The part we decided to design is a wire clip that can be screwed into any piece of sheet metal to help clean up the wiring process. The VEX wires will be slid through the square hole at the top of the after the part is screwed on. A countersink is put into the top of the hole so that the screwhead is flush with the bottom part of the hole. The part will make the robot more complete by reducing the amount of zip ties needed to complete the robot. A reusable option will reduce the waste from the robot and make wiring quicker to do. As well, if a modification is needed to be made to the robot, then the wires will not need to be completely detached from the part in question.

Using the Autodesk Inventor software, we created the part by generating 2D sketches and then extruding them to the right distance. When making the 2D sketches, it was important to dimension all angles and distances by using the dimension tool and other constrain tools. Once this was complete, we were able to extrude the base region of the part. At this point, we encountered a problem when trying to place a hole in the square to and the hole for the screw. We needed to generate a new plane to sketch on which would allow us to create the pat we had envisioned.

Froom this project, we learned the basic principles of creating a part in Autodesk Inventor. We were also able to learn the importance of constraining all aspects of a part so that it functions in the desired and expected way. In the future, we may use software like this to CAD an entire robot and then run stress tests on parts. Future jobs may also require similar skills like those required for computerized design and production. This technology can help our robotics team by aiding us in decision making when it comes to size, stress, and functionality of certain parts.