EE 491 Weekly Report **DEC15-17** **Week 9 (3/23/15-3/29/15)**

Advisors: Dr. Ravi Hadimani and Neelam Prahbu **Client: Iowa State University**

Members (roles): Marion Okoth (Team Leader), Elizabeth Clarkin (Website) and Matthew Mulloy (Weekly Reports)

Project Title: Magnetic Sensor Design.

Weekly Summary

The main goals this week were to continue with the second round of COMSOL testing, implement FFT in data analysis software, and update the website.

Meeting notes:

3/23 Group Meeting

Duration: *30 min* **Members Present:** *All*

- Discussed Design Document
- Discussed Project Plan #2
- Website
    - New implementation direction
    - Design and aesthetic
    - Document inclusion

3/27 Group Meeting with Advisors

Duration: *60 min* **Members Present:** *All*

Purpose and Goals:

Discussed GUI, COMSOL, current problems, and general catching up on the project

- Design Document
- Website
- Fourier and Laplace transforms
- COMSOL
    - Magnetic simulation times
    - Mesh analysis
    - Unit system consistency
    - Exporting data
    - Shielding
- Hysteresis graphs and losses
    - Circuit losses verse material losses
    - Scope measurements

- Reporting in documents
- MATLAB software
    - Frequency spectrum
    - Accounting for noise
    - RF in core
    - Wide band reading verses narrow band reading
    - Reading and storing multiple resonances
- Project plan
    - Software inclusion
    - Material process
    - Noise sources
    - Website news

Pending issues

1. Data analysis software
2. Hysteresis analysis on created material
3. Continued COMSOL simulation

Plans for next week

1. Matt: Will continue with COMSOL
2. Elizabeth: Will continue working on the website and will get the signal processing part of the data analysis software.
3. Marion: Will work with Elizabeth on the software end, help with Sample preparation and perform hysteresis graph measurements.
4. All will work on the Project Plan #2

Individual Contributions (this week)

Matthew Mulloy: Attended the meetings, reading, weekly reports, COMSOL simulation (5.5 hrs.)

Elizabeth Clarkin: Attended the meetings, website, MATLAB (8 hrs.)

Marion Okoth: Attended meetings, MATLAB FFT code, project plan (5.5 hrs.)

Total contributions for the project

Matthew Mulloy (70 hrs.)

Elizabeth Clarkin (81.5 hrs.)

Marion Okoth (61 hrs.)