Original Work Progress Assessment #1

Date: February 27th, 2025

Topic: Biomedical Engineering

Summary of Original Work Proposal

My project entails practical experience in biomedical engineering (BME) with Precigenetics, which is an enterprise involved in real-time acquisition of biological data. Through this experience, I aim to create a prototype, gain experience in medical device regulations, and acquire business experience of the operations of biomedical startups. My projects involve learning CAD for product design, studying industry standards and regulatory requirements, and creating a pitch deck to learn how companies receive funding and partnerships. Even though I am not attempting to complete an operational product in four months, I am going to build a solid technical and business foundation of BME.

Progress Update

Achievements:

- ☐ Established a mentorship with Ms. Parmita Mishra, CEO of Precigenetics
- ☐ Acquired knowledge about how biomedical startups work and what regulatory challenges they face.
- ☐ Set key points for my research in medical device standards and product development.
- ☐ Started learning Fusion 360 for CAD modeling to create the prototype.

Ongoing Tasks:

- ☐ Fusion 360 Online Tutorials: Currently learning CAD tutorials to master 3D modeling and product design.
- ☐ Medical Device Standards Research: Conducting research on FDA regulations and industry standards to ensure compliance with medical device standards.
- ☐ Pitch Deck Development: Creating a pitch deck for Precigenetics, learning how biomedical startups pitch concepts to investors and stakeholders.

Next Steps:

- [ ] Complete Fusion 360 tutorials and start making initial product designs.
- [ ] Complete the medical device standards document so I am aware of important regulations that impact biomedical engineering products.
- [ ] Create a well-organized pitch deck that meets industry standards.
- [ ] Arrange another meeting with Ms. Mishra to review progress and future action steps.

Challenges Faced:

- Time Management: Balancing CAD learning, research, and pitch deck creation has been challenging.
- Technical Learning Curve: CAD modeling requires precision and practice, making it a time-intensive process.
- Understanding Regulations: Medical device standards are complex, and I'm working through various documentation and guidelines to fully grasp them.

Lessons Learned:

- Industry Knowledge is Critical: Understanding both engineering and business aspects is essential in biomedical engineering.
- Prototyping is an Iterative Process: Product design undergoes numerous improvements, and in each stage, it requires patience and testing.
- Regulatory Compliance is Complex: The strict FDA regulations make every process in biomedical engineering have to be extremely carefully planned.

Conclusions

Overall, my experience in doing this project has made me appreciate the intersection of engineering, business, and regulatory affairs in biomedical startups. Despite challenges, particularly time management and learning CAD, I am moving forward steadily to gain the knowledge and skills necessary. Moving forward, my top priorities are to complete CAD tutorials, finish my research on medical device standards, and design a formal pitch deck. Through continued dedication and mentorship, I am confident that I will have a great foundation in biomedical engineering from this experience.