The focus of this week’s work consisted of attaching the stainless steel plates to the legs, as well as attaching the front castors to the multi-terrain wheelchair. The theme seems to be consistent with the themes from previous instances: what we initially believed would take a short period of time ended up consuming much more time than anyone imagined.

Considering the standing gardener, many difficulties were faced while trying to accomplish a seemingly simple task such as attaching the stainless steel plates to the legs. We began by placing the feet on the bottom plate. Since, despite our previous efforts to straighten out the feet of the legs after welding, the feet were still slightly warped, each plate needed to be clamped down to the stainless steel plate. We attached all of the feet to the bottom stainless steel plate, drew out the places where we thought we would drill the holes, and outlined the position of each plate with a marker. Unfortunately, this time consuming task proved to be completely useless. Thankfully, before drilling any holes, we decided to place the top plate on top to make certain that it would align with the feet. As a result of the fact that the top plate has many more possible areas of interference than the bottom plate, the feet did not align. We decided not to make the same mistake twice. For this reason, we unclamped all the feet from the bottom plate, placed the top plate on the floor, and attached the feet to the top plate first to make sure we would avoid any areas of interference. We then drew out where the feet were to be placed and marked the holes that needed to be drilled. In addition, we also labeled each foot individually so that it would be placed in the same exact position after making the holes through the top stainless steel plate. The feet were unclamped, and the holes in the top stainless steel plate were made in the desired locations using a hydraulic punch machine.
Afterwards, temporary bolts were obtained and the feet were attached to the top plate using a large amount of torque. The reason for this was to further straighten out the feet so that they would obtain the desired shape which was needed to make the feet flush with the stainless steel top plate. This step was also imperative to assure easy disassembly and reassembly if the need should present itself.

Furthermore, it should also be mentioned that the feet needed to be attached in slightly different places than was initially proposed in the CAD drawings. The reason for this is the fact that the CAD drawings did not initially include the presence of feet attached to the supporting legs. This feature was added during construction as result of practicality; more specifically, to prevent the top plate from warping during welding and to give the standing gardener a possibility to be disassembled and easily transported.

Future work on the standing gardener will include finishing the attachment of the plates to the legs, since currently only the top plate has been successfully attached. Later, castors will need to be attached to the bottom plate so that the standing gardener can be easily moved without lifting the whole device. In addition, a rod will need to be secured to the top of the top stainless steel plate to attach a cup-holder which will be able to rotate away and towards the user. The location of this rod is represented in Figure 1 and is highlighted in red.

\[\text{Figure 1} \quad \text{– Location of rod for the attachment of a cup holder.}\]
As far as the multi-terrain wheelchair is concerned, the 1.125 inch rods were finished. In reality, they really had to be lathed down to 1.06 inches so that they would comfortably fit in the attachment area of the original castors. The completed rods can be seen in Figure 2.

![Completed rods](image)

**Figure 2** – Completed rods.

Furthermore, stainless steel plates were made so that they can attach to the castor housing as shown in Figure 3.

![Stainless steel plates](image)

**Figure 3** – Stainless steel plates for the attachment of the front castors.
A bar was then used to connect the rods to the plates for the connection of the castors in order to give the required width needed to allow the wheels to rotate without interfering with each other during turns. This bar was welded to the rod as well as the plate. The finished structure was then attached to the castors as well as the wheelchair frame, and the required result was in fact obtained.

Future work will consist of attaching the back wheels to the frame of the wheelchair at a height consistent with the height of the front wheels.

The majority of my work consisted of working on the standing gardener. A total of 8 hours were worked this week since it was not possible to dedicate more time as a result of mid-term exam preparation.