Design and Implementation of a small scale stand-alone Hybrid Solar PV and Wind Energy Generation system for EE 452 lab

EE 492, Bi-Weekly Status Report #2
August 31st - Sept 13th

Team Members:

Conner Makoben - Electrical Engineer

Mohamed Adam - Electrical Engineer

Daniel Mendez - Lead Engineer

Samah Shabbo - Electrical Engineer

Ben Holt - Electrical Engineer

Summary

The project's status for this period is in the simulation and hardware preparation stage. We decided to fully work on simulating the wind portion of our project this period. We split off into groups to develop multiple wind turbine simulations to find the best way to simulate the turbine and then eventually consolidating them into one simulation. Each group came up with a basic wind turbine model that all acted similarly. We then in our groups took the basic wind turbine model and added a mppt controller portion. These models were where we had some differences between the groups that we compared to find a solid solution. We also had to update some of the parts on our parts list due to parts no longer being available. We were still unsure of the possibility of completing the hardware so we held off on ordering the parts for this period.

Contributions

Name	Hours Worked Week 3-4	Total Hours	Contribution
Ben Holt	8	16	- Created the Bi-weekly status report. - Worked on implementing an mppt portion into the wind turbine simulation. - Worked with Daniel to design a wind turbine simulation model.

Daniel Mendez	**8**	**16**	- Facilitated project execution schedule with team and client to adhere to covid restrictions for the fall semester - Worked with Ben on the design of the wind turbine model - Progressed discussions with building manage of Coover Hall to install equipment within the building premise - Developed plot plan for equipment installation in the Coover Hall courtyard
Conner Makoben	**4**	**8**	- Reviewed and tested wind turbine simulation model to understand it - Plan to create lab experiments and manual once MPPT portion of wind turbine is implemented
Mohamed Adam	**8**	**16**	- Worked on Wind turbine simulation - Checked the proposed wind turbines specifications and validated its performance capabilities comparing to the wind generation part in the project
Samah Shabbo	**8**	**16**	- I searched for a new wind turbine to purchase. - I reviewed all the prices and the part list of the project hardware.

Pending Issues

The only pending issues were hardware availability and parts running out of stock. The hardware availability issue was resolved by talking to the lab directors about room availability. The parts running out of stock issue is being resolved by looking into other parts. The biggest pending issue might be scheduling between ordering parts and building the hardware before the deadline.

Plans

Our future plans involve finalizing our wind turbine simulations both basic and mppt versions. We plan on then developing lab experiments around the two simulations to be used as teaching aids in the lab portion of EE 452. Lastly, our plan is to hopefully order parts within the next few weeks if the hardware portion is possible.