May1727

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

Advisors: Dr. Venkataramana Ajjarapu, Ankit Singhal, Pranav Sharma

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:

For the week prior to Thanksgiving Break, and including the Break, our team inched closer to finishing the simulations and has begun preliminarily interfacing with the existing hardware. We have an all-encompassing simulation file that needs to be more highly tuned to fit our design criteria in order to finally put the last stamp of approval for our simulations. Hardware will begin in earnest soon after. After the simulations however, our next biggest priority will be our final presentation which work has already begun on.

Past Week Accomplishments:

Solar team looked into pricing and compatibility of newer solar panels and put together a plan to start going through the current hardware that included: making a wiring diagram, organizing wires and cables with their components, and finally testing the system. We also made a list of all hardware that was provided in order to gain a better understanding of what we were working with. We also ran through simulations to troubleshoot the remaining pieces of the simulink diagram
Updated Website and Separated the Wind simulink model into individual pieces for better understanding and comparison purposes.
Made progress on simulations, worked on wind turbine acquisition with WESO/FPM, met with advisor and other power group
Well the previous week was the thanksgiving break, so not much was done I believe.
All Attend all meetings Work on Project Plan v2.0 Solar Break up pieces of simulation and debug Research existing solar panels Test and verify hardware Wind Break up pieces of simulation and debug Coordinate with WESO for turbine use create a plan to make WESO turbine work for
Last week, the group made advancements in the two Simulink files. This was done by researching already existing files that are similar to what we want and referencing these files when necessary. We also gave Matt Post all of the information necessary to determine whether or not we can place the wind turbine outside of Coover for a short period of time so it may be used for an EE 452 lab. We also talked to WESO about what modifications are necessary to make to the wind turbine. We verified the wind turbine can operate for over a week's time in varying weather (excluding severe cold and snow which hasn't been tested) by keeping it out over Break. Upon returning, the turbine was still fully operating even though there was a rainstorm.

Individual Contributions:

Name	Hours this week	Cumulative	Contribution
Nathaniel Byrne	4	35	I collaborated with Matt on the simulations for a short while. I added some content to the design document revision. After writing this I will do some research on new solar panels. I did not work on this project, did not have access to campus resources over my outdated PC.
Brian Gronseth	4	34	Researched Kyocera solar panels to find dimensions and cost of newer panels and made a plan to work how to move forward with hardware testing. This included making a components list.
Jeffrey Szostak	5	52.4	I helped set up the wind turbine for that testing which took place over Break. I also talked to WESO about the necessary modifications. I thirdly talked to Matt Post and gave him all of the necessary information so that he can determine whether or not we can place the wind turbine outside of Coover.
Matthew Lee	4	45.8	Project Plan v2.0 - itemized deliverables, assigned group members portions to work on, checked off group members' portions, compiled final report. Simulation - assembled more pieces, verified other portions were or were not working. Talked with Eric about an alternative for ease of use and better reliability.
Mike Trischan	5	48	Met up with WESOs research team to talk about being able to use one of their turbines for our project. its possible that we will add sensors and devices to the turbine to add to content of the lab we will be designing. Went to WESOs general meeting to talk to the president, Fritz, about our project but had to leave early (since the guest speaker took quite some time to present)
Eric Cole	4	45	Updated Website and Separated the Wind simulink model into individual pieces for better understanding and comparison purposes.

Summary of Weekly Advisor Meeting:

Dr. Aj told us to move forward on obtaining a price of a solar panel that we were looking into, as well as to research how boost converters work. Dr. Aj would like us to finalize our simulink diagrams and test the solar panel array hardware.
Absent
Learned about the other power groups project and how solar penetration impacts small/medium scale distribution systems, talked about the accomplishments mentioned above
Last week was break
Requesting more graphs to show understanding of simulations and numbers (prices) for hardware acquisition. He seemed concerned for our lack of deliverables as well (but on our side

about it). We all feel like we have been making adequate progress but we need to be able to show that to the SD committee (mainly through working simulations)
We met with Professor Arrarapu Wednesday at 4pm. We discussed our current plans and where to go from there.

Plan for Next Week:

Solar team will look into analyzing the costs and benefits of obtaining a new solar panel from kyocera. We will also look into trying to organize and maintain the solar cell array in order to run power to it in the near future/gather data. We will also be looking into getting the simulations finished and finalized on individual systems (solar and wind) for the presentation. We were also given the task of researching boost converters.
Take a break for thanksgiving and possibly work on individual parts of the Simulink model.
Work on simulations/turbine, work on presentation, talk to Fritz about turbine
Continue were we left off: finishing simulations and begin processing the hardware and respective measuring/lab instruments.
Finish simulations. Buy new hardware (if approved). Create/give final presentation.
Hopefully receive response from Matt Post, continue Simulink development, and build a converter for the wind turbine.

Pending Issues:

The Solar Array is in disarray, with wires and component hardware scattered and crossed. We know the system works, but the way it is currently put together looks unsafe and very disorganized in terms of running power to it at the moment.
none
None
none
Lack of deliverables for presentation? Two/three software simulations but not fully working and not that exciting. Need to figure out how to make our presentation exciting and demonstrate all the work/effort we've put in so far.
None
None

Comments/Extended Discussion:

NA

None
Hope everyone had a good break!
none
NA
None.
None