

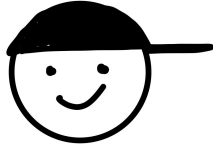


Team Guava

Proposal Presentation

Fall '24

Team Guava Introductions

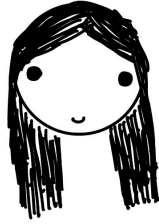


Jayden Oravainen

Junior - 496

3rd Semester

EE - EP

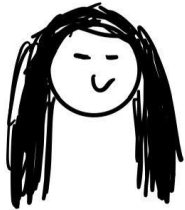


Jordan Okumura

Senior - 496

3rd Semester

EE - EP



Korie Takamoto

Junior - 396

2nd Semester

EE - EP



Andy Hernandez

Junior - 396

2nd Semester

EE - SDS



Presentation Overview

- Motivation
- About Guava
- Learning Expectations
- Block Diagram
- Progress from Spring 2024
- Progress So Far
- Project Goals
- Future Work
- Gantt Chart
- Questions





Motivation

“The University of Hawaii shall establish a collective goal of becoming net-zero with respect to energy use, producing as much energy as the system consumes across all campuses, by January 1, 2035.”

– Hawai‘i Revised Statue (HRS 304a-119)





About **Guava**

Team Guava is the seventh generation weatherbox team for the Smart Campus Energy Lab.

Team Guava specializes in integrating sensor modules into the board, which will take up less real estate and be better optimized to handle weather data.





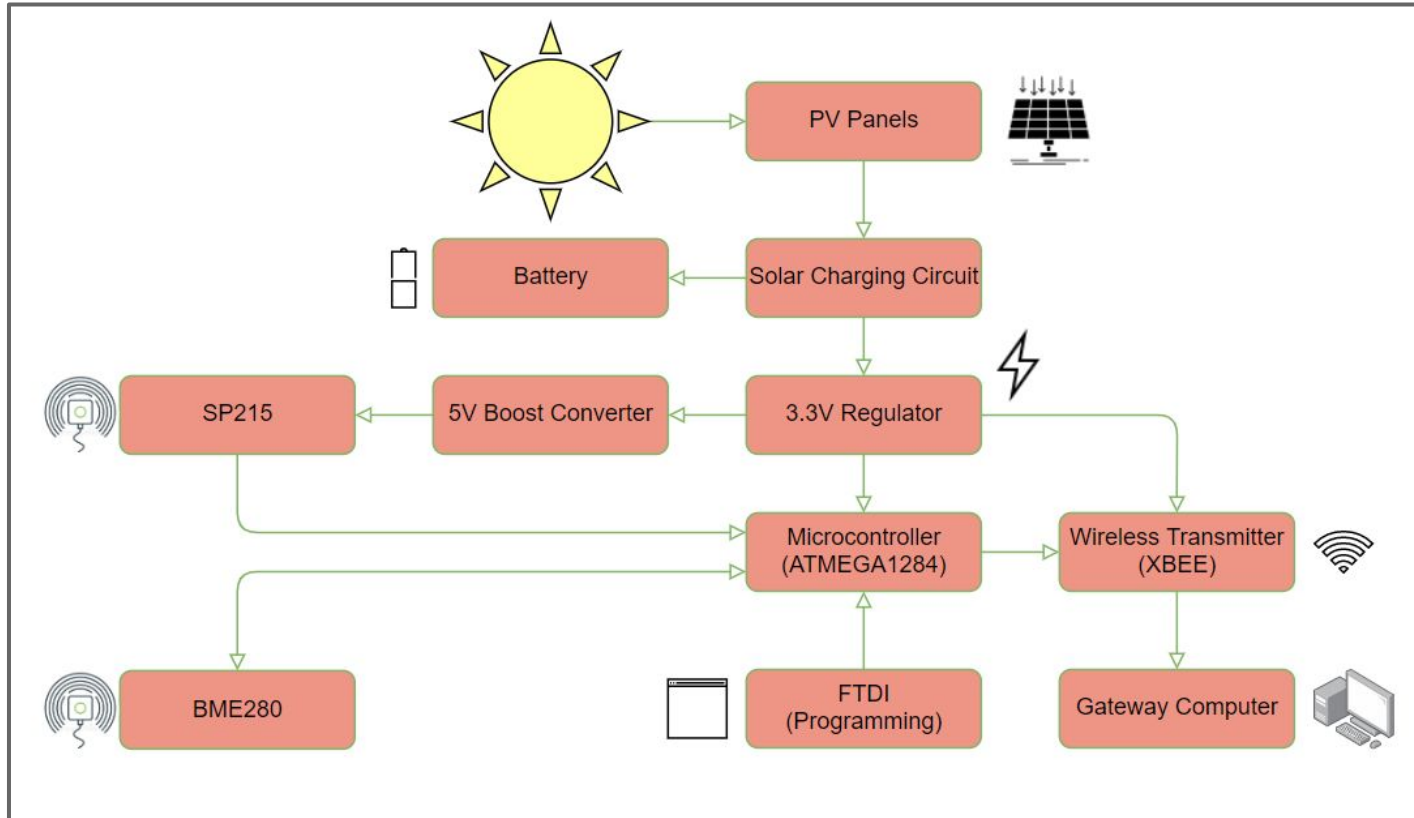
Learning Expectations

PCB Designing and Layout

- Part Integration
 - Understand sensor circuits and how to successfully pull data
- Power Consumption
 - Learn ways to reduce power consumption in the design and increase efficiency
- PCB Population
 - Efficiently and precisely assemble PCB using PCB oven
- Research and Development



Block Diagram





REV E1

TITLE: Rev E (1)

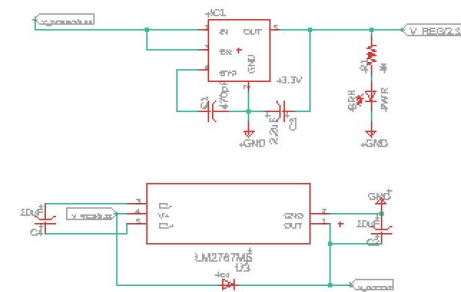
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REV:

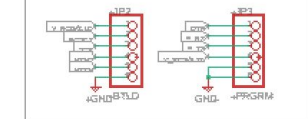
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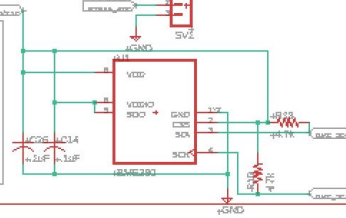
POWER



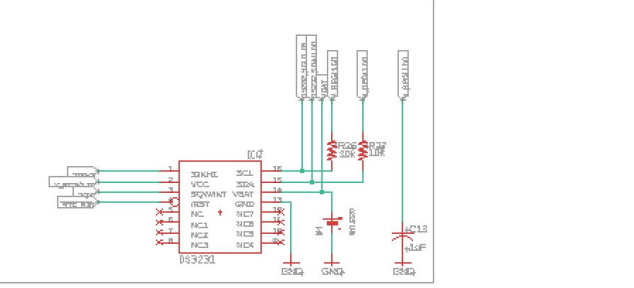
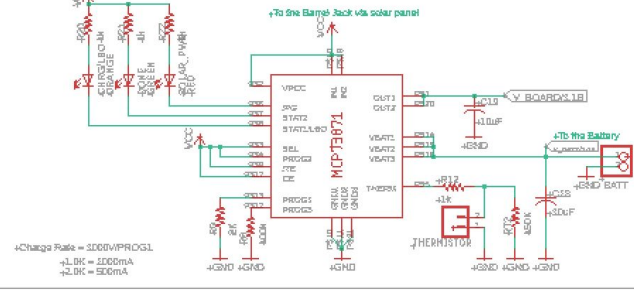
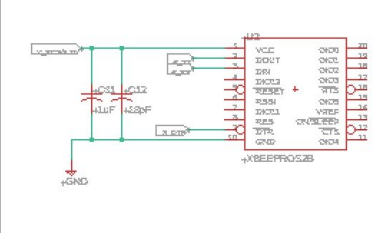
PROGRAMMING



SENSORS

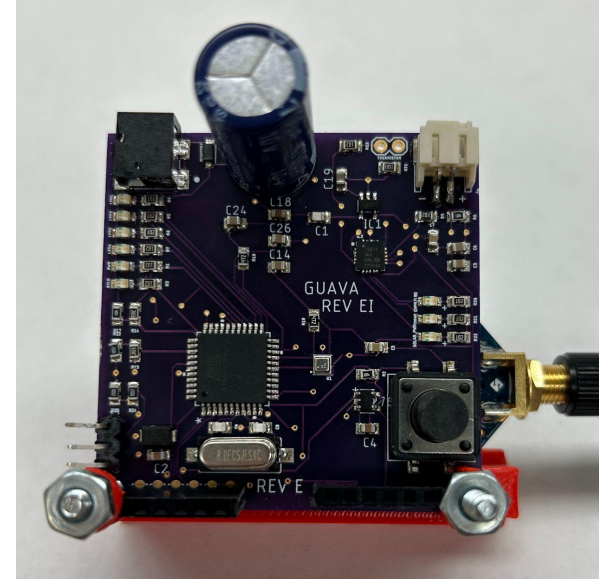
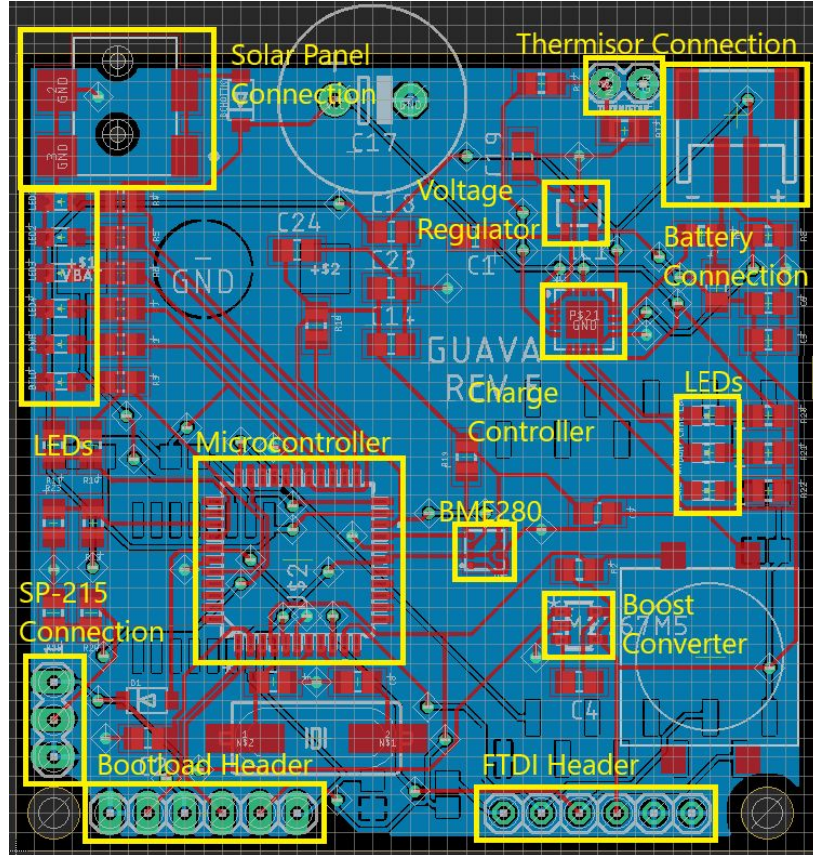


XBEE COMMUNICATION





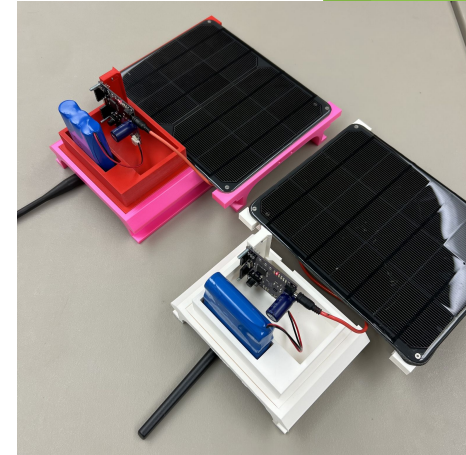
REV E1





Progress from Spring 2024

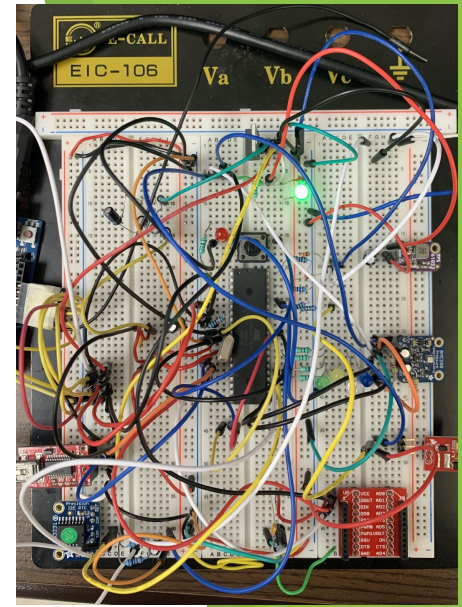
- Assembled and populated three Rev E1 Boards
 - One fully functional
- Performed range testing & long-term tests with battery/solar panel
- Implemented the new XBee 3
- Constructed Bare Guava
- Researched & ordered two wind sensors
- Printed additional housing
- Ready to deploy TWO weatherboxes





Progress So Far

- Reviewed previous Team Guava documentation
 - Concluded where the team stands
 - Updated new members
- Went through previous Guava Team's parts
 - Determined new parts to order
- Attempted to connect Spring '24 & Fall '24 board to the test gateway
- Began reconstruction of Bare Guava





Semester Goals

Produce a self-sustaining environmental sensor module that will collect meteorological data

- On-board Korie & Andy
- Streamline the production process
- Create a Guava Network
- Review and verify data collected
- Research & Develop potential wind sensor
- Troubleshoot Bare Guava





Future Work

Board

- Populate, test & deploy
- Research/implement wind sensor
- Minimize board layout
- Continue testing battery life

Other

- Coordinating with Facilities & other buildings
- Getting new members up to speed
- KiCAD Switch?
- Troubleshoot Bare Guava



GUAVA FALL 2024

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Date	9/09-9/13	9/16-9/20	9/23-9/27	9/30-10/04	10/07-10/11	10/14-10/18	10/21-10/25	10/28-11/01	11/04-11/08	11/11-11/15	11/18-11/22	11/25-11/29	12/02-12/06	12/09-12/13	12/16-12/20
Presentations															
Proposal															
PDR															
CDR															
Final															
Reports															
Mid-Semester															
Final															
Review															
Parts Order and Billing															
Test & Debug															
Development															
Build															
Deploy/ Maintenance															



Gantt Chart
Fall 2024





Thank you!
Any Questions?