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 evaluate current progress for Matthew and continue preparations for instructor meeting.

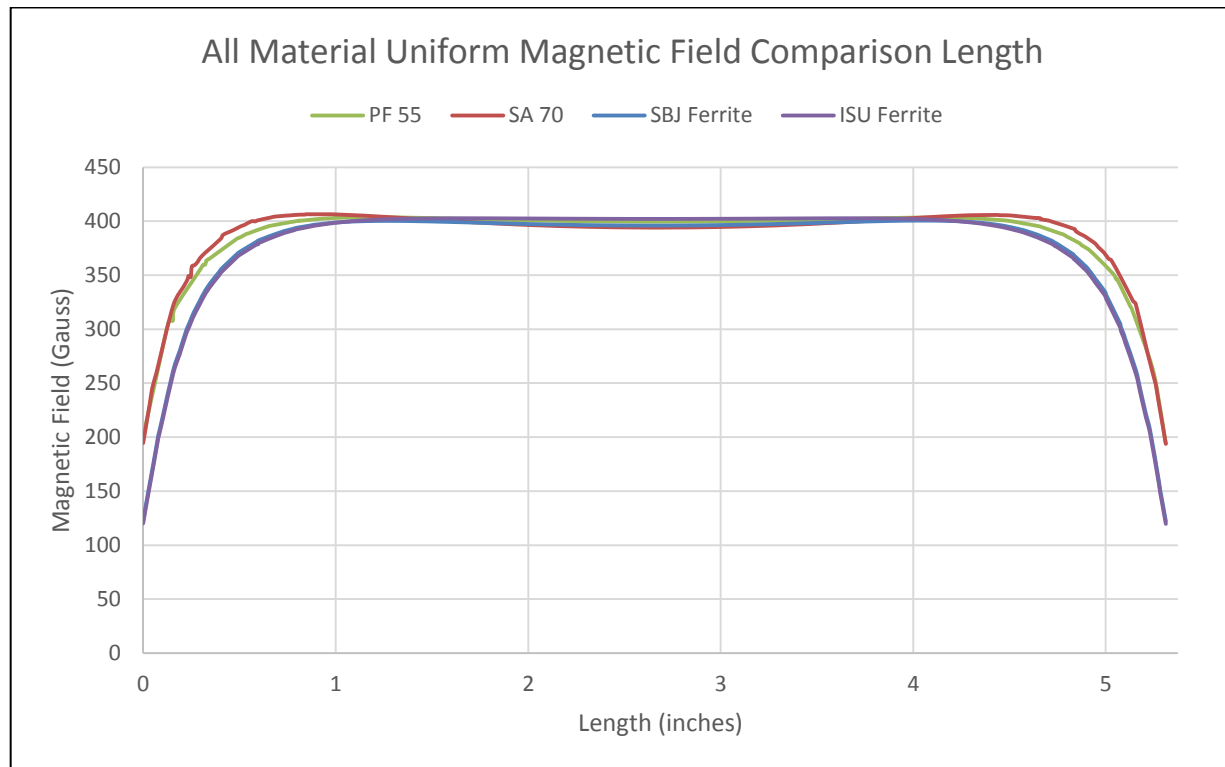## Meeting notes:

10/19   Group Meeting with Advisors
Duration: *60 min*   **Members Present:** *All*

Purpose and Goals:
This week's goal was to evaluate current progress and discuss instructor presentation and design implementation.

- Matthew
  - Presentation of current semester work
    - Variables in general given geometry
    - Giron shielding
    - Results of all four materials
    - Giron saturation in PF 55 and SA 70 simulations
- Marion
  - Multisim frequency shifts
    - 50 ohm resister added
      - Signal attenuation concerns
      - Removed square wave
    - Creating voltage divider
    - No reduction in voltage amplitude
  - Fourier analysis issues
- Elizabeth
  - Multisim schematic
    - Added capacitor to filter
    - Substituted real world values
    - Filter at -40 dB
  - Good reflections

Matthew's Current Progress

All Material Uniform Magnetic Field Comparison Length

Legend: —— PF 55 —— SA 70 —— SBJ Ferrite —— ISU Ferrite

Y-axis: Magnetic Field (Gauss), from 0 to 450

X-axis: Length (inches), from 0 to 5

Giron shielding chosen. All geometries calculated using distance from magnets radially, lengthwise, number of magnets, and thickness of shielding as variables. Above are results of all four materials for consideration measuring length of material at its radial center verses the magnetic field.

Pending issues
1. Semester documents
2. Semester goals

Individual Contributions (this week)

Matthew Mulloy: Attended the meeting, COMSOL simulation, COMSOL presentation, data analysis, weekly report (20.5 hrs.)

Elizabeth Clarkin: Attended the meeting, ADS, Chebyshev Filter (10.5 hrs.)

Marion Okoth: Attended meeting, Schematic building using Mulitsim, Fourier analysis, Transient analysis with MatLab (9 hrs.)

Total contributions this semester

Matthew Mulloy (49 hrs.)

Elizabeth Clarkin (36.5 hrs.)

Marion Okoth (39 hrs.)

Total contributions for the project

Matthew Mulloy (155.5 hrs.)
Elizabeth Clarkin (169.5 hrs.)
Marion Okoth (129.5 hrs.)