EE / CprE / SE 491 – sdmay18-42

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

February 18 – March 03

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 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.

Past Accomplishments

Consulting with Nick David. Designing and building test jig for induction motor. Working with past wind data to compile history. Working with AutoCAD. Modeled for ideal wind turbine inside EDA. Working with integrating the anemometer.

Pending Issues

No pending issues currently.

Individual Contributions

Team Member	Contribution	Hours	Total Hours
Ben Zickefoose	Team meetings. Cleaning and organizing in wind lab. Measuring for, searching online for, driving to, and purchasing 1/4"X1/4" key-stock for fitting sprockets to motor shafts. Building chain to connect the motor sprockets with Nick David's help. Sanding out the inside of	10	37

	the sprocket so it doesn't cause any damage trying to force it onto the shaft.		
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 continued adding historical wind data. Adjusted previous blueprint on AutoCAD to more accurately display the line map.	7	29
Tate Stottmann	Team meetings. Blueprint for tail control module. Testing control module schematic for failure states.	6	25
Matt Miner	Team meetings. Working on getting the Xbees to talk to java; there has been a lot of problems with getting the code to work. Keep getting an error somewhere. I rebuilt the program again and that did not fix the problem. I found out that it was how the java library was being stored and final got it to talk to the Xbee. Played with the Xbees, changed the settings so that I can communicate in AT mode and could get them to connect but not send anything. Found that API Mode is what I need to work in with java code so tried that but still nothing.	9	29
David Clark	Team meetings. Building library in Eagle for schematic and board layout. Developing Arduino board layout and schematic.	8	26

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.