EE 491 Weekly Report   MAY15-21   Week 6 (10/06/14-10/13/14)

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

Weekly Summary

The main goal this week was to refine the second model of our design in Simulink. The solar team and wind team each began separate models, and once each model simulates the way we want it to the two will be put together for one comprehensive model.

Each group made progress with the simulations from last week to this week, but neither model is complete yet.

The entire group was able to meet with our advisor and his grad student. They looked over what we had done so far and gave us some helpful advice for trouble shooting our models and checking each step as we progress to ensure that everything is working properly.

Meeting notes:

General Notes

I. Present solar material and wind material to our advisor

II. Focus on trouble shooting our simulations

III. The Solar team must implement the MPPT and apply a filter for a cleaner sinusoidal output

IV. The Wind team must . . .

10/2   Group Meeting with Advisors

Duration: *60 min*   **Members Present:** *All*

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 basic Simulink models, but were not complete models. The advisor and his grad student were able to give guidance for progressing with the models.

Achievements:
Both groups were struggling with simulation errors, and both largely benefited from the advice of using a step-by-step approach to simulating and constantly verifying results along the way.

The solar team was able to successfully modify and predict P-V input and output as well as boost the voltage with a boost converter and apply the inverter to create an ac voltage/current at the output.

The wind team was able to connect the source, motor and power bridge together. It simulated with no bugs. Some reasonable output has come out. However, the motor still has problems. That will be the main task for the next week.

Pending issues
1. Simulating the solar generation and wind generation aspects in Simulink.
2. Modeling based on different conditions.
3. Combining the two models into one comprehensive model

Plans for next week
1. Wind team: (Ben, Xiaokai, Shihao) will meet to continue work on wind simulations
2. Solar team: (Riley, Daoxi, Trevor) will meet to advance work on solar simulations
3. Each team will also develop results that can be presented at our next meeting with our advisor and his grad student. The individual solar and wind simulations should be largely completed by our next meeting with our advisor.

Individual Contributions (this week)
Daoxi Sun: 8
- Attended weekly advisor meeting
- Researched for Simulink models
- Buid the website

Riley O'Connor: 9
- Read materials for Simulink session
- Worked on Solar Simulink model (solar cell input/output, boost converter, inverter)
- Attended weekly advisor meeting
- Met with mentor for Simulink help

Trevor Webb: 8.5
- Worked on Solar Simulink model
- Attended weekly advisor meeting
- Updated information in the weekly report
- Researched PV solar cell voltage and current equations

Shihao Ni: 9
- Researched Matlab Simulink models
- Debug the simulation and discussed with the graduate student assistant
- Working on motor issue
- Attended weekly advisor meeting

Xiaokai Sun: 9
- Research related wind generation material on web
- Researched Matlab Simulink models
- Adjust the parameter in simulation
- Try to adjust the motor and wind turbine simulation
- Attended weekly advisor meeting
- Editing weekly report.

Ben Ryan: 10
- Researched Matlab Simulink models and wind generation components
- Created Simulink model
- Build up the motor part of the simulation
- Get reasonable output from simulation
- Attend weekly advisor meeting

Total contributions for the project

Daoxi Sun (19 hr) ,
Riley O'Connor (23.5 hr)
Trevor Webb (21.5 hr)
Shihao Ni (19 hr)
Xiaokai Sun (19 hr)
Ben Ryan (20 hr)