

Team Post Mortem Analysis of ME476C



**NORTHERN
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Team Name:

Team 19F03 - HipA

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Section:

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Instructor:

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Introduction:

Team hip exoskeleton A managed to finish the first semester with a great results in discovering new ideas for the project In general exoskeleton is a wearable device that help and assist individual without neuromuscular order. Hip exoskeleton is a device that assists a lower body of a person the report deals with the analysis of the team assignment and the first semester of capstone project. This will tell how the project was what were the things that we can improve and what will be the method we can adopt to improve it. We can only complete the project in its best manner only when all the group members understand their responsibilities and they all work with their full interest so that positive results can be gained. sure to give their ideas as well as to listen to the ideas of the other students. The product was decided by the group members based on the voting to after discussion of the pros as well as the cons of the project so that the best of the design can be selected to produce the best results.

The team were complete the purpose and goals that stated in the team charter as we chose this project to help growing children to correct their walking ability. We are aiming to develop a hip exoskeleton that is easy to wear help children walk better. As our priority to design a perfect and lightweight device to be comfortable non-invasive hip exoskeleton. We stated many goals for our project which is the first to be easy to use and comfortable. The second is that the device support and allows the hip joint movement. Our team is committed to working together and contributing toward a high quality outcome, and we will do this by dividing work equally and ensuring we all contribute. We have to build our project within a budget of 2250\$ and focus to meet all our client requirements. In addition to deliver a design that meets all customers needs and engineering requirements. The whole group put their effort to fulfill the whole design requirements. It was tested and we get to know about some of the points that can be improved further.

Our team were followed the ground rules and coping strategies that was stated on the team charter and there are a lot of barriers that could arise in the senior project. Seems like the time management which is hard to be labeled as we are a team and each of us has many classes. As there are many important rules which is the first remind everyone that we cannot graduate without the senior project and therefore need to make the most of the time for this project. And, do not put the stress on one or two of the team members especially last minute. It is important that we set deadlines before the due date in case this happens. By this way we can review as a group and take our time for each work before submitting it. For our group meeting Our team members will meet in the lecture time on Monday at 5:30 PM in Social and Behavioral Science Building, and sometimes on one of our houses. Our team will respect and value each other kindly and professionally. So, as our team followed the rules and the strategies on the team charter all these were worked and followed.

The team managed to deal with time and cost management in a way that helped to keep track of assignments and keep the project within the provided budget. Team members created a gantt chart to help on tracking work progress and upcoming work. Gantt chart had the due date for each assignment and due date for the team members to finish their part (before the due date of the assignment so team can edit and deliver a high quality work). This schedule was followed well during the first semester and helped the team to stay ahead of time and gave the team more time for editing. In addition, cost was the main point that the team took in to provide an affordable exoskeleton so any child in need can afford buying it. This was achieved by long and heavy search for choosing strong, affordable and durable materials. In the previous semester the team created a bill of materials that covers all the needed part for building the project and the total cost was determined to be \$818.75 (excluded any labor). The price difference between the current existing hip exoskeleton and team's hip exoskeleton is huge and noticeable. The budget for this project was \$2250 and the team achieved to be within the provided budget. The methods that were to be taken for the positive aspects of the project include that were to be take special improvement of the code of conduct of the rules and regulations.

Designing a hip exoskeleton for children was a little bit challenging for the team since team members don't have any past experience with medical assisting device. On the other hand, team members shared one point which is helping children in need and this was the biggest motivation for the team. Team faced some miscommunication throughout the semester and this affected some parts of the team's assignments. Miscommunication can happen in any team but ignore it is a huge issue that will affect teamwork quality and team dependabilities. Team members noticed that this miscommunication reflected on class grades and team manager solved this issue within a short period of time. Team charter was reviewed again to remind team with the consequences that was written by the team. The negative aspects can be improved by best time management and to be punctual to your work it can be done by taking full indulgent in the project so that it will be a good exercise to perform the experiment and to do it in the best manner.

Time card worked very well to encourage each team member to work equally as the other members. For instance, if a team member did not worked equally, it will appear in the time card that this team member worked less than the other team members. Thus, the team member will work harder to make it up and to have the same amount as the other team members have done. Furthermore, working together in the same place has a positive effect on the project because it helps each team member to not get stuck in a task, basically helping each other makes things easier. In writing, we do split the work equally, then each team member go over what the other team members have worked and check. If there was a mistake we put comments to each other then discuss if it needs to be fixed or not. Thus, we make a better writing.

At first, it was confusing in what we are working, what are the specific things that we need to meet. What the project should be. How to meet the engineering requirements and the customer requirements. Then, we decided to research. Each team member will research as much as we can to have more background on what we are working on, how the project should be. moreover , when we did a rough draft of our project we found out that we have problems in our project that

need to be fixed. Such as passive movement and connection between hip and thigh subsystem. These are the improvements that needed to be done. Other than that, everything was done with no issues. some of the basic problems that were encountered by the team members were the time management as well as to check for the best possible equipment possible and to check for its best replacement when the proper was not present.

The main action we have to take in order to improve performance is to meet the client weekly. That can raise the efficiency of our design and can be a really good resource on what the best materials can be used in order to meet the engineering and customer requirements. Other things can be taken To improve the performance of the project can be increased by checking the performance analysis that were performed and results as well as the limitations that were there in the analysis so that the results can be best in the results. By this performance we learn a lot about the design parameters as well as about the limitations of the design. These tell us about the things about the joints as well as about the calculations. We also learnt about the teamwork about the performance as well as the self-respect of the students. And to respect the others opinion.

The project focuses only on the mechanical design and movement of the exoskeleton based on hip joint range of motion. The device comprises of a system with motors that collaborate with the signal produced by the body to provide adequate support to the hip joints of the user.