Playing the violin was always a huge part of my life. I’ve been playing for ten years and even stopping for a few months was difficult. This difficulty lead to the idea for my personal CAD project. Creating the instrument from scratch made me appreciate it more by seeing the time and effort involved in every part of it. I had many ideas for what to do but my desire to play my instrument again overpowered the other ideas I had. I knew it was going to be a challenge to create the instrument due to all the details but I wanted to try. After countless of hours on the computer and seeing the final result, I was overjoyed that I stayed with it because the whole process was a learning experience in many ways. Back in my home town playing the violin was
one of my hobbies since I played in various musicals, concerts and community events. I was also involved in other outside orchestras other than my high school’s orchestra. This project doesn’t necessarily relate to my major a whole lot but some could say the building and creation of it is a part of what mechanical engineers do. They see how parts fit together and find a way to create it which is what I did with this project.

I had a very basic foundation with solid works at the beginning of the semester therefore a lot of challenges came along with this project. I would have to say the bridge was the most difficult because of the amount of hours it took and the details that came along with it. I didn’t know how to approach the shape of it therefore I just played around with different sketches until I was happy with the result. Then the cut in the middle of the bridge was difficult due to the shape and where it was in reference to the part. Overall I must have spent the most time on this piece out of the whole project.

**Figure 2:** Front view of the violin, focusing on the bridge part.
My CAD project was a reproduction of an existing instrument but also modified in many ways. I had different details than the classic violin but had all the main components of the body of the instrument. For example I’ve seen many different designs of the scroll of the violin, whereas mine is rather basic and simple. I also created the pegs differently than most violins out there. I was inspired by my violin but added my own touch by changing the shape of the peg to how I would like to have them in real life. These parts were fairly simple to make which wasn’t what I was expecting. They seem difficult because of their shape and detail but I enjoyed creating them because once I got the hang of solid works, they were a piece of cake.

![Image of violin headstock and pegs]

**Figure 3:** Up-close picture of the scroll and pegs.

This project was extremely fun and educational. I learned a lot about the program and found I learned a lot about myself while doing it as well. I still haven’t used most likely half of the features on solid works but overall learned the main components and little details. If I had more time I would have created the strings and the two other parts that hold the strings on the violin. They all related to the strings therefore I decided to leave them out and just focus on the body as its own structure. At first I didn’t think I could create a difficult item such as an
instrument but found out with a little time and patience, I could figure it out. I liked how CAD allowed my ideas and visions to come alive. It seems very realistic and allows others to visualize items that would in other circumstances just be a drawing on paper.

Figure 4: Drawing of the completed project with the front, right and top views along with dimensions. An isometric view is also included.

Figure 5: Image of a real violin that is similar to the one I own which was my inspiration. Source: http://i00.i.aliimg.com/wsphoto/v0/569321116/Free-shipping-high-quality-4-4-hand-crafted-font-b-violin-b-font-include-case-strings.jpg