P4 Project Reflection

Designing for Alanna in Project 4 was quite challenging, and one of the most difficult things to do was decision making. Our group had discussions on the feasibility, usefulness, and functionality of our designs. Some of the designs that we had created included features for Alanna, but in the end, they needed a lot of refinement to be practical. We had four designs to choose from, all of which met the design requirements. After many discussions, we made our final decision within the three-week work period. While developing my sketches, I knew what my final solution would look like. I decided to model and fully constrain my CAD file to test its feasibility and see how it could be modified to conform to Alanna's lifestyle. I tried modelling my broom idea but struggled to visualize the mechanism and feasibility of the concept. As a result, the idea was scrapped after I tried modelling it for two hours and got nowhere. For Auxilium, I made steady progress throughout the four hours I had spent modelling it and I was able to extend the concept with more functionality and accommodations. Through my observations, testing these ideas as early as possible saved a lot of trial and error alongside troubleshooting later in the design process. During the testing process, I had a lot of modelling work ahead of me and referenced other automatic vacuum designs to finalize my own. I lacked a sense of scale due to my limited knowledge of our client's room layout. Some portions of our device could not be modelled in Autodesk Inventor, thus causing more confusion. To strengthen my design, I added a soft gripped bumper material to my device by adding the necessary clips to hold that material in place. This was critical because it would protect the client from the device inadvertently causing harm causing damage.

After we drew our design sketches, we explained our devices to one another and had a mini pitch to help solidify our designs. I think this allowed us to help form our ideas into something more tangible. We utilized this discussion as a reference and see how our plans have improved and how far we could continue exploring our designs. There were some issues regarding decision-making and differing opinions, but we could save that energy for when our designs were being prototyped. This early testing process allowed us to pin down our design goals and focus better on our designs. These new insights showcased the importance of positive criticism and discussion, especially when finding solutions to a problem. Taking feedback and constantly improving your work is integral for the future in the engineering industry. Skill-wise, this leads to better communicative and problem-solving skills in the future. These new insights showcased the importance of positive criticism and discussion, especially when finding solutions to a problem. Taking feedback and constantly improving your work is integral for the future in the engineering industry. In terms of knowledge, this leads to improved communicative and problem- solving abilities in the future. The plan is constrained mainly by time, and if it is not managed correctly, there will be shortened periods for design conception and refinement. As well as having the necessary discussions needed for those refinements would be severely limited. Although ample time is given, there would be a plethora of innovative and feasible designs to choose from.

In future projects, I intend to prioritize discussion and brainstorming ideas amongst group mates or friends. Instead of diving headfirst into a concept, I should establish objectives and see if the idea fits that requirement instead of doing extra work. I also want to promote the idea of creating multiple

versions of my idea's that branch into other concepts to avoid tunnel vision. The plan is mainly based on the time given since if there is a lack of time for design conception and refinement, then having discussions would be severely time constrained.