

PORTFOLIO



JAYNEEL SONI

Jayneel here,

With a background in Mechanical engineering and an upbringing involving a lot of DIY, technical feasability is the heart of my outlook towards designing. The best designs are elegant and invisible, elegance being the seamless connection between the elements, each building on top the other, that is what I strive to achieve.



CONTENT

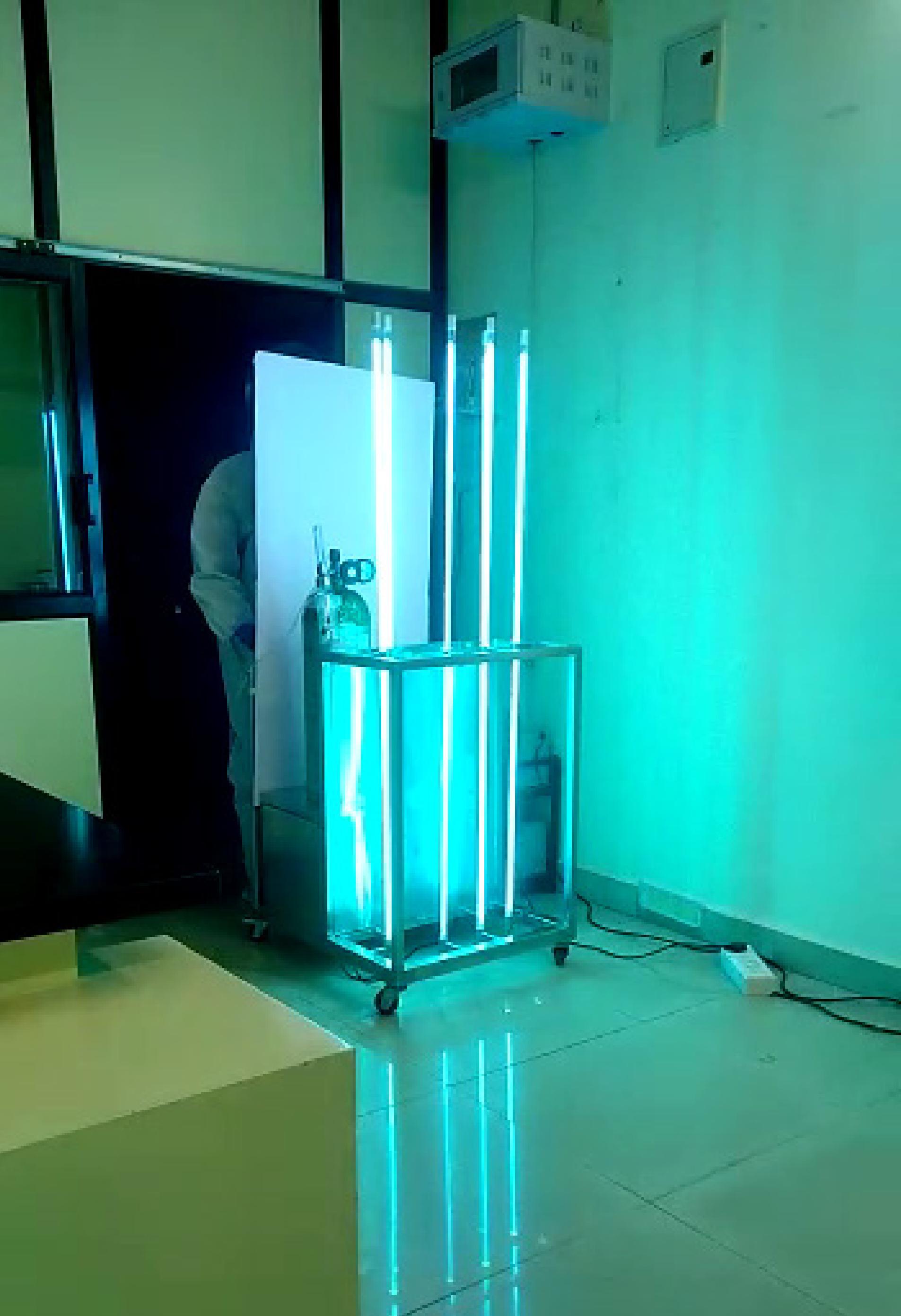
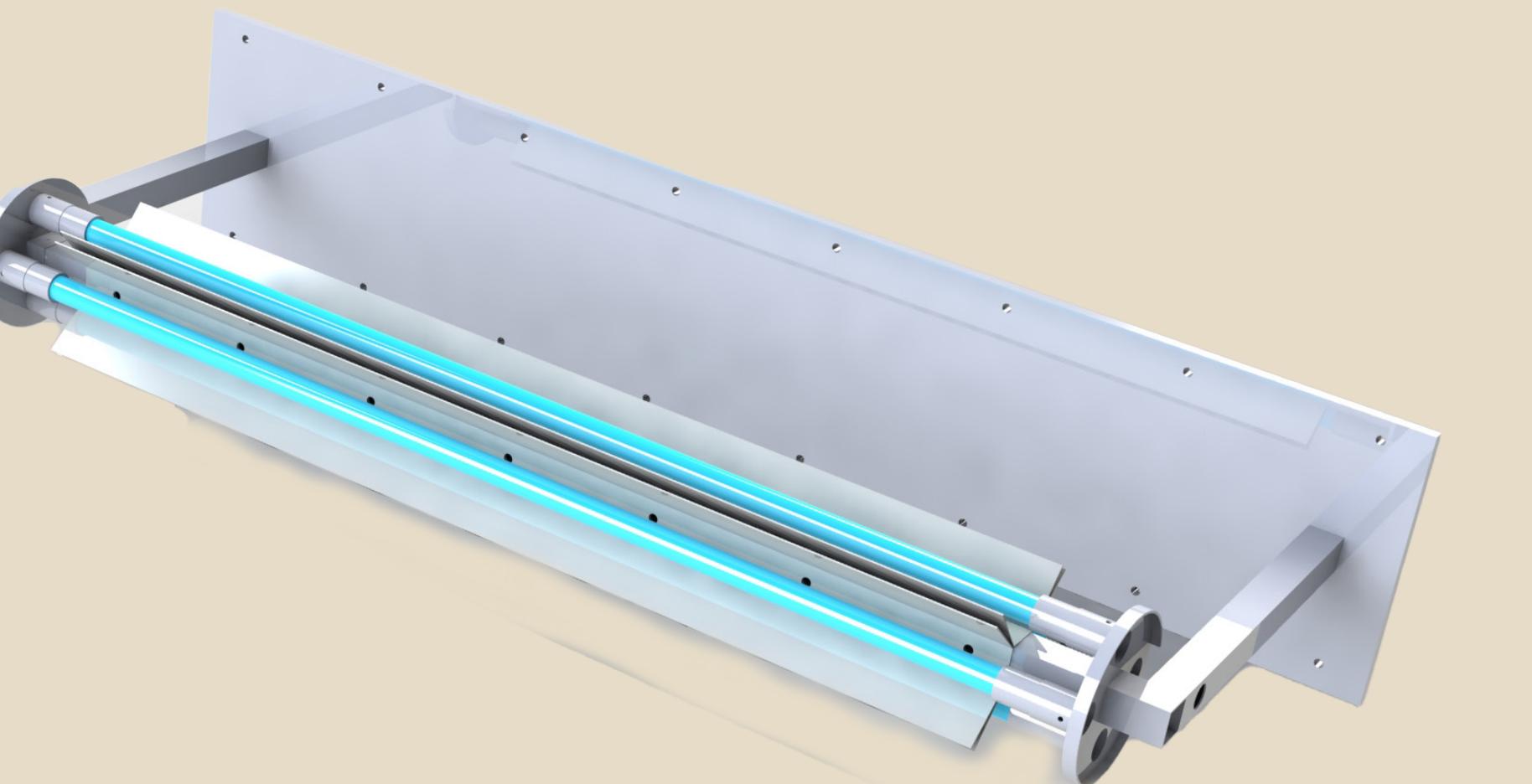
UV-C DISINFECTION



TABLET HOLDER

UV-C DISINFECTION TROLLEY & DUCT INSERT

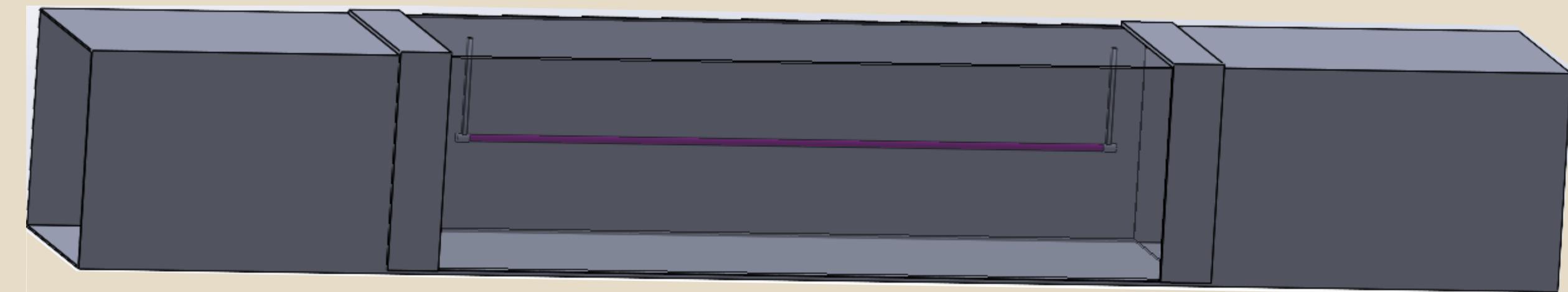
Project for FourFlame Medical Devices LLP



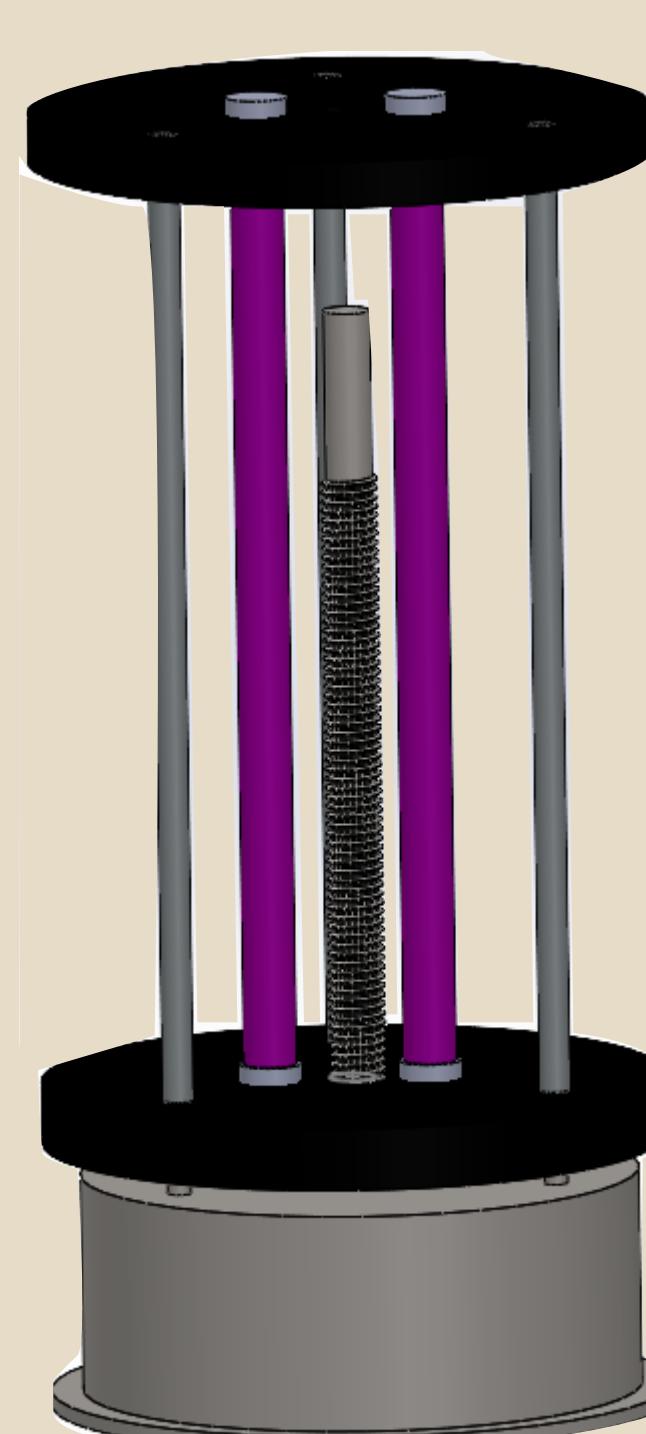
INITIAL DESIGNING

Due to the Covid-19 pandemic, there was a sharp rise in requirements for sanitization solutions, one of the methods that was useful for large scale surface disinfection was UV-C light, high energy electromagnetic waves which are able to ionize cells and destroy them. I was tasked with creating various setups which could perform disinfection in different scenarios, particularly, operation theatres and AC ducts

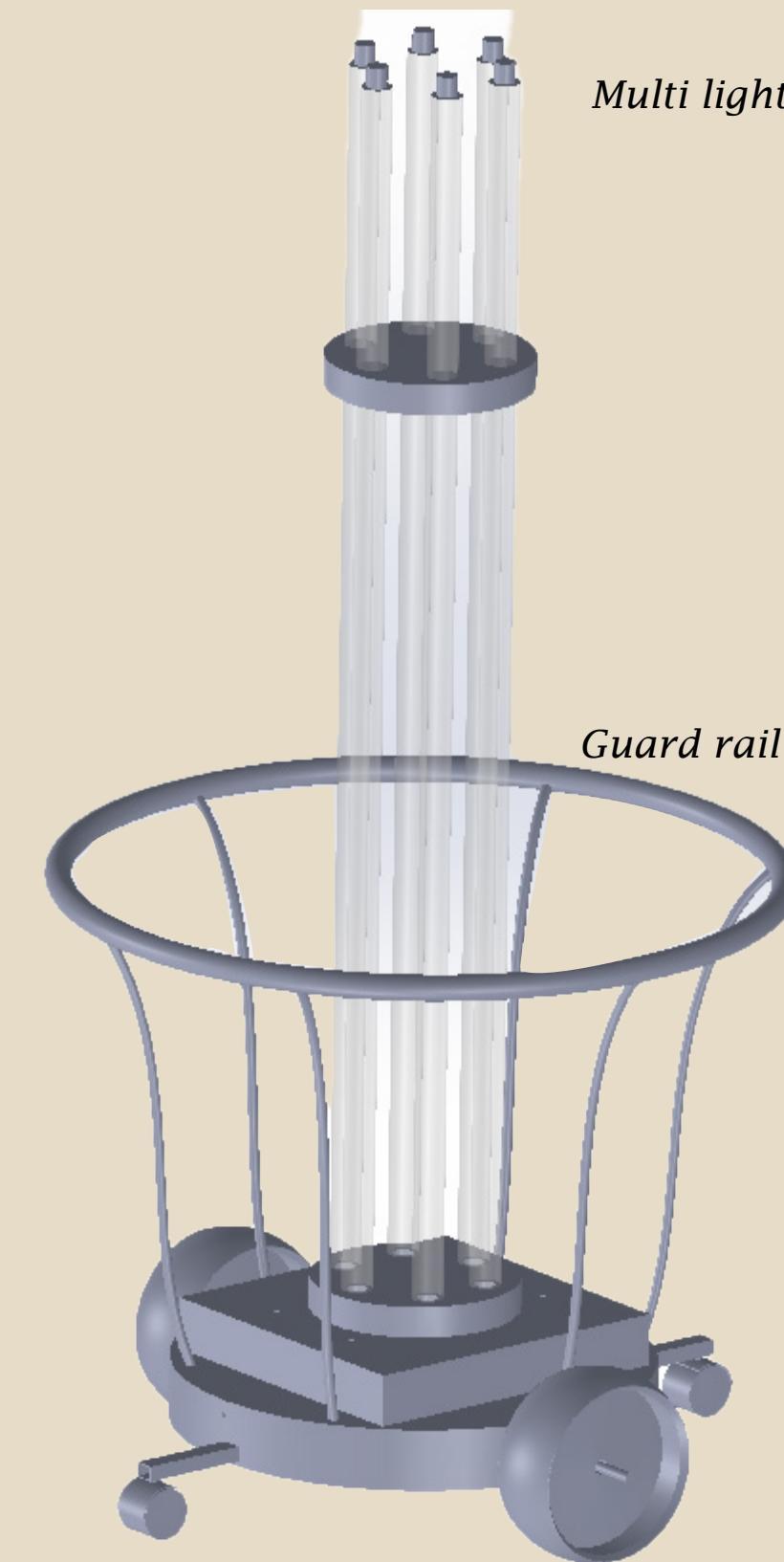
Initial ideas included motorized trolley designs, height variability, and experimenting with reflective cylinders. The main requirements were to provide the most mobility while also having short processing times. The sanitization capability was a factor of exposure time and intensity, which followed the inverse square law. The criteria used was to have complete sanitation within 120 seconds at a distance of 1.5 metres from source.



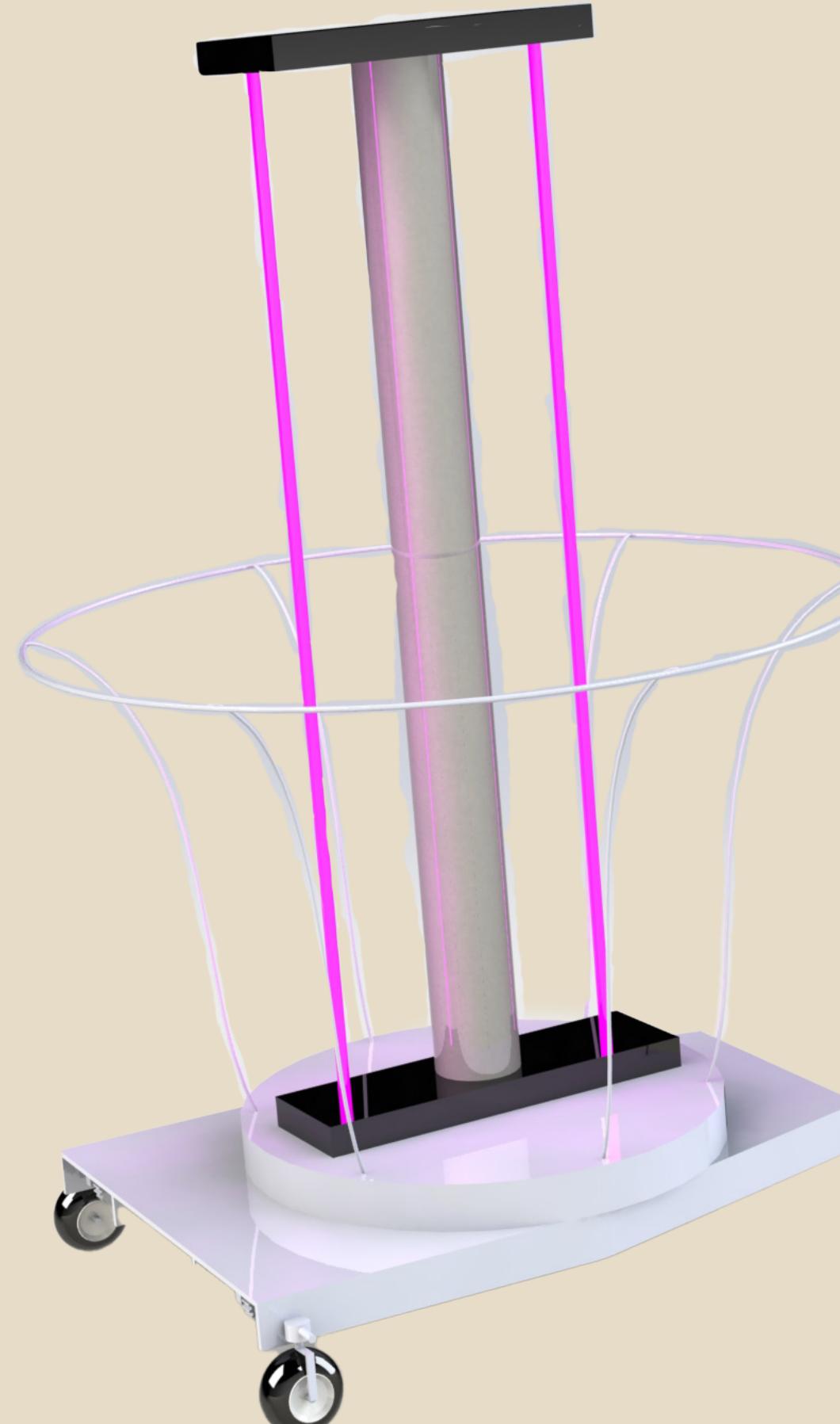
Simple Tubelight in AC duct



Height extendable setup for greater overhang clearance



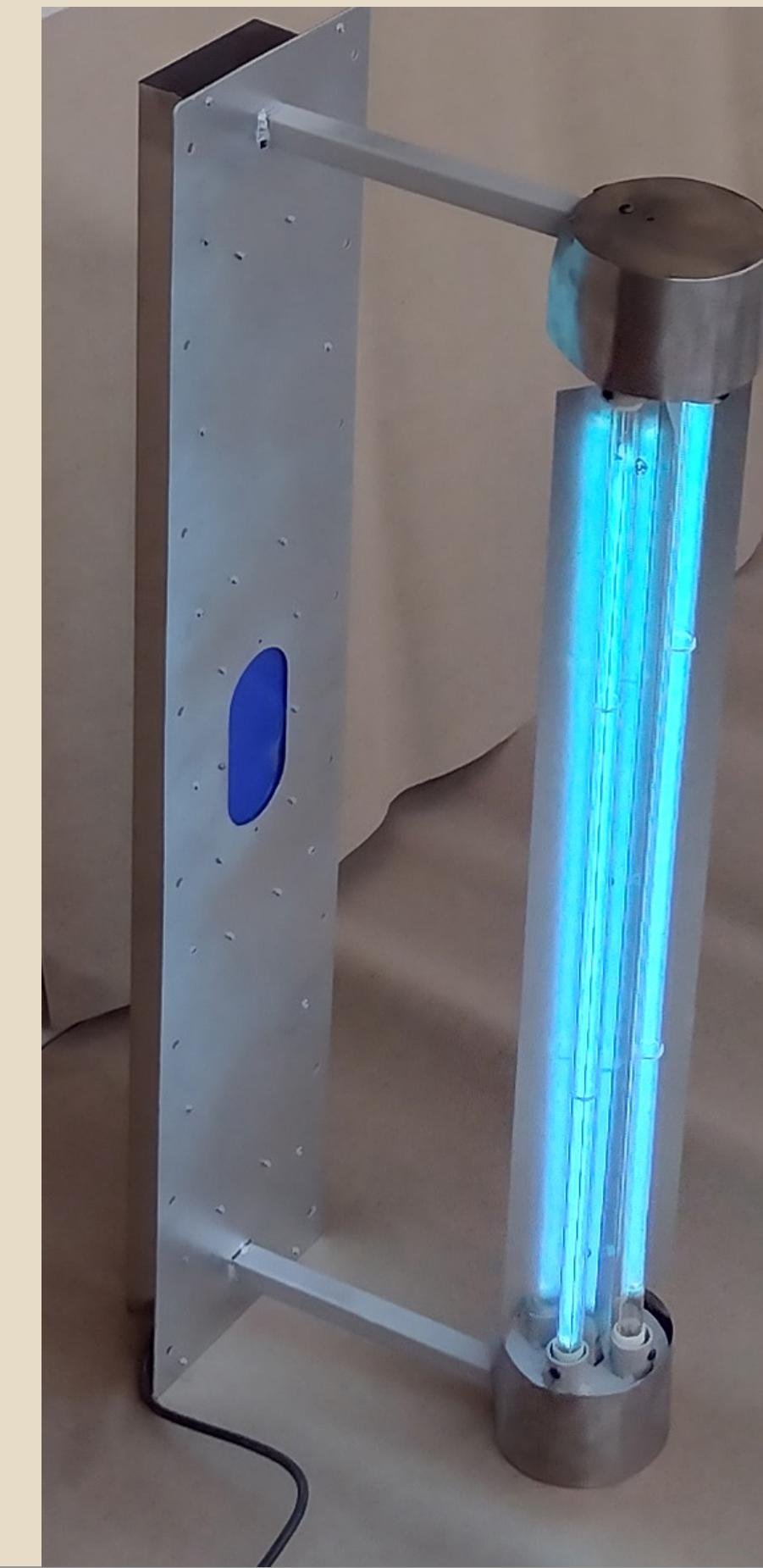
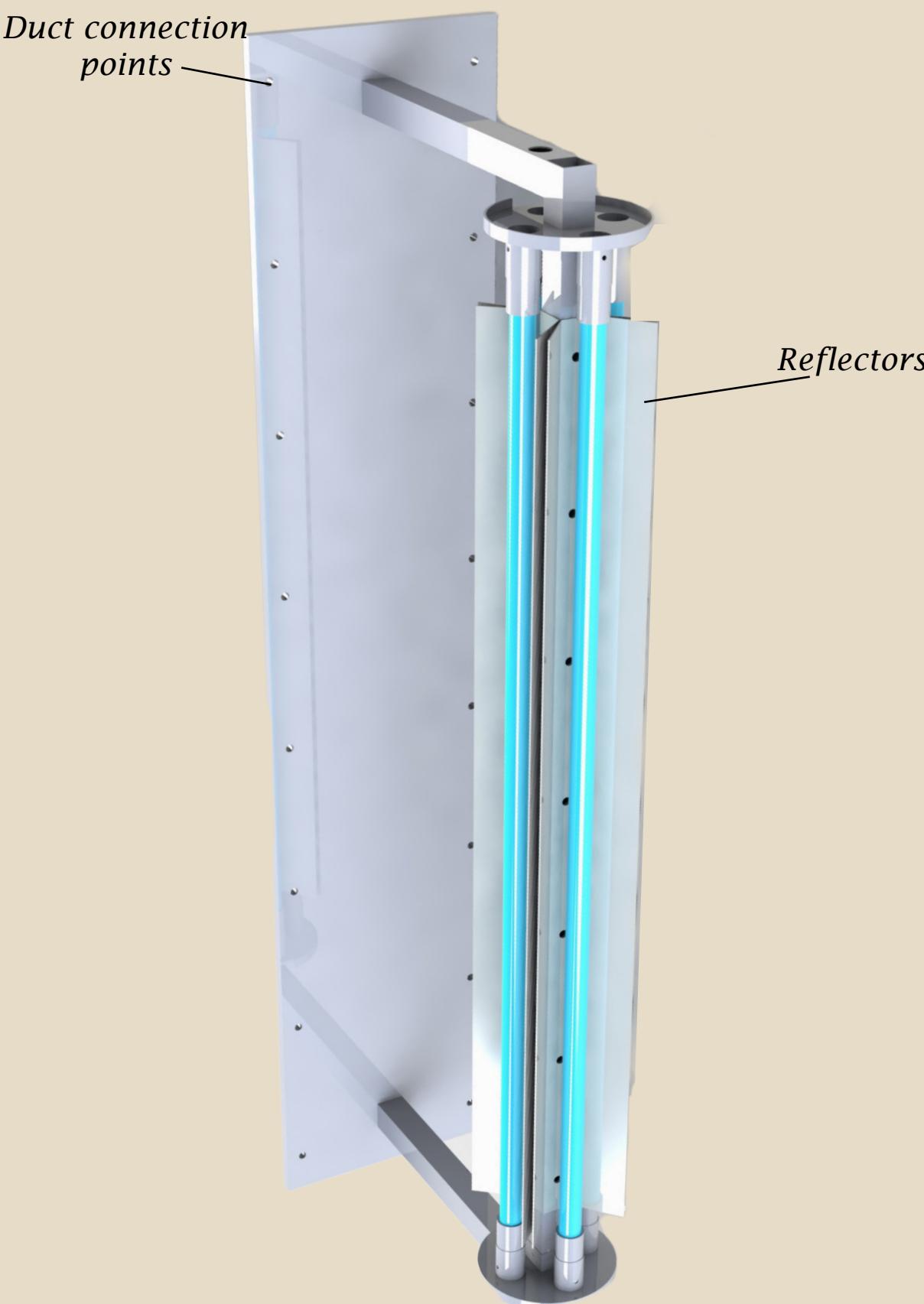
Multi light motorised trolley



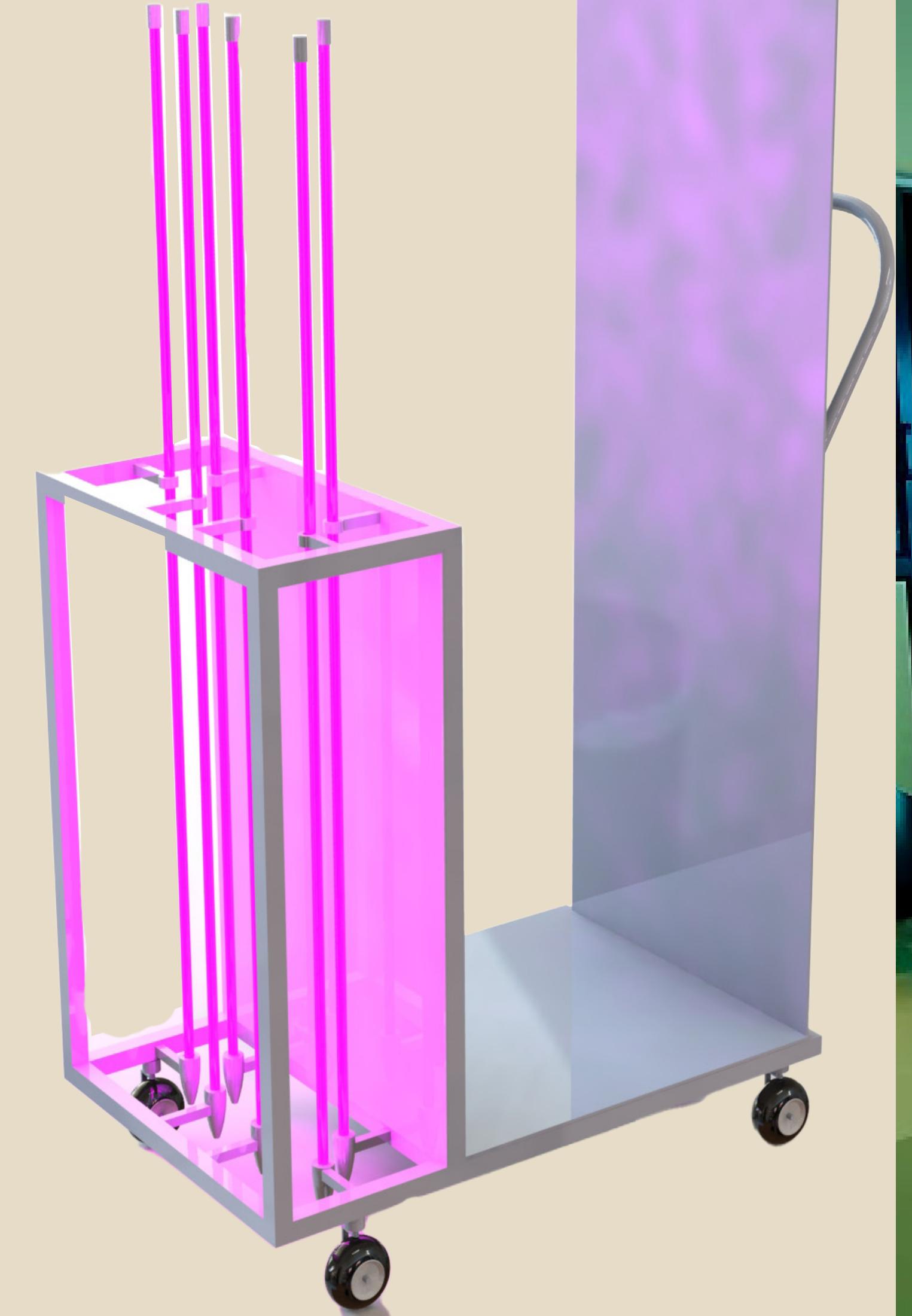
2 Light trolley with reflective cylinder (motorized)

FINAL DESIGNS

The final design was one which could be laterally inserted into an AC duct and which had provisions for wireless control. The target customer base was large shopping complexes which required multiple installations for complete coverage and sanitation



Fabrication was done almost exclusively from sheet aluminum as weight had to be considered for duct mounting

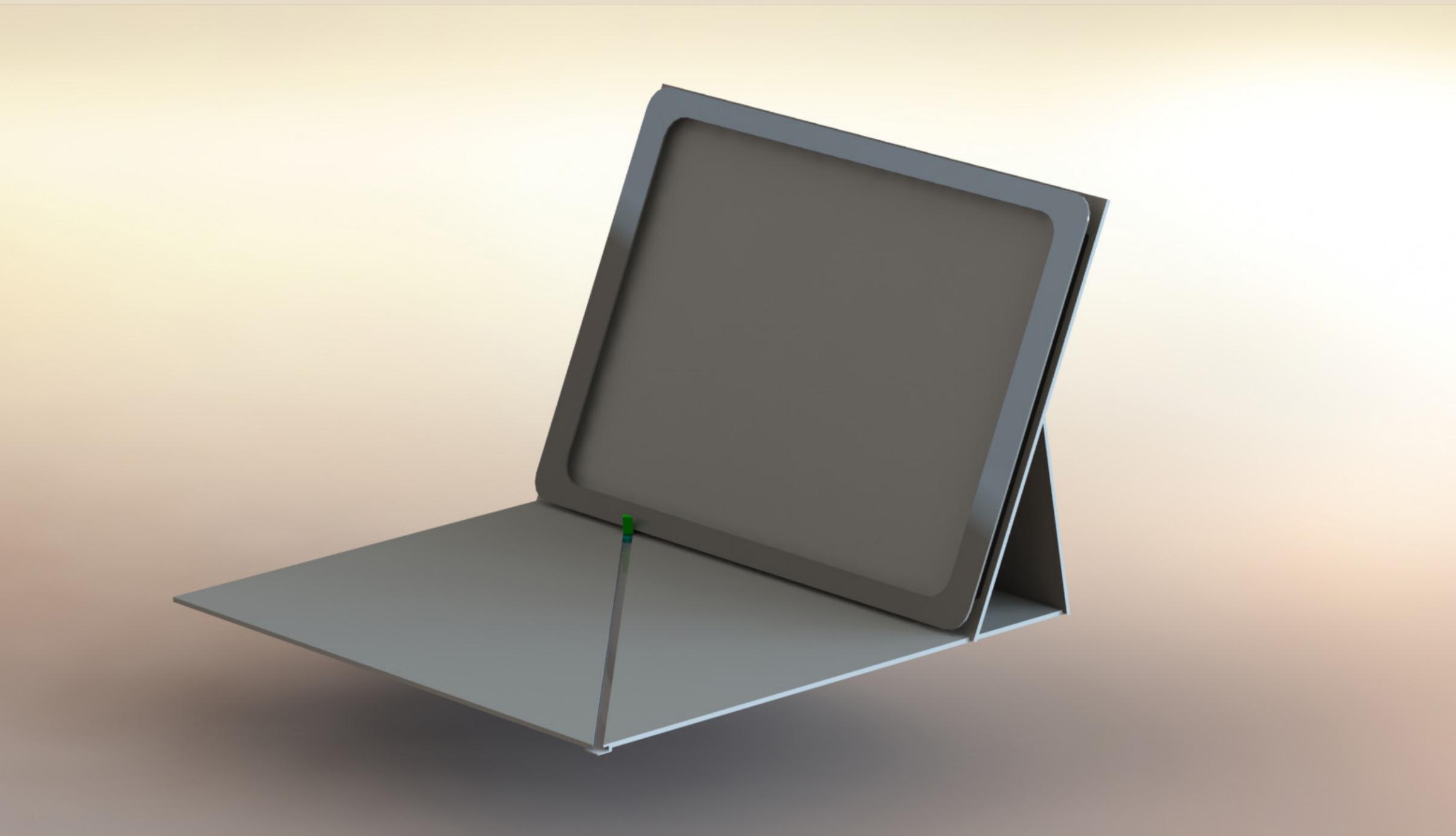


The final trolley design was one which incorporated 6 lights on a manually driven trolley. storage was provided in the trolley for the light electronics as well as oxygen supply for the operator.



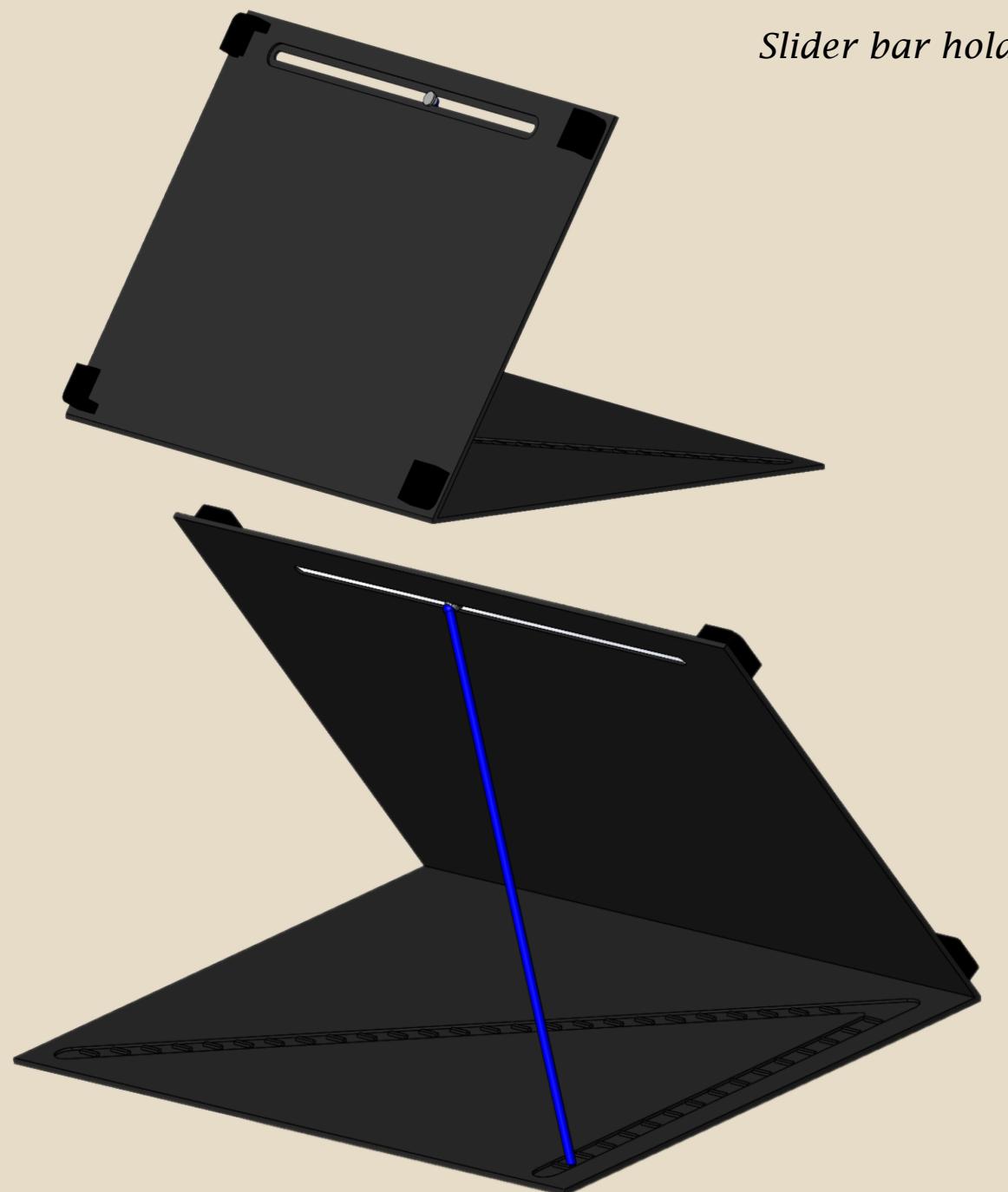
THE POP TABLET HOLDER

Course project for the MVE IPD program at TU Delft

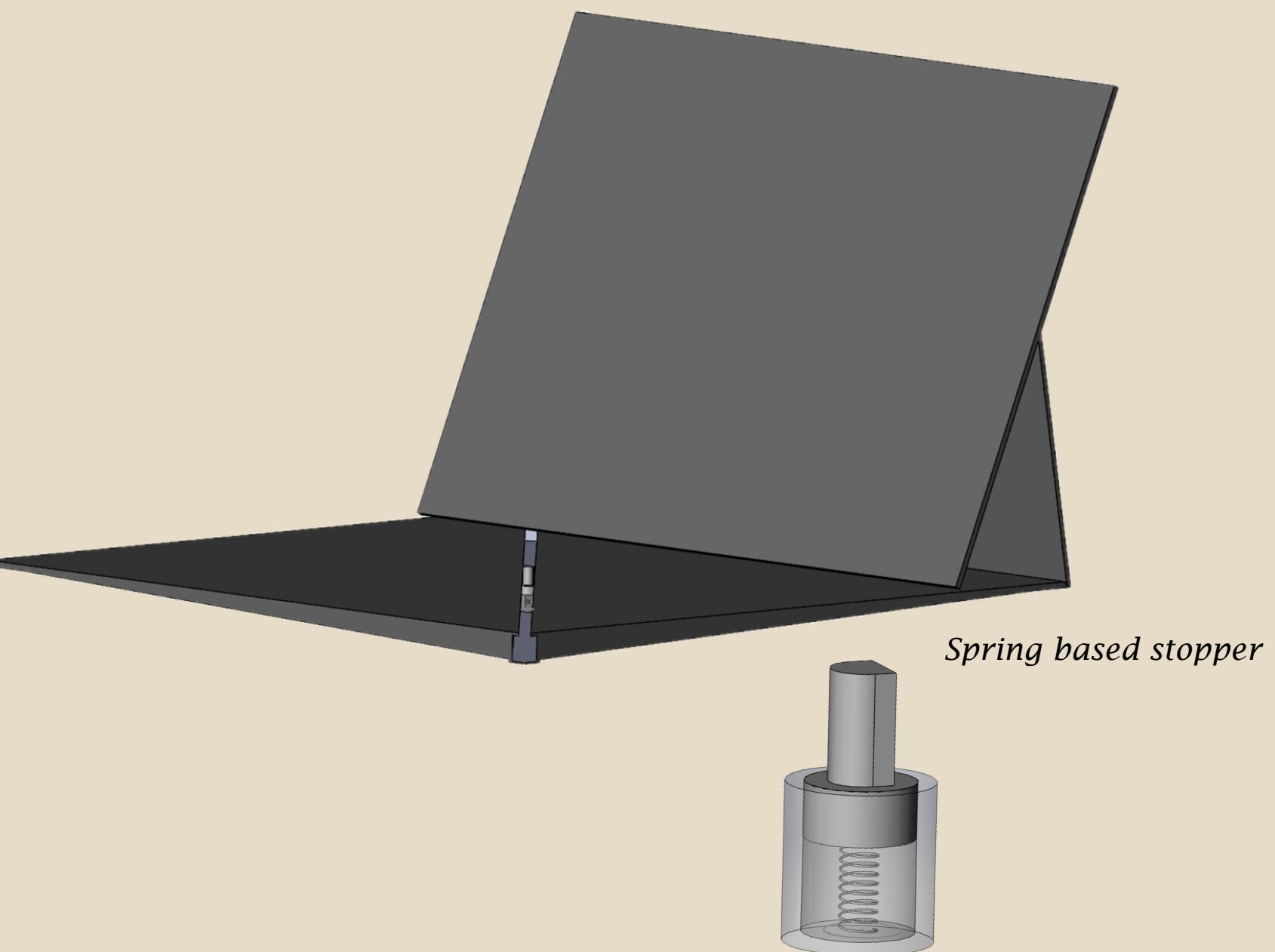


INITIAL DESIGNING

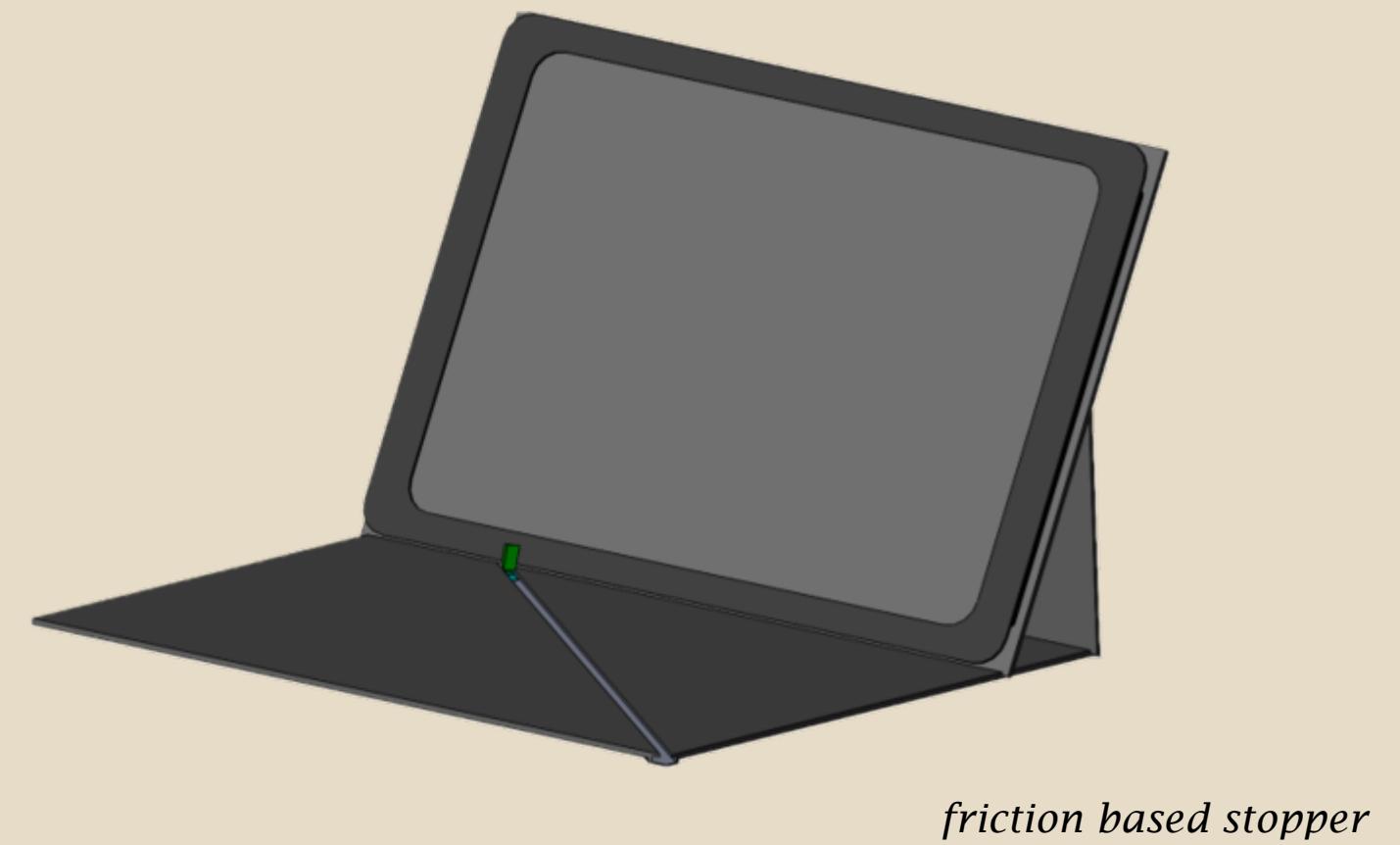
The goal of the project was to design a new tablet holder while exploring the design process. The steps involved were user research, ideation, concept development and prototyping. Many promising ideas came up which are presented. The main factors were to provide the maximum angle flexibility and quick deployment.



Slider bar holder



Spring based stopper



friction based stopper

User Research

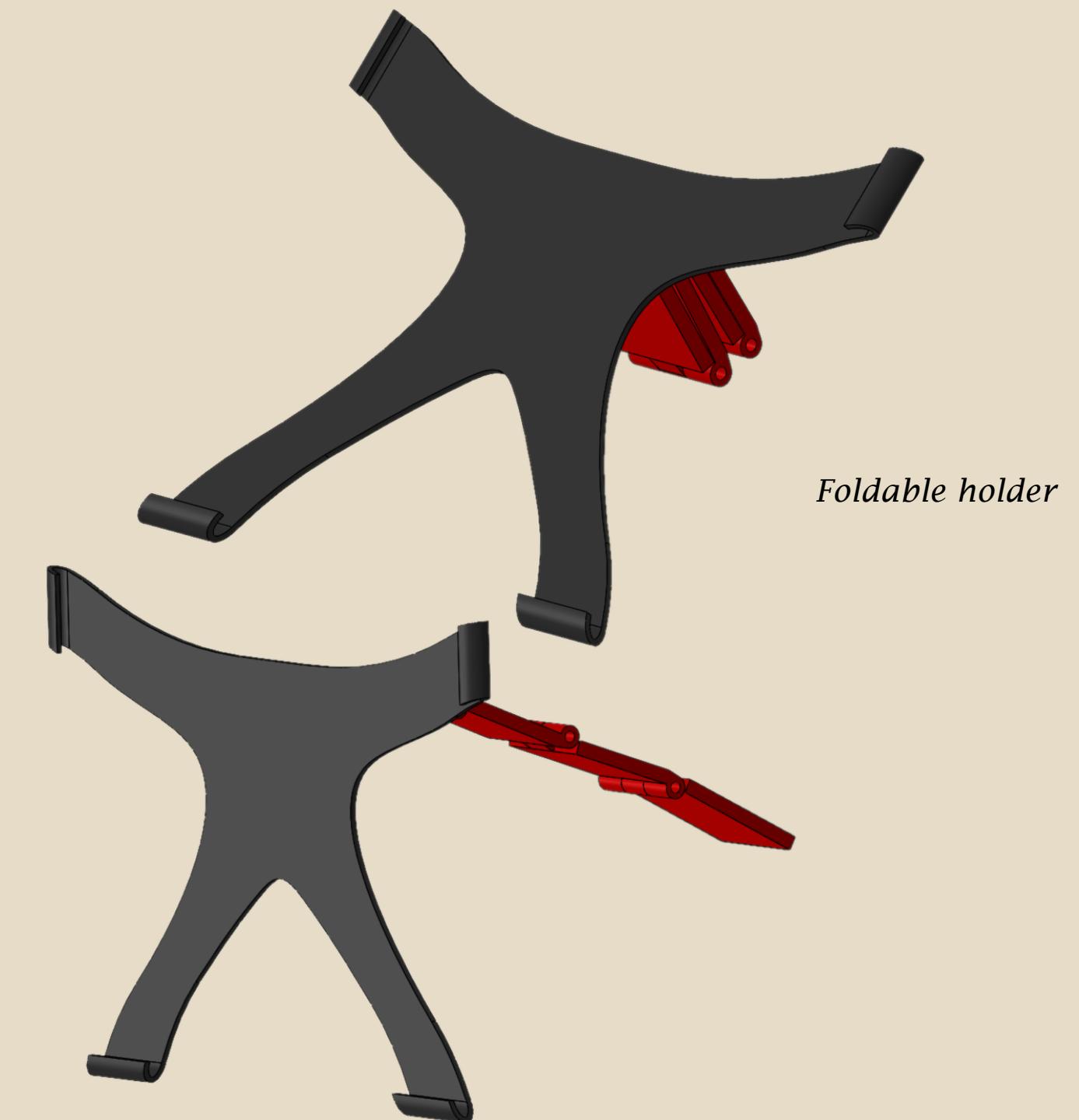
Questionnaire details: 19 questions. 86 Reponses.

Inputs: Average usage: 2 hours. 50+ people use tablet on a table

Focus Group: Design students-6

Inputs: everyone uses a tablet case, struggles with getting the right angle to hold the tablet at to use, a thin case is preferred

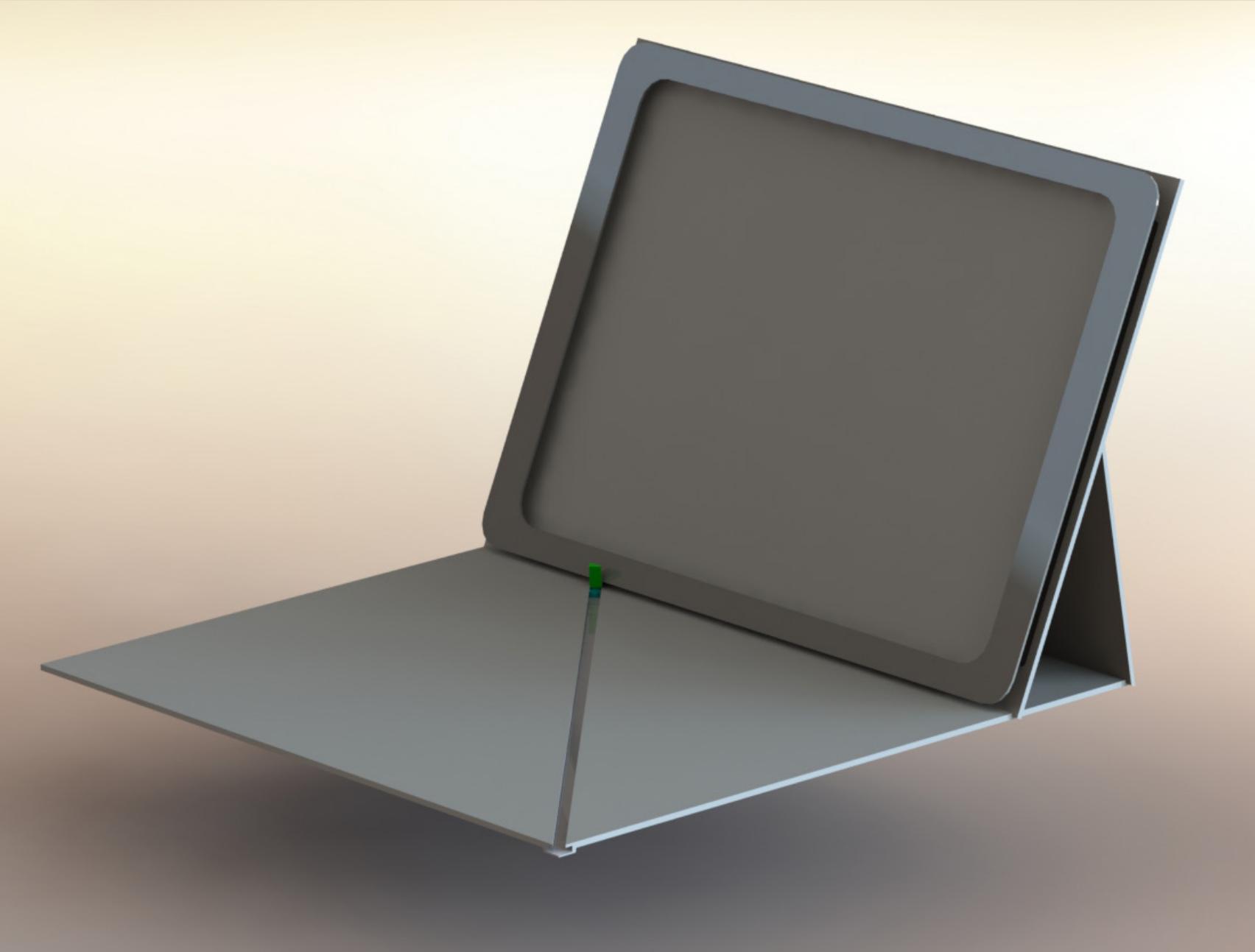
Position of usage	Percentage
Sitting, with the tablet on a table	30%
Sitting, with the tablet in hand	20%
Standing, with the tablet in hand	10%
Standing, with tablet on table	10%
Lying down with the tablet in hand	10%
Standing, with the tablet on a table	5%
Sitting, with the tablet on a chair	5%



Foldable holder

FINAL DESIGN

Require	Want
-Multiple viewing angles	-Provision to hold tablet stylus
-No interference to normal tablet usage & IO	-Aesthetically pleasing
-No sharp edges or corners	-Affordable price (<€20)
-Protect the tablet screen and edges	-Durability (~2 years)
-Anti slip grip at base of tablet holders	-Thin folio (<6mm)
-Portability	-Quick setup to start work (<10s)
	-Lightweight (<250g)



Harris Profile

