SolidWorks Personal Project
The Gibson “Flying V” Guitar

[Figure 1] Front View

[Figure 2] Back View

[Figure 3] Side View
For my SolidWorks personal project I decided to challenge myself and make a model Gibson “Flying V” Electric Guitar. By using the dimensions of the original “Flying V” I was able to create my own model that still kept the classic feel of the Gibson style. I wanted to model a guitar because music is a major part of my life. Through middle school and high school I would help “roadie” for a couple of my friend’s bands. My best friend who played guitar had a “Flying V” and it was my favorite guitar to watch him play and play myself when we would hang out at his house. I chose to add a checkerboard print and gold facets to the guitar to add my own flair. The checkerboard idea came from listening to Cheap Trick while I was making this project and wanting to make it similar to Rick Nielsen’s classic checkerboard guitar.

This project truly tested my SolidWorks skills I have amassed this semester. Coming into this class I had never used SolidWorks and was very raw at the beginning. However, through guidance from my professor, TA’s, and the many tutorials I had completed I feel I gained the skills to complete difficult projects with many parts.

I began this project with the body of the guitar. After making a sketch and properly dimensioning it I used the extrude tool to give the body depth. I then added the features to the face of the guitar. Using extruded cuts as well as extruded bosses I constructed the auxiliary ports for an amp cord and to later add the knobs to adjust the fade and pitch of the guitar. I also used extruded bosses for the face plates and the bases for the string connections. For the cylinders where the strings would attach to the body of the guitar I used a sweep feature by drawing a perpendicular line and sweeping up. I then added a dome feature to the top to round it off. I then added the guitar neck. This was done by drawing a new sketch and extruding it down into the face of the guitar. I then used fillets to round the back of the neck as well as the edges of the guitar. To make the frets on the neck I used a rectangular sketch, extruded it up then filleted
it to make it round and flush with the surface. The guitar knobs were made in a different file, by creating a sketch and revolving it around a center axis. I then mated them with the guitar face.

The guitar head was done in a third file using some of the same techniques as the guitar body. I drew a sketch and extruded it down. Then filleted the edges to round the bottom. I then drew 6 circles with specific dimensions and extruded them up for where the stings would attach to the head of the guitar. Finally I made a big assembly where I mated the three parts. I then went back to make the design aesthetically pleasing. I added the checkerboard design and gold fittings along with a black head and a mahogany neck.

The hardest part of this personal project was the neck of the guitar. After I extruded the neck into the head of the guitar I had to fillet the edges so that it would be rounded on one side but still mate with the body of the guitar. This took many trials and errors before I found dimensions that would fit properly. After that I had to make the frets. This was not overly difficult but I had to decide on the proper spacing between them. I measured the distances pf the frets of my roommate’s guitar and adjusted it to fit my model. I then had to fillet them so they would be rounded and flush with the base of the guitar.

I was very pleased with how my project came out both structurally and aesthetically. I believe my skills and the knowledge I learned in this class helped me improve my computer design skills and help me complete this project.