

## EE / CprE / SE 491 – sdmay18-42

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

March 04 – March 17

**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

The team continued working on testing the turbine engine. A lot of physical work has been put into preparing the turbine engine testing and ensuring the safe operation, handling, and testing of the engine. A team member has been diligently helping educate various groups on wind turbine use as a power supply. We continue to work with the software integration; communicating with the Xbee through an external GUI to allow easy access to data and control of the systems. We continue to build, design, and modify the control circuits.

Past Accomplishments

Team members worked on physically setting up the turbine motor for testing. There are a lot of safety requirements that must be implemented. Hardware was purchased and configured for motor testing. Set up blueprints for the tail control module. Integrating software with the XBee hardware, and troubleshooting. Designing Eagle CAD layouts. A team member has been helping educate various groups on wind turbine use as a small scale power supply.

Pending Issues

No pending issues currently.

Individual Contributions

Team Member	Contribution	Hours	Total Hours
Ben Zickefoose	Team meetings. Mounting prime mover motor and generator motor to base to prep for generator tests. Finding breaker for protection (Nick found it) and mounting	12	49

PROGRESS REPORT – 201803017

	to Dinrail to stabilize. Mounting chain to motors. Discussed motor test with Nick. Assembly on safety cage to be used around motor shafts and sprockets on shafts. Built from 2x2 frame and 1/4" hardboard. Mounted to base around motors. Built as requested by Nick. Discussed motor test with Nick.		
Melissa Flood	Team meetings. worked on a document for others as a 'How to' for building a small-scale wind turbine on their own property. researched and reverified previous research on how to do various testing on the generator. Continued work on previous wind data.	7	36
Tate Stottmann	Team meetings. Generator testing design. Research on generator certifications.	7	32
Matt Miner	Team meetings. Worked with the Xbees changed the settings so that I can communicate in AT mode and could get them to connect but not send anything. I will be API Mode is what I need to work in with java code so tried that but still nothing. played with the java code to get the xbees to send a message. I having a problem getting the xbee on the computer side to read a message.	8	37
David Clark	Team meetings. Continued to building library in Eagle for schematic and board layout. Researching parts for controller board. Continued work with schematic design in Eagle. Developing Arduino board layout and schematic.	8	35

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.

Summary of Advisor Meeting

Working on setting up meeting with Professor McCalley.