

## EE / CprE / SE 491 – sdmay18-42

### Group 42: “Power Systems Analysis in an Induction Type Wind Turbine”

April 01 – April 14

**Client:**

Ron Zickefoose

**Faculty Advisors:**

James McCalley and Nick David

**Team Members:**

Ben Zickefoose – Team Lead/Chief Engineer

Melissa Flood – Power Engineer/Meeting Facilitator

Tate Stottmann – Power Engineer/Test Engineer

Matt Miner – Power and Controls Engineer/Meeting Scribe

David Clark – Controls and Embedded Engineer/Report Manager

Bi-Weekly Summary

Past Accomplishments

Team members worked diligently in the PRIM 2 presentation. Presented technical issues about the Xbee and using board/schematic design tools. We completed the needed controller schematic and board design using a schematic design tool called Eagle. Team members meet with Nick David and continued with implementing needed safety boundaries for the motor testing. Started working on final paper and poster. Team members continued to help with an how-to resource. Continued success with the Xbee and writing the necessary software.

Pending Issues

No pending issues currently.

Individual Contributions

Team Member	Contribution	Hours	Total Hours
Ben Zickefoose	Team meetings. Worked on final presentation slides. Worked on final presentation paper. More motor testing. Prepared motors for next test: Hooking both primary and secondary to different voltage sources in order to simulate the action of the wind turbine operation. Searched out a way to measure rotor speed, found a handheld cordless	15	75

	strobe type device. Investigating different means of measuring current, and how far to go with the different testing. Working on final paperwork, blueprints presentation prep, and testing. Final presentation work.		
Melissa Flood	Team meetings. Worked on final presentation slides. Worked on final presentation paper. Worked with Ben Zickefoose. on testing the motor using series resistors to ground to find the starting current of the motor. Also figured out the exact circuit needed for testing anti-islanding test. Worked with Ben Z. on testing the generator for the starting current of the motor for in-rush test in a multi meter. Also used a sort of strobe light that is used to find the rotational speed of the generator based off when you see a key slot moving.	15	59
Tate Stottmann	Team meetings. Poster design and creation. Worked on final presentation slides.	8	40
Matt Miner	Team meetings. Worked on final presentation slides. The Arduino xBee library that is being has been a problem, getting signals from and to the xBee. Got the xBee to turn on with the Arduino but having trouble getting it to read. Setup some of the examples given in the Arduino xBee library. When testing them I keep getting the same problem that it acts like it is not getting a signal. I have tried rewiring but that did not work. Tried to see if some of the code was not working that was not it. Went through the information given with the library I tried different setting on the xBee. Next step I'm going to try is setting up the pins on the Arduino in a different style because I notice they do not give the pin number. Got the Arduino to work with the xBee library. The capability to send and receive data is now possible. I set the models to get a better understanding of how the system works. The next step is to put all the programs together.	17	65
David Clark	Team meetings. Worked on final presentation slides. Worked on final presentation paper. Finalized Arduino and Parallax circuit schematic and board design.	15	64

Comments and Extended Discussion

None currently.

Plan for Coming Week

Continue researching individual areas: Ben – wind turbine physical design and testing; Melissa – wind data; Matt – wind data and microcontroller; Tate – tail boom system; David - microcontroller. Continuing researching REC documentation, extremely long document. Working towards finalizing circuit design and layout. Finalizing turbine engine testing and building safety container. Hoping to test the induction motor soon. Finished Parallax control system, working on alternate control system schematic.

Summary of Advisor Meeting

Working on setting up meeting with Professor McCalley. Meeting/discussing with Nick David regularly.