EE/CprE/SE 491 WEEKLY REPORT 1 9/9/19 – 9/20/19

Group number: ***sdmay20-27***

Project title: ***Gauss Sensor for Magnet Array Filter***

Client: ***Dennis O'Neel***

Advisor: ***Dr. Mani Mina***

Team Members/Role:

Muhammad Lutfi Latip -Team Manager

Irfan Rafie – Test Engineer

Vishal Patel – Meeting Scribe

Muhammad Aiman Zulkefli – Research manager

Weinee Long – Report Manager

o **Weekly Summary**

The objective for the first 2 weeks was to set a meeting with the client and advisor that would discuss the following topics:

1. Introductions of each Team Member and their background
2. Current Gauss and Eddy Current Sensors and their capabilities and limitations. Any other sensor technology that might be worth investigating?
3. Discuss timeline and budget.

Based on the topics listed above, we did not entirely accomplish everything as we would still need to conduct thorough research regarding our project in order to provide answers to our client. In addition, also the team managed to discuss the outcomes that the client wants at the end of the project which is to obtain a sensor that could detect the change in particle accumulation on the filter and also a sensor to detect aluminum, brass and iron.

o **Past week accomplishments**

- Lutfi, Aiman, Weinee: Research regarding gauss meters and hall effect sensors
    - Gain knowledge on how gauss meters work

    - Gain knowledge regarding hall effect sensors and the types that are available in the market.
    - Found how temperature and vibration may affect hall sensors.

- Irfan: Research about software
    - Since our client needs to retrieve the data gained from the sensor, an Arduino was suggested to manage the data.

- Vishal: Hall effect prototype
    - Looked into possible hall effect sensors and gained a prototype that could give a general idea on how the final product may look like.

o **Pending issues**

- Everyone: Data regarding the change in EM properties
    - Need to collect data on how the magnetic field changes when iron particles accumulate around the filter.
- Everyone: Calibration and sensitivity of the sensor.
    - Need to gain data about the sensitivity of our sensor and how the calibration of the sensor affects the collection of data.

o **Individual contributions**

NAME	**Individual Contributions**	**Hours this week**	**HOURS cumulative**
Muhammad Lutfi	Completed report 1 and search documents that would help the team understand about hall effect sensors.	12	12
Irfan Rafie	Research about hall effect sensors and how we could implement it in our project.	12	12
Vishal Patel	Gain information regarding hall effect sensors and obtained a prototype.	12	12

Muhammad Aiman	Research about the type of sensors available in the market and which are relevant to our project	12	12
Weinee Long	Helped in planning the upcoming week duties and presentation.	12	12

o **Plans for the upcoming week** *(Please describe duties for the upcoming week for each member. What is(are) the task(s)?, Who will contribute to it? Be as concise as possible.)*

- Muhammad Lutfi: Research more how temperature and vibration affects EM properties
    - Need to conduct test bench and collect data regarding the change in EM on different type of sensors during different conditions.
- Irfan Rafie: Research about the GUI
    - Our client needs to retrieve the data regarding the change in iron particles as it accumulates around the filter. Thus, we should know what GUI will the client interact in order to retrieve the data.
- Vaishal Patel: Research about the design
    - Need to look into possible designs to position the sensors and which is the most optimal design.
- Muhammad Aiman: Research more about the type of sensors available
    - Need more information about the type of sensors and which is suitable for our purpose.
- Weinee Long: Research about the Clients patent
    - Need information regarding the Client's product and how the magnetic field changes when the iron particles accumulate around the filter.

o **Summary of weekly advisor meeting**

- Successfully outlined the duties that need to be done in the following weeks which include Researching about Gauss meters and collecting data regarding gauss measurements.