EE / CprE / SE 491 – sdmay18-42

Group 42: "Power Systems Analysis in an Induction Type Wind Turbine"

March 18 – March 31

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

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.

Past Accomplishments

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.

Pending Issues

No pending issues currently.

Individual Contributions

Team Member	Contribution	Hours	Total Hours
Ben Zickefoose	Team meetings. Worked on PIRM presentation. Discussed motor tests with Nick David and what improvements	11	60

	needed to be made to motor cage. Measured, fabricated, and installed improvements to motor cage. Discussed motor testing with team members. Worked on motor testing.		
Melissa Flood	Team meetings. Worked on document for others as a "how to" for building a small-scale wind turbine on their own property. Refreshed memory and researched anti-islanding testing and tried to figure out how a circuit design looks without paying $1k for a document. Also, investigated other testing methods with more elaborate instructions. Helped with PIRM presentation.	8	44
Tate Stottmann		0	32
Matt Miner	Team meetings. Read message took some time but I got it to work with some other examples of code that works. Ran into problems storing the information that was being sent. Also, had problems when changing the code that would cause a failure. Got the code to read and work with some global variables but transferring the data was a bit problematic. Designed a portion of the PIRM presentation.	11	48
David Clark	Team meetings. Continued to building library in Eagle for schematic and board layout. Finalized schematic design for Parallax board. Researching parts for Arduino controller board. Continued work with board design in Eagle. Built presentation for PIRM review.	14	49

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.