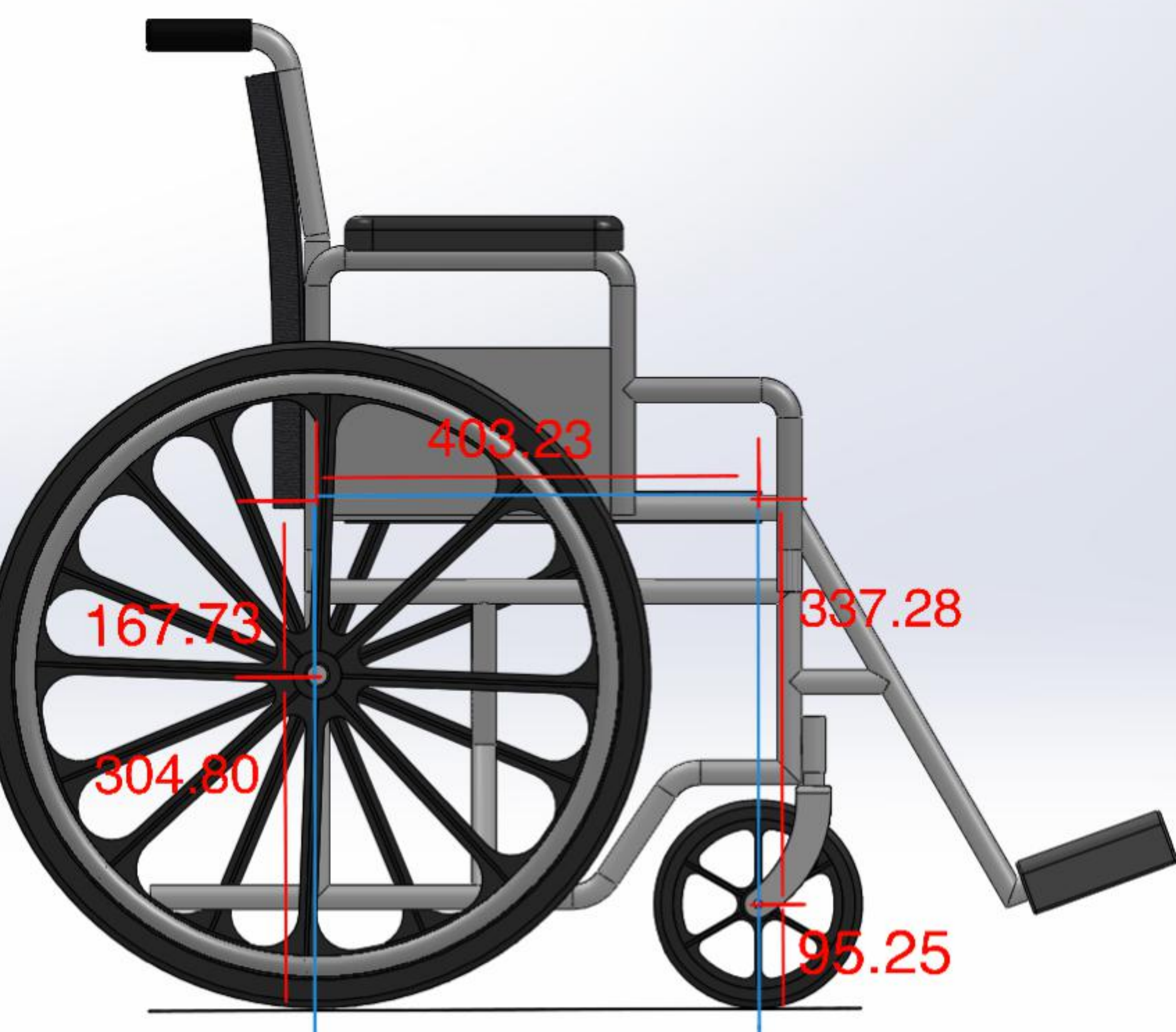


# Aim:

The aim of the project is to produce a product that allows a wheelchair user to climb a curb in a fast, safe and reliable manor. This product aims to make it easier for a wheelchair user to navigate around towns and cities as curbs have been shown to be a problem. This will allow wheelchair users to have more independence and safer navigation as roads and curbs are a high risk area for the disabled community

# Background Research:

- 1.2 million wheelchair users in the UK
- 61% feel disabled by the way in which places are designed
- Long waits for NHS wheelchairs
- Wheelchair expenditure of the NHS is £83.5 million
- Very few products on the market to help the issue



# Solution Specification:

- Low Cost
- Fit to existing wheelchair
- Able to climb curb of 100mm
- Safe
- Easy to use

# Wheelchair assistance to enable the navigation of curbs

# Final Design:

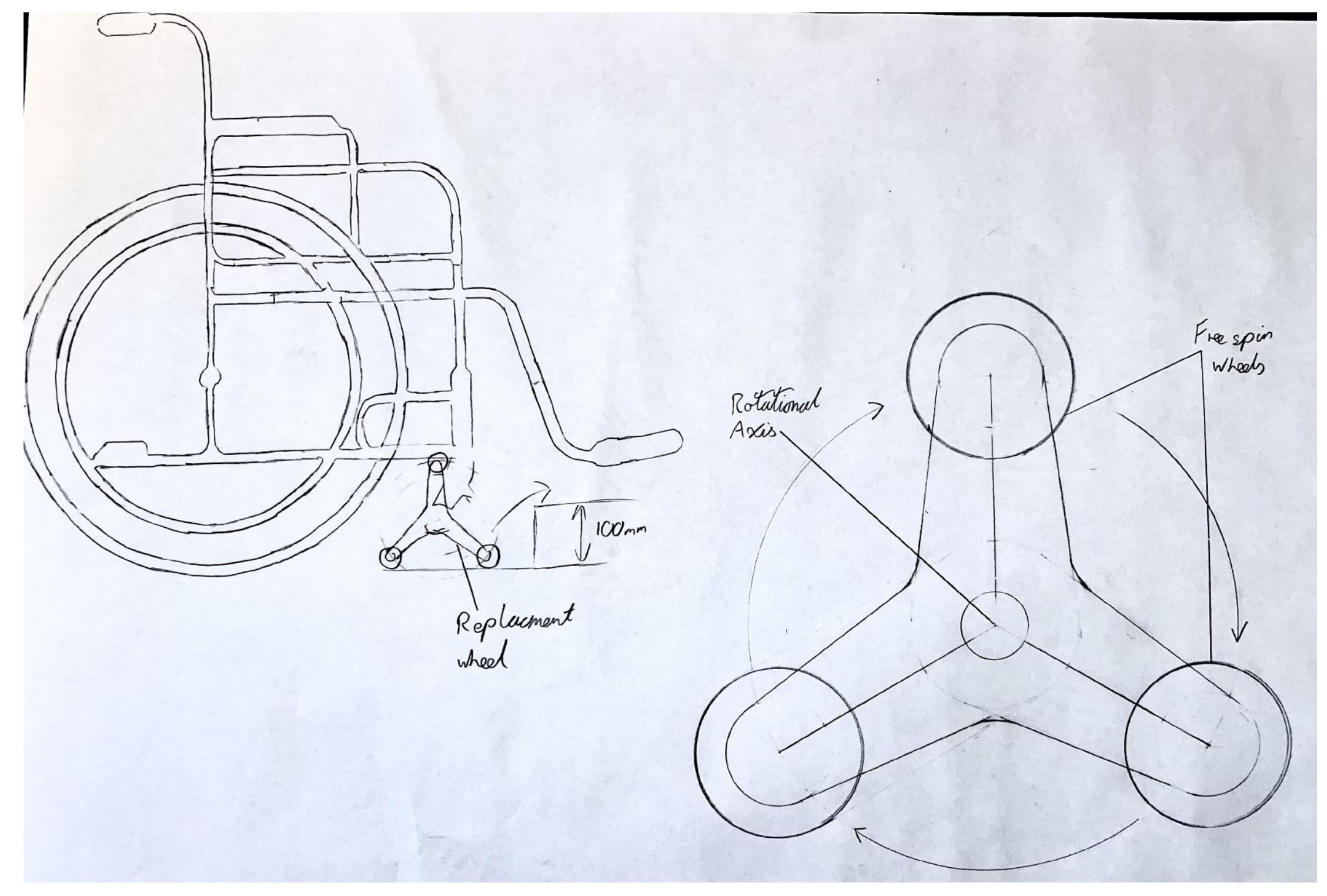
After making all of the changes in the design refinement stage a material was chosen that was stiff enough to resist deformation and strong enough to withstand the load. A simulation study took place then optimization took place to remove excess material. With the final model being made so no parts rub and the assembly fits with castor forks of the wheelchair and with material being removed from areas with low stress to reduce cost and weight



# Conclusion:

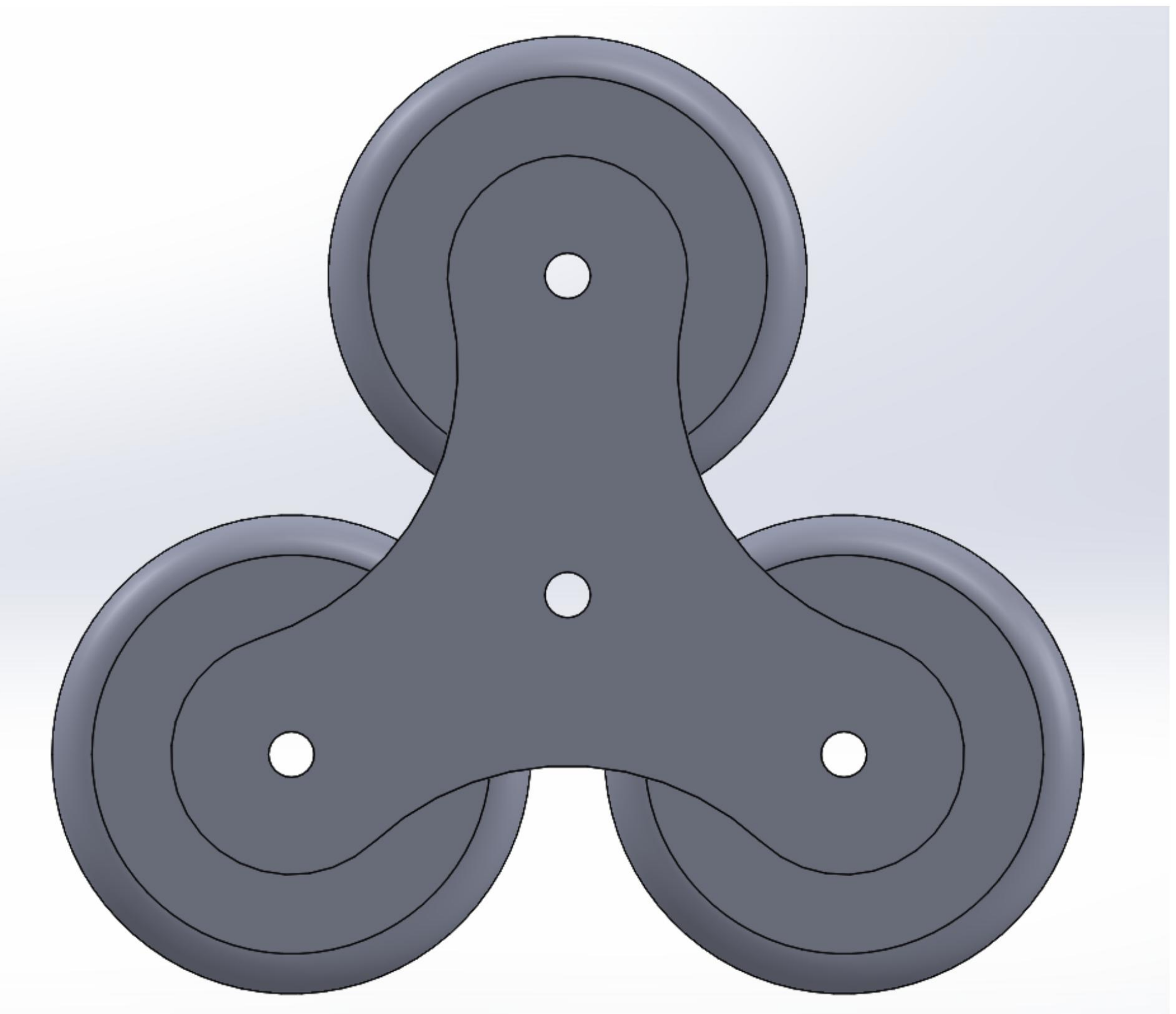
Although unable to produce a working prototype of this product after simulations in solidworks I am confident that all of the solution specifications were met and I made a product that would be able to help the disabled community. Making it easier for them to move around the urban environment and make roads a lot safer for them.

By Cameron Deavin  
Course: BEng (Hons) Mechanical Engineering



# Initial Sketch:

3 initial sketches were made and when these were compared to the design solutions the three wheeled design was deemed the most appropriate



# Initial Solidworks:

After the sizing of the product was figured out the first solidworks design could be made. However this design was not perfect as there is very high friction due to parts rubbing. Axles and bearing have also not been created at this point.

Date May 12 2021