

EE 491 Weekly Report DEC15-17 Week 19 (9/29/15-10/05/15)

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 was for each member to put in work for the project. Total progress was also evaluated for final design.

Meeting notes:

10/05 [Group Meeting with Advisors](#)

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

Purpose and Goals:

This week's goal was to evaluate current progress and discuss future work.

- Matthew
 - Current Simulations
 - Variations in simulations and results
 - Dimensions of design
 - Tolerance
 - Core sample replacement\
 - Coil formation and mounting in design
 - Cost and realistic design parameters
 - Shielding parameters
 - Acceptable variations within materials
 - No geometry will satisfy all materials
- Marion
 - PI 55, short pulse, 100 kHz to 1 MHz wide pulse
 - Measurements compared to current assembly
 - Transmission line ADS simulation software
 - Reduction of bounce back and white noise
 - Impedance matching
 - Contacting Schlumberer for their work of impedance matching
 - Material resonances
 - Removal of circuit resonances

- Elizabeth
 - Software tests on multiple files
 - Single file works
 - Multiple output files possible
 - Saves peak into one file for each frequency and width
 - GUI ready

Pending issues

1. Semester documents
2. Semester goals

Individual Contributions (this week)

Matthew Mulloy: Attended the meeting, COMSOL simulation, weekly report (5.5 hrs.)

Elizabeth Clarkin: Attended the meeting, ADS (4 hrs.)

Marion Okoth: Attended meeting, short pulse measurements on PI55, reflection and resonant frequency shift (6 hrs.)

Total contributions this semester

Matthew Mulloy (23.5 hrs.)

Elizabeth Clarkin (18 hrs.)

Marion Okoth (19 hrs.)

Total contributions for the project

Matthew Mulloy (130 hrs.)

Elizabeth Clarkin (151 hrs.)

Marion Okoth (109.5 hrs.)