Preliminary Design Review

Presentation

By

Team Quasar: *Jaimie O., Kenny F., and Kyaw H.*

Mentor: *Ryan Walser*
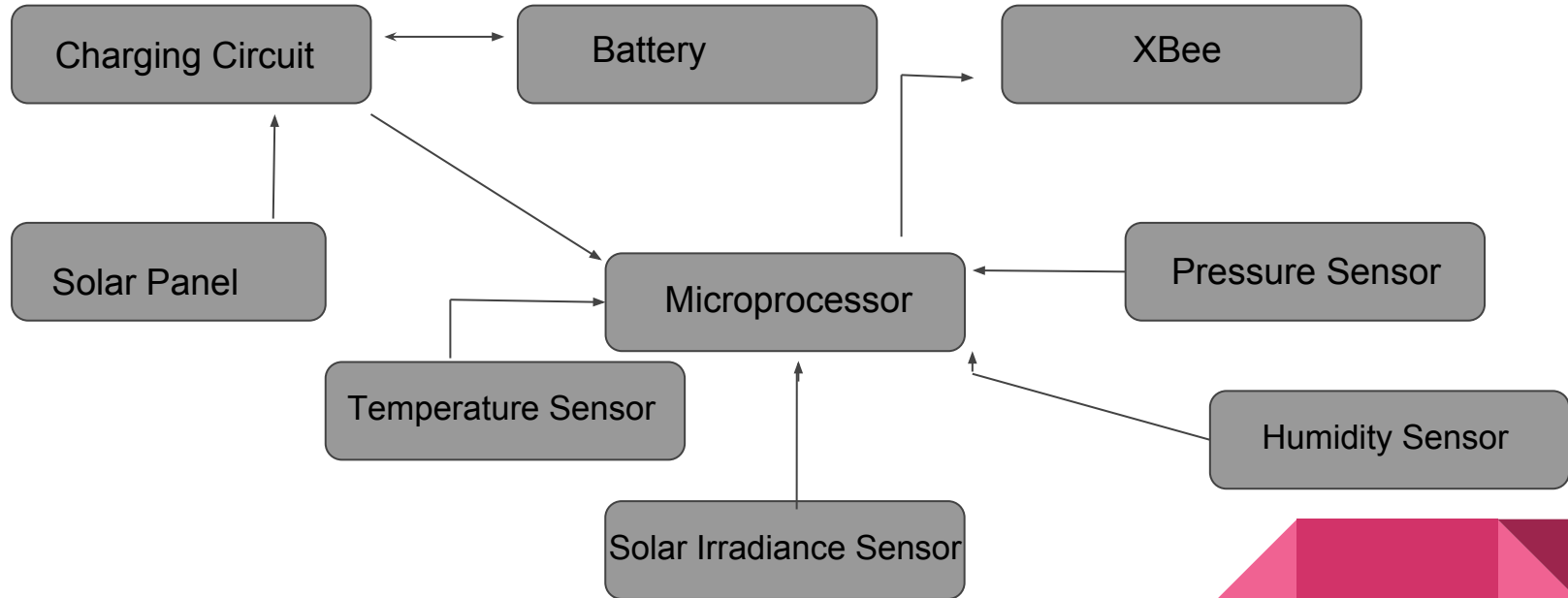Advisor: *Professor Kuh*

Overview

- Team Member's Tasks
- Block Diagrams
- Team's Progress
- Problems
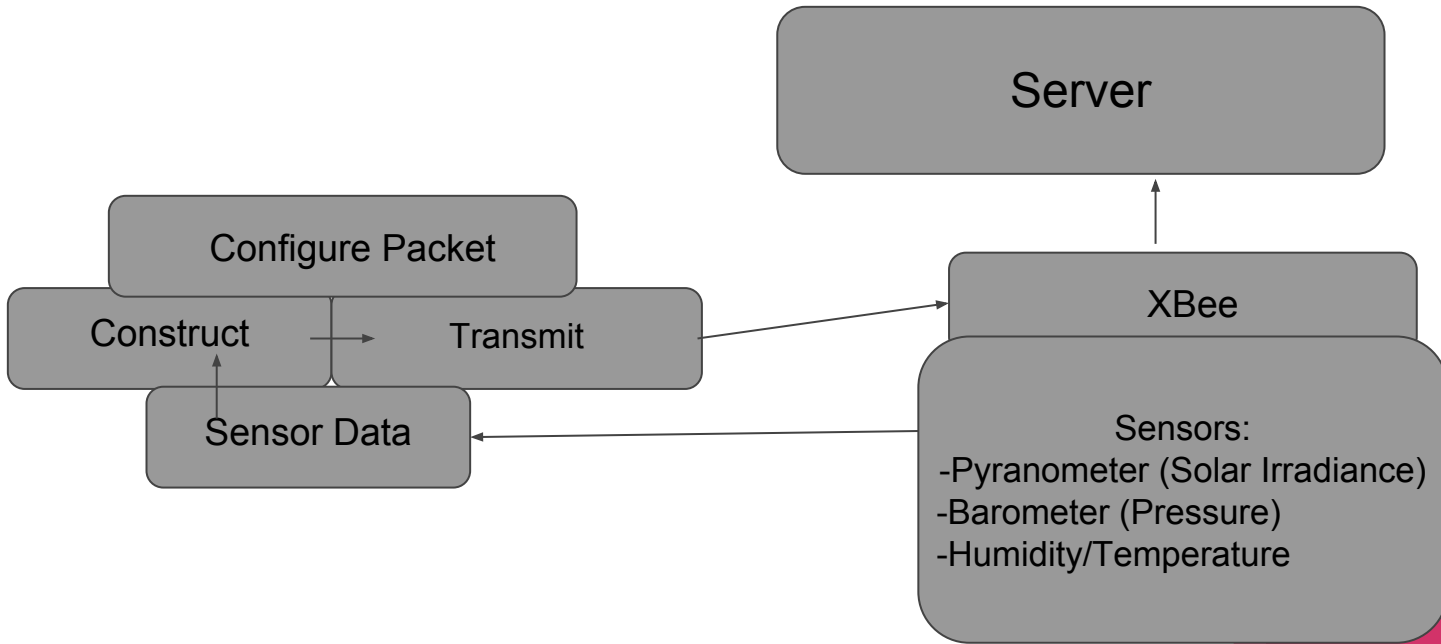- Solutions
- Gantt Chart

Team Member's Tasks

- Jaimie - XBee Code and Testing
- Kenny - Sensor Codes
- Kyaw - Eagle Schematics, Sensor Codes, Power Module

Hardware Block Diagram

Software Block Diagram

Server

Configure Packet

Construct → Transmit

Sensor Data

XBee

Sensors:
-Pyranometer (Solar Irradiance)
-Barometer (Pressure)
-Humidity/Temperature

Progress

- **Eagle Schematics Complete**
  - Check Packages / Wiring
- **Constructed Bare Arduino**
  - Not tested yet!
  - Missing clock
- **Sensors Progress:**
  - Tests with Arduino
- **XBee Progress:**
  - Successful Tests:
    - XCTU: AT and API mode
    - API mode with Arduino
  - Algorithm
  - Testing packet sending with open-source code

Current Problems / Problems Encountered

- Hardware:
  - Schematic Libraries
  - Missing Bare Arduino Parts
- Sensors:
  - Temperature Sensor
    - Sensor overheated
    - Ground wire and 5V supply switched in Data Sheet
- XBee:
  - Information on XBee
  - Packet Sending from Arduino XBee

Solutions

- Help from other Mentors & Leadership Team
  - Schematic Clarification
  - Code Clarification
  - XBee Guidance
- Google
  - XBee Information

Goals

- Hardware:
    - Route the Weatherbox Schematic
- Software:
    - Research Firmware Page
    - Separate Sensor Code
- System Integration:
    - Test Sensors & XBee with Bare Arduino

Gantt Chart

	6	7	8	Spring Break	9	10	11	12	13	14	15
Project											
(Gantt Chart)											
Week	6	7	8		9	10	11	12	13	14	15
Date	2/29/2016	3/7/2016	3/14/2016	3/21/2016	3/28/2016	4/4/2016	4/11/2016	4/18/2016	4/25/2016	5/2/2016	5/9/2016
Presentations											
Proposal											
Design	▓										
Final					▓						
Demonstration										▓	
Training											
Git/GitHub											
Arduino/Bare Arduino											
Eagle											
Modules											
Microprocessor											
Sensors	Code/Test	Code/Test									
Charging Circuit											
Xbee	Code/Test	Code/Test									
Build											
System Integration	Breadboard w/ tested parts/ Test this board										
Overall System Firmware	Firmware	Debug	Send to microcontroller								
Design/Print PCB	Schematics	Schematics	Schematics	Mill	Solder						
Housing				Design	Build housing	Put together					
Test											
Debug		Test as add parts									
Reports											
Final Report											▓

Any Questions?

Thanks for listening!