

May1727

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

**Advisors: Dr. Venkataramana Ajjarapu & 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

Past Week Accomplishments:

Eric met with Pranav to review wind simulation on Friday. Nathan and I worked on verifying the solar simulation on Friday. Brian was able to contact Kyocera to get a little more information on Friday, and has the contact info for a retailer now. Jeff and Mike (and others) met with Ankit to review the hardware we already have and see if everything works.

Got acclimated to existing solar hardware, brainstormed possible ideas for lab experiments in the future, worked on simulation

Solar team met with ta's and received walk through on how to hook up and run pv hardware. Verified that batteries charge and that we were receiving a current reading from the panels.

Solar simulations are good so far for the most part, mppt functional, power converter before the load not functional last I heard from Matt. Sam was working on the wind and appreciated Pranav's help. Group as a whole is successfully knowledgeable about the hardware (after the tour by the Grad's) and can get hands on with the project.

Worked on understanding and rewiring the solar system.

The group fixed minor glitches in the two Simulink models which ensure they work correctly every time they're ran. The group also began working with the previous group's hardware and cleaning it up so that we may work with it in the future. We also gave a presentation to WESO about the Senior Design Project Monday night at their general meeting.

Individual Contributions:

| Name | Hours this week | Cumulative | Contribution |
|-----------------|-----------------|------------|---|
| Nathaniel Byrne | 4.5 | 44.5 | I present at the adviser meeting, albeit wasn't mentally present at that time. I helped out during the hardware tour, including soldering a few components together. |
| Brian Gronseth | 5 | 43 | Helped to hook up pv array. Also called kyocera and contacted northern Arizona wind and sun about acquiring hardware/hardware compatability. |
| Jeffrey Szostak | 5 | 61.4 | I prepared for and gave a presentation to WESO about the Senior Design project and further solidified our friendship. I also obtained information pertaining to the legality of the Wind Turbine which will be necessary later on when we decide to use it for academic purposes. I also assisted in the cleaning of the previous group's hardware. |
| Matthew Lee | 5 | 54.3 | I worked on verifying the solar simulation mathematically to be able to prove that the results we are getting are 100% accurate. I found out that our MPPT is not entirely correct or our boost converter is not outputting correctly so it needs some fine tuning. But the simulation runs at least. |
| Mike Trischan | 4 | 56 | Got acclimated to existing solar hardware, brainstormed possible ideas for lab experiments in the future, worked on simulation |
| Eric Cole | 3 | 51 | Worked on the simulink wind simulation and help with wiring the solar hardware. |

Summary of Weekly Advisor Meeting:

We met with our advisor on Tuesday but have now decided to move our meetings to Friday so we can also meet with the TA's. We discussed the issues surrounding the simulations as well as who owns the turbine (mostly Nick).

Discussed progress and plan for next week (mentioned above)

Talked over project plans for upcoming week and about hooking up pv array. Was told to enquire about getting new solar panels.

The group met up with Dr. Ajarapu Tuesday and decided to reschedule our meeting times to be Friday at 1pm. We were given goals to accomplish by our next meeting including evaluation the previous group's hardware and fixing the currently known glitches in our two Simulink models.

Plan for Next Week:

Get the simulations 100% accurate. Order new panels and get the wind turbine up.

Work more on setting up solar hw and organizing equipment, test specs of wind turbine generator, finish up simulations

Get the pv array completely hooked up and start taking readings. Create a wiring diagram of some sort for the pv array.

Some of us will continue finishing up those never ending simulation problems. And another sum of us will be looking into the hardware.

Finish Simulation and start testing wind hardware.

Finish cleaning and understanding the previous group's hardware and run tests on the Wind Turbine to determine its parameters.

Pending Issues:

Solar simulation not being 100% accurate. Hardware broken? Wind simulation not 100% accurate. Having to order new parts.

None

none

none

Simulation problems.

None.

Comments/Extended Discussion:

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| I was unable to attend the hardware review with Ankit and so I will be meeting with my group in order to discuss the details of said meeting, and urgently. |
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| When do I get my trophy? |
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| Na |
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| I would appreciate that our advisor meetings could be more time efficient. It's usually hard for me to stay mentally present during a long Ajjarapu lecture, which these seem to be similar to. |
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| None. |
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