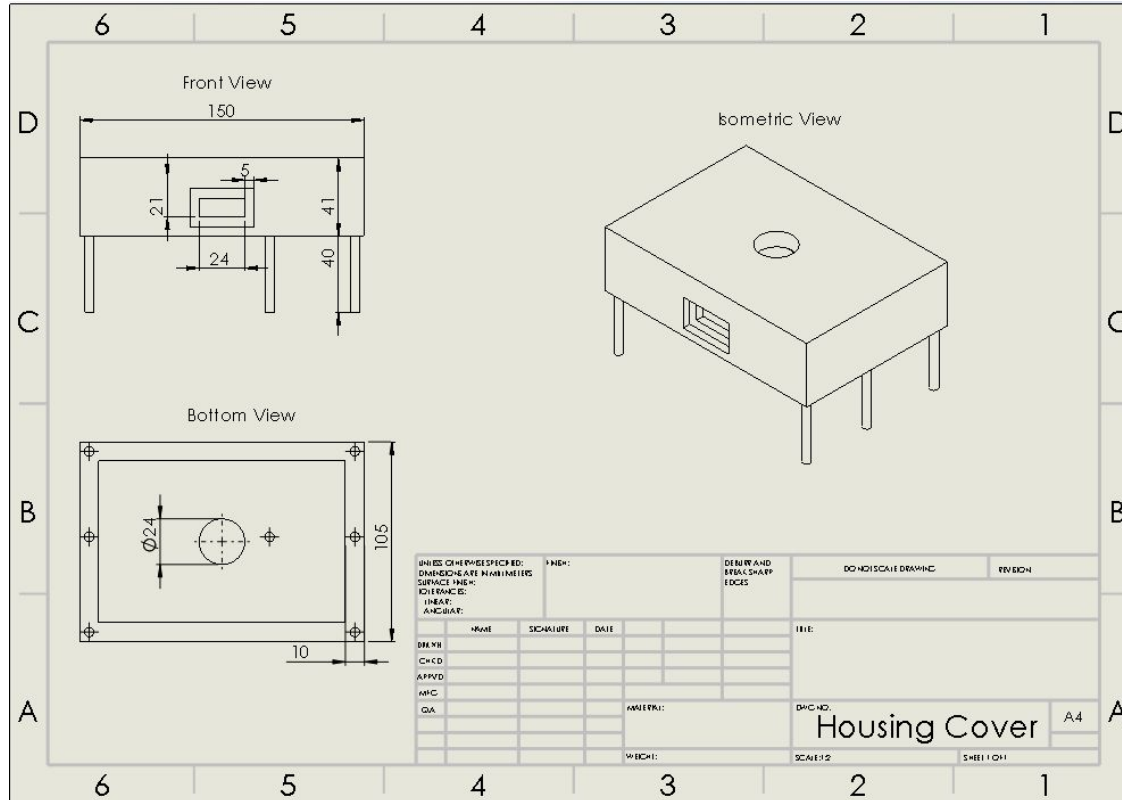
# Housing Body Drawing







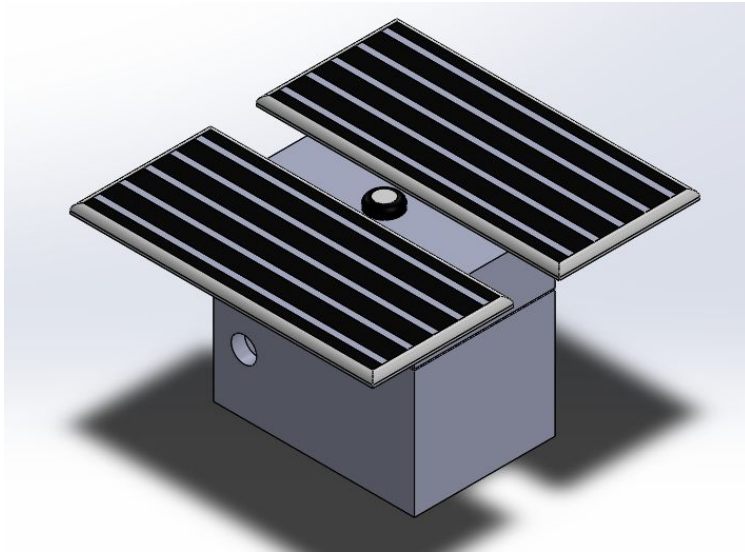
# Housing Cover Drawing



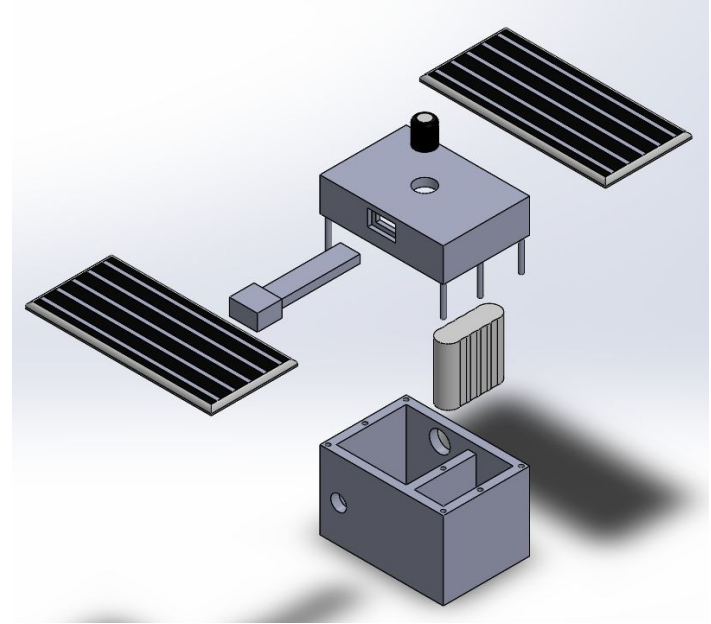


# Housing Assembly Rendering

Collapsed View



Exploded View





# Progress since PDR

- Finished our schematic
- Finished the board layout
- Ordered the PCB (11/9/17)
- Ron Ho fund
- Bread boarded the testing circuit
- Tested XBEE



# What's Left

- Test Circuit
- DEBUG circuit and code for problems
- 3D Print housing and check fittings/functionality
- Assemble PCB
- Test final product



# Problems Encountered

Workload

Schematic:

- Replaced most parts into pin headers
- Added 5v Boost Converter
- Remake on EAGLE v7.7

Board Design:

- 3.3v Regulator



# Questions/Comments