Until now I could still remember the exhilarating scene when we finished the presentation of the Mars rover model in the course “Introduction to Engineering”. From design to fabrication, we met obstacles, we had failures, but more importantly, we harvested the joy of engineering and came to realize the great importance of innovation and thorough consideration while designing a product.

It all started when the instructor announced that we were required to design and build a Mars rover model as well as to make a final presentation to demonstrate the design. We soon came up with a wheel structure model, which was similar to the traditional moon rover. However, after vast researches and simulation, we found that the task was actually challenging, for the terrain on the Mars was complex and rugged, which means the rover needs to be very mobile to go through the hills and holes. The traditional wheel structure would easily get stuck or even fall over into a hole. With the inspiration of the ants, we decided to design a 6-leg structure to replace the traditional wheel structure. We supposed that since the leg structure could be bended and raised, the mobility of the rover would be greatly boosted.

Easier said than done. No sooner had we designed the basic prototype of the rover than we encountered a serious problem. Unlike the wheels which could always stay on the ground, whether it could remain balance while moving had become a significant issue. After a whole afternoon brainstorm and information searching, I brought forward a scheme that we could make use of the stability of a triangle. That was, to raise the two outer legs of one side as well as the middle leg of the other side and move them forward under the power of 3 motors. Meanwhile, the middle leg of one side and two outer legs of the other side were still touching the ground, supporting the body of the whole rover. By applying this method alternately on the two sides, there were always three legs contacting to the ground in a shape of triangle, making the rover move steadily. After an active discussion, my suggestion gained universal consents.

With all the preparations done, we soon went into action. Two groupmates that exceled in Solidworks finished the prototype while I took charge in Arduino coding. Others did 3D printing and robot fabrication. Tired as we were, all our efforts paid off while seeing the rover’s motion went from totter to fluent.

Finally came the big day. Dressed in suit, we carried out the presentation in front of hundreds of audiences with pride, introducing our “Hexapod” rover design. Due to our rover’s great performance in obstacle surmounting, our group was honored with “the Most Innovative Prize”. Hearing the thunderous applause, a sense of achievement streamed all the way to my heart. But besides the honor, the obstacle I had met left me a deeper impression. Although it was just a taste of engineering, there were still so many aspects needed to be taken into account which never appears in the textbook. I learnt that an eligible engineer should always be equipped with a rigorous and innovative mind. I determined to practice more in the future study and endeavor to become an outstanding engineer.