

May1727

**Project Title: Stand-alone Hybrid Solar/Wind
Power Plant**

**Advisors: Dr. Venkataramana Ajarapu & Ankit
Singhal**

Team Member – Roles

Nathaniel Byrne - Group Leader

Brian Gronseth - Solar Tech. lead

Jeffrey Szostak - Wind Tech. Lead

Matthew Lee - Communications Lead

Mike Trischan - Key Concept Holder

Eric Cole - WebMaster

Executive Summary:

This week the team focused on fine-tuning our simulations and obtaining appropriate outputs to verify our solutions. After meeting with our advisor it became clear that our simulations were still not correct and will need to be broken down into smaller pieces so that individual components can be tested before being installed into the finished product. One-on-one type meetings with some of the graduate students will be necessary in order to increase our understanding of Simulink and to get our systems functional. The team also began writing the Design Document and has made quick work of completing that document.

Past Week Accomplishments:

We were fairly busy this week with other classes/interviews. Wind is getting close to getting a turbine and somewhat have working simulations and have done wind measurements in the courtyard.

I was out of town for an onsite interview Wednesday through Thursday evening when solar team met with the TA (and professor?) to present the new data that we had collected. Solar and wind team met up on 10/30/16 to complete the design plan document.

Called wind turbine vendor to get more information on products. Worked on simulations. Presented our simulations to Dr. Ajjarapu. Presented our top 3 choices of turbines to Ajjarapu. Still waiting to hear back from Matt Post about facility regulations. Worked on design document

This week I requested permission to set up an anemometer in Coover's courtyard. We're waiting for confirmation before we move on with this. We also worked on SIMULINK simulations and presented our findings. We called Aleko again to for clarification about their design specifications.

Finished Solar simulation and obtained output graphs. Wind simulation is progressing nicely as well and now uses some of the existing solar components which will make creating the hybrid model much easier. Wind team collected more information on wind turbines as far as wattage, price and speeds are concerned. The team also worked on the Design Description and wrote the initial first draft for that.

Added to the website and made it public. Worked on the Simulink model and set up a meeting time for working with a TA for help. Helped write the design document.

Individual Contributions:

Name	Hours this week	Cumulative	Contribution
Nathaniel Byrne	2	26.5	Matt and I worked on finishing the solar simulations.
Brian Gronseth	2	21	Worked on and edited the design document
Jeffrey Szostak	2.5	36.5	I requested permission to set up the anemometer. I also learned more about the software and hardware I would use to operate the anemometer.
Matthew Lee	8.7	32.4	Created the finalized version of the Simulink model. Replaced the TS_Control block with an MPPT block and ran simulations. Obtained output graphs for presentation to advisor for verification. Learned that our results are incorrect (that's good and bad) but also got some guidance and how to proceed next.
Mike Trischan	6	33	Called wind turbine vendor to get more information on products. Worked on simulations. Presented our simulations to Dr. Ajarapu. Presented our top 3 choices of turbines to Ajarapu. Still waiting to hear back from Matt Post about facility regulations. Worked on design document
Eric Cole	5	29	Added to the website and made it public. Worked on the Simulink model and set up a meeting time for working with a TA for help. Helped write the design document.

Summary of Weekly Advisor Meeting:

None
Absent (interview)
Presented our simulations to Dr. Ajarapu. Presented our top 3 choices of turbines to Ajarapu. It was very brief as Dr. Ajarapu had a meeting to go to
I was unfortunately unable to attend the meeting due to a last minute interview. I heard it went well and that everyone else was in attendance.
Short on time to meet with advisor, but he wants to meet with us again on Tuesday.
None

Plan for Next Week:

We are taking a step back in simulations and reworking areas that failed. After every individual component of the simulation is complete, we can move on to the next component. Similar can be said about wind simulations. Wind team will continue to take wind measurements in the courtyard
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I will try and get debriefed and caught up to what assignments we were given during the meeting on the 27th. We will be hopefully moving on to hardware and attempting to integrate the wind and solar simulink models.

Contact Matt post again. Work more on the simulations. Meet again with Dr. Ajarapu on Tuesday

Obtain and set up the anemometer. Use it and determine whether or not a wind turbine is a viable option.

Test each of the solar components individually and verify the results with the TA.

Fix Simulink model. Add weekly reports to website.

Pending Issues:

none

NA

none

We're waiting for permission to set up the anemometer. There isn't a great deal we can do (that's not simulation) until we have permission.

Need more testing

Simulink modelling issues and waiting for building manger feedback.

Comments/Extended Discussion:

No further comments.

Due to an onsite interview this last week, I was unable to put a lot of time into the project. I am confident that my fellow members were able to do a good job with their tasks and will be caught up for this next week.

Matt is still pretty cool, believe it or not

None.

Need to get the group more committed to spending time to work on this project or else we will begin to fall behind; it's just very difficult to find time when everyone is taking 17 credits and working part time...

None