

# EE 492 Weekly Report **MAY15-21 Week 18/19** (03/09/15-spring break 03/22/15)

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**Advisors:** Venkataramana Ajjarapu

**Client:** Venkataramana Ajjarapu

**Members (roles):**

- Daoxi Sun- *web master*
- Riley O'Connor- *team leader*
- Trevor Webb-*communication leader 1*
- Shihao Ni – *web master*
- Xiaokai Sun- *communication leader 2*
- Ben Ryan- *concept holder*

## **Project Title: Hybrid Solar Wind Generation System**

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### **Weekly Summary**

At the end of fall semester our team had successfully simulated both the solar and wind generation systems in Matlab Simulink. The challenge for this semester is now to implement our designs with equipment, and produce the desired results.

The wind team has made progress with building their circuit, but a mistake lead to a rectifier being burned and now they are working to make a new one. Parts that the wind team ordered came in this week, which has helped them make progress on their circuit.

The solar team worked on combining the solar simulation system with the wind generation system and performed some calculations to figure out how large a load could be reasonably powered under different conditions.

### **Meeting notes:**

General Notes

- I. Present solar material and wind material to our advisor
- II. Focus on becoming familiar with equipment
- III. The solar team will use the battery moving forward to perform some power flow calculations under various conditions. A test load will also need to be made.
- IV. The Wind team will test the new rectifier and heat sink.

### **10/2 Group Meeting with Advisors**

**Duration:** 60 min

**Members Present:** 5

**Purpose and Goals:**

Present relevant background information over our project to both our advisor and our fellow group members. Both the solar and wind teams now have made some progress with hardware, and will present that progress while getting useful advice on how to proceed from our advisor.

**Achievements:**

Both groups obtained advice for moving into week two of working on this project.

The solar team worked on combining the solar simulation system with the wind generation system and performed some calculations to figure out how large a load could be reasonably powered under different conditions

The wind team was able to make sure the new rectifier works well. The coupling mount for the motor and generator is set up.

## Pending issues

1. Obtaining batteries to power various devices: MPPT and inverter
2. Altering existing systems to suite our needs
3. Successfully creating solar and wind generation individually
4. Combining both forms of generation to supply one load

## Plans for next week

1. Wind team: (Ben, Xiaokai, Shihao) will meet to design and implement their wind generation system
2. Solar team: (Riley, Daoxi, Trevor) will meet to discuss means of combining systems with the wind team and document testing the solar system when the battery arrives.
3. Each team will also develop results that can be presented at our next meeting with our advisor and his grad student.

## Individual Contributions (this week)

Daoxi Sun: 5

- Attended weekly meetings to meet with team and advisor
- Tested inverter with a standard light bulb load and an adjustable power supply
- Tested rechargeable battery

Riley O'Connor: 3

- Tested the inverter and solar panels
- Attended weekly advisor meeting
- Submitted parts order to the advisor

Trevor Webb: 3

- Tested the inverter and solar panels
- Attended weekly advisor meeting
- Updated information in the weekly report

Shihao Ni: 3

- Received parts and mounted them in the wind system
- Attended the weekly advisor meeting

Xiaokai Sun: 4

- Attended the weekly advisor meeting
- Updated information in the weekly report

Ben Ryan: 8

- Received parts and mounted them in the wind system
- Attended the weekly advisor meeting
- Researched parts for rectifier and buck converter

## Total contributions for the project

Daoxi Sun (87 hr)

Riley O'Connor (82.5 hr)

Trevor Webb (80.5 hr)

Shihao Ni (95 hr)

Xiaokai Sun (92 hr)

Ben Ryan (108 hr)