

Attendees: Majed, Hatem, Kayden, Chad, Dr. Li, Dr. Johnson

#### Phone Contact Info for Team Members

Chad Vorse            208-409-9598

Kayden Scott        208-409-9598

Majed Alkeaid       315-706-8871

Hatem Alatawi       608-515-1016

#### Action Items:

AI:01            Majed

Incorporate feedback on the contract into a new draft and send it out for one final review of the team. We will all meet to sign the draft Monday, 9/14 at 1230 in the Think Tank. **Complete**

AI:02            Chad

Send out propose for two meeting times, Friday at 8:30 am and Monday at 3:00 pm. Clarify that Chad will not be able to attend the meeting on Mondays. **Complete**

AI:03            Chad

Email out the manual of the VFD, the email from Dr. Johnson with the past Senior Design Wiki, and the title of chapter 11 from the 421 book Dr. Johnson loaned me. Bring the book in for Kayden to read the chapter. **Complete**

AI:04            All

Read the Wiki, VFD manual, and attachments in the email sent out in preparation for our meeting with the client, Stephanie Hunter. **Complete**

AI:05            Chad

Email Dr. Johnson and inquire about getting a key to the power lab. **Complete**

AI:06            Kayden

Find a solution for document sharing (Google Docs, One Drive, etc.) **Complete**

AI:07            Kayden

Document our current list of possible solutions (as we know them today) **In Progress**

Dr. Li speaks to the team

Dr. Li speaks about portfolio that we will need to create for the team. He also brought examples of the portfolio and logbook to pass around for everyone to see.

He also covered the client interview. The team needs to have about 20 questions prepared for the client during the interview. We will need to create a transcript of the client interview. The transcript and resulting objectives and specifications will need to be provided to the client. The client will sign off on the transcript and the objectives / specifications before the team proceeds with any action on them.

Next, Dr. Li spoke about contacts that the team will need to identify.

- The financial contact ~ Kayden Scott
  - The financial contact will be responsible for all the purchases made by the team. The financial contact will need to attend the limited audience Senior Design class on Thursday September 24.
- The client contact ~ Chad Vorse
  - The client contact is responsible for all the communication between the client and the team. The client contact will be responsible for scheduling meetings with the client and ensuring that client requests make it to action items for the team.
- Meeting Scribe and Agenda publisher ~ Chad Vorse
  - Meeting minutes will be published within 1 business day.
  - Agendas will be updated through the week and finalized at least two business days prior to meeting date.
- WIKI page owner ~ Hatem Alatawi
  - Hatem will be developing the WIKI page.
- Portfolio ~ Majed Alkeaid
  - The portfolio will be an evolving work. Most of the items will be drawn from logbooks and the WIKI page.
- Project Management ~ Kayden Scott
  - Create a resource list, Gantt Chart, track dependencies, due dates, and any other team detail pertinent to Microsoft Project.

Dr. Li also covered the following quickly approaching deliverables:

1. We need to get a team picture. The first picture op is in about 1 month.
2. First log book review will be early in October. The following minimum information goes into the logbook.
  - a. Table of Contents
  - b. Date on each page
  - c. If there is open space, just cross through it. Don't write backwards.

- d. Write in pen, do not use a pencil.
- e. You can cut and paste items into the logbook.
- f. Make sure you use a log book review form. (Download from mindworks page)
- g. Expectation is that the logbooks will improve as time goes on.

Majed showed his own logbook for Dr. Li's review.

Question and Answer with Dr. Johnson

Hatem asked "When we talk about characterizing the system, are we talking about just the Induction Motor?" The answer: The model has to incorporate the inertia of the system, so the characterization reaches beyond just the induction motor. The drive is slightly oversized so it could be used to drive a bigger machine if needed. Also, the generator could potentially deliver more power than rated."

Kayden asked "Since SEL wants to be able to scale the work to incorporate different primary movers, is the characterization really relevant?" The answer: The model is just numbers, so it can be adjusted to account for any primary movers.

Majed asked "What is the problems with the type 1 IEEE models." The answer is that the problems Dr. Johnson had referred to was about IEEE models in general. The challenge for our group is to move the general model to a specific model. A good place to learn about models is Power Systems Stability and Control. This book talks about the models. They are also in the IEEE standard. We can get the standard from the Library and download it. The POWER WORLD program, used in ECE421, also has the models built into the program. So if you get into the stability analysis, you can look at the models there as well.

Majed asked "In our book, the chapter 11 is about machine stability. Will that help us?" The answer is that the chapter will help us understand the machine model and the stability we need to control the system.

Chad asked "Dr. Fischer mentioned that he would like to calculate slip for the Induction Motor." The answer is that we can calculate slip. We need the electrical frequency the motor is driven at and the mechanical frequency the shaft is spinning at. With these two inputs the slip can be calculated.

Brainstormed questions for the client (Stephanie Hunter)

1. The big questions on everyone's mind is what is the maximum and minimum performance that you are looking for from the system?
2. What is Stephanie's position at SEL?
3. What is her role in the company?
4. Understanding that two major deliverables of the project is closed loop control and a model of the power system, are there other deliverables you could list?

5. What would you like from us...
  - a. Weekly
  - b. Monthly
  - c. By December
  - d. By May
6. What is an aspirational goal you might have, something that would exceed your expectations?
7. How might SEL use our work to benefit its work in the future?

#### Brainstormed tasks that are near term

1. Research PID control ~ Kayden and Chad
2. Build RS422 cable to interface from encoder to computer ~ Chad
3. Read ABB User's Manual ~ Hatem and Majed
  - a. Develop a list of characterization inputs for the VFD
  - b. Create a list of parameters (Sept 25)
  - c. Write a test procedure for each parameter needing characterized (Oct 09)
4. Decode Greycode Methodology ~ Kayden (Converting with success adds <https://www.youtube.com/watch?v=v1PV36O2ZWY>)
5. Complete RSCAD tutorial ~ Majed, Hatem, Chad (Oct 16)
6. Research IEEE models ~ Majed, Hatem (Oct 16)

AI08: Chad

Build an interface cable for the encoder to a microprocessor.

AI09: Chad

First deliverable will be to get RPM reading out of the Encoder.

AI10: Majed

Check on the ECE conference room for the meeting next Friday.

AI11: Chad

Resend the email asking for a key and access to the lab.

*Here is the response from Dr. Johnson:*

*At least one person on your team should get a key for the lab (BEL G10).*

*The safety procedures are very similar to the machines lab in GJL, except the Emergency Stop buttons in BEL in there only effect the model power system, not the machine you will be working with and there isn't a log book. We can talk more about it at your meeting on Friday, but we can also get the key request started early in the week.*

AI12: Kayden

Talk to JJ about getting access to Microsoft Project.