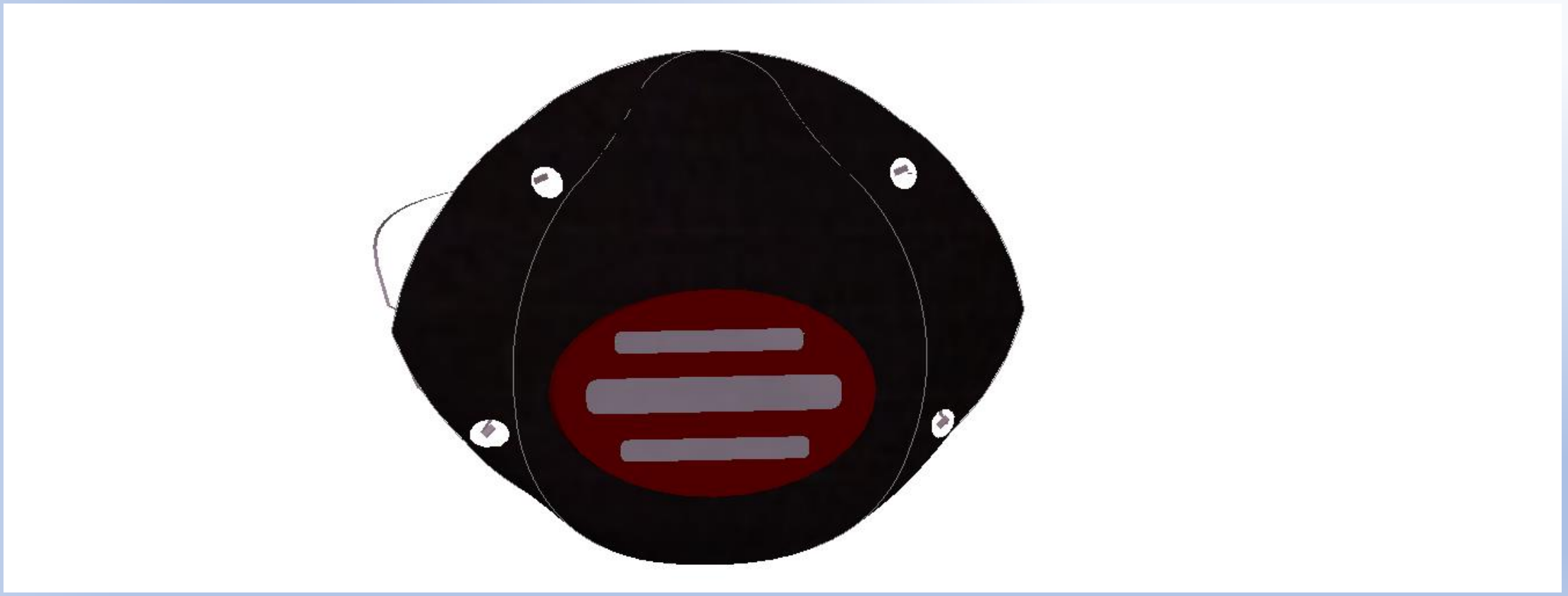
3D modeling of n95 respirator so that it may be 3D printed for real-life use

Group Members

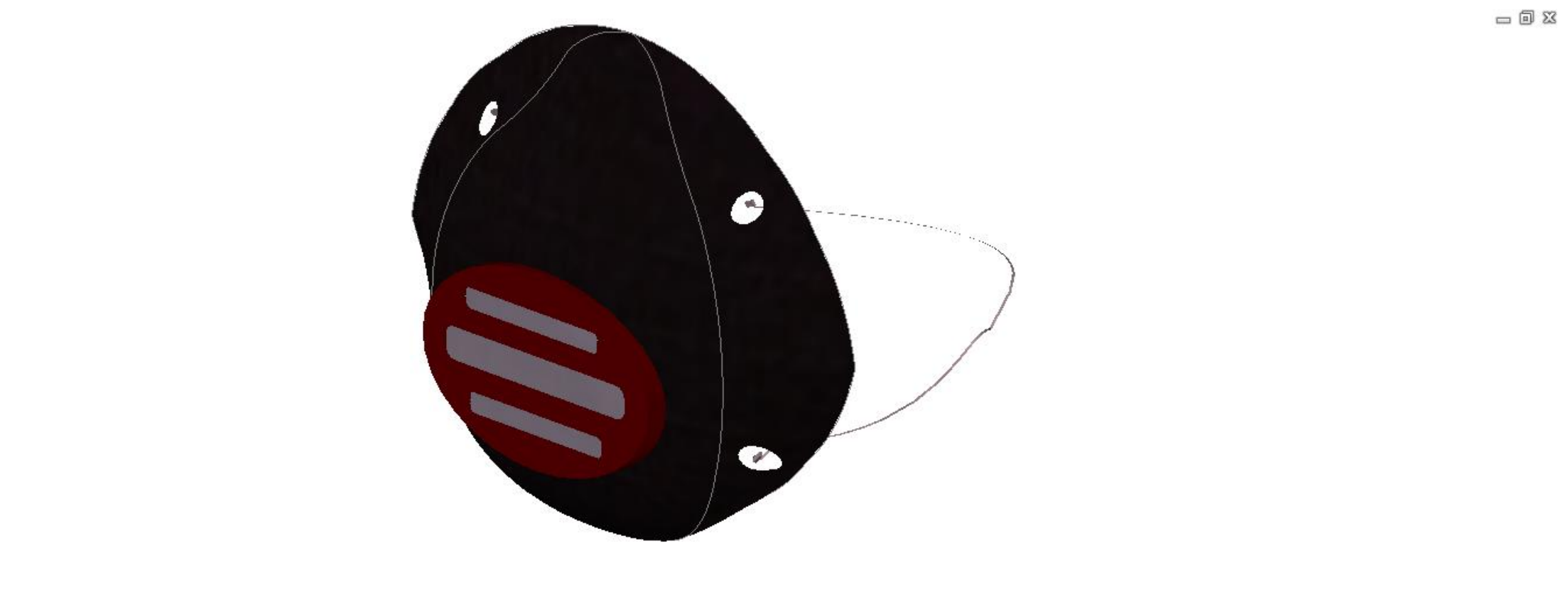
Name	ID
Saad Ahmed Salim	1712299042
Abrar Faisal	1712677642
Sabbir Alam	1711653642

- I choose this because 3D can teach how shapes work in the real world.
- When sketching or drawing in 2D, it’s not always easy to envision the final shape of an object in three dimensions – especially if the geometry is complex. For our project it is very useful.
- This means that there could be unexpected or unwanted results – like intersections or interferences between volumes – which can be very easily spotted and removed during the early concept stage just by creating a basic 3D model.
- 3D also allows for a much greater and detailed control on the design, as it’s possible to inspect the curvature of surfaces in real-time by evaluating the reflections in the different views.
- Also it creates more realistic and detailed concepts for better design evaluation.

Rendered Image

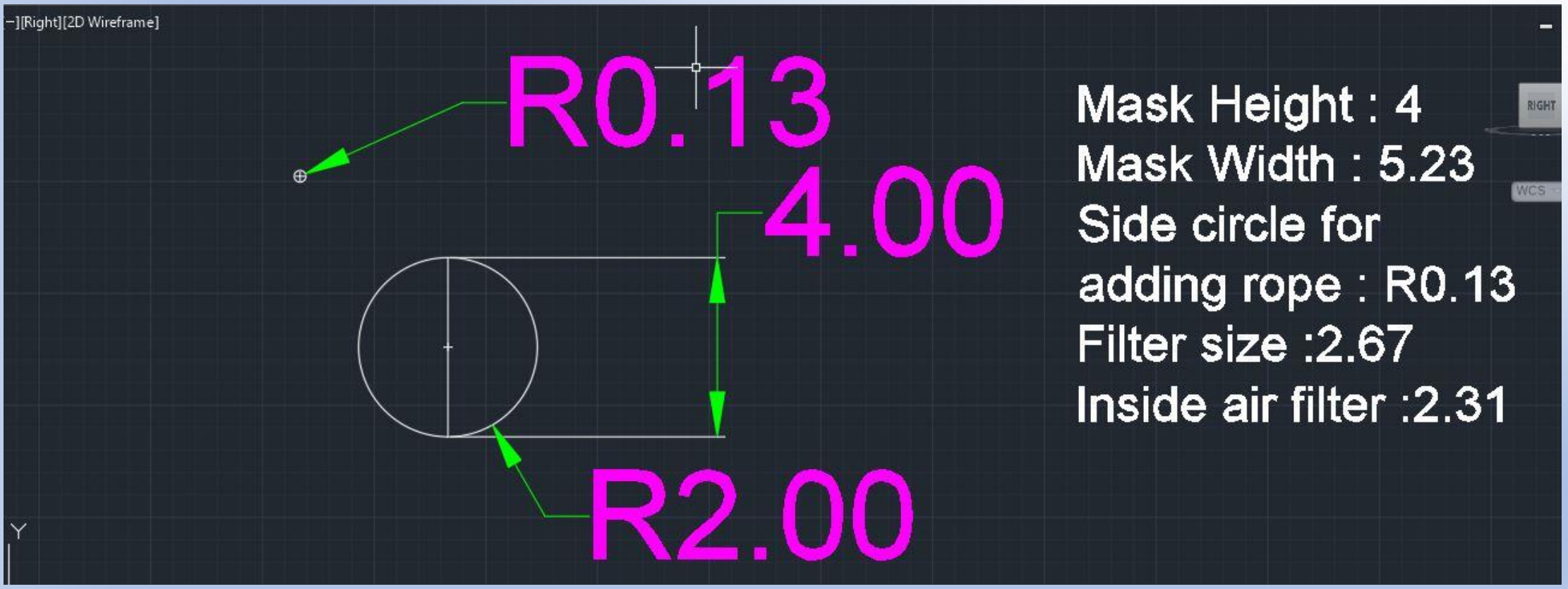


Rendered Image



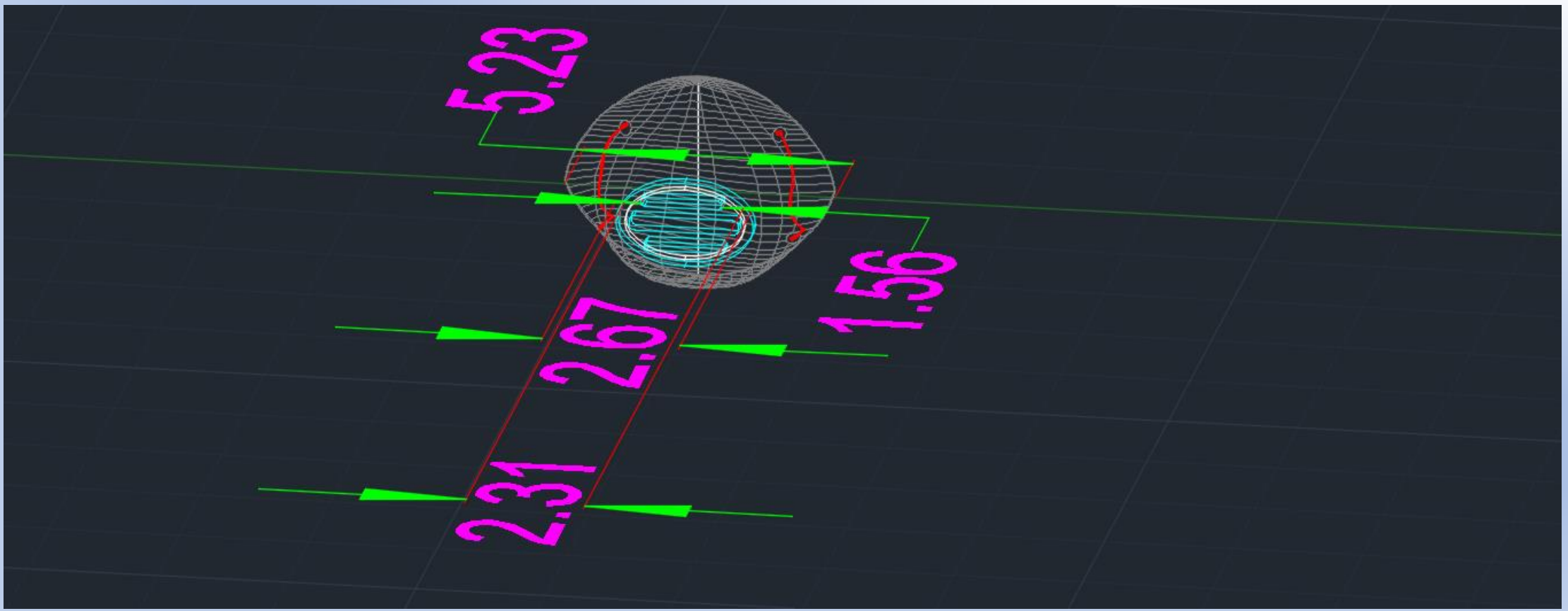
Rendered Image

Design Parameters



Design Parameters

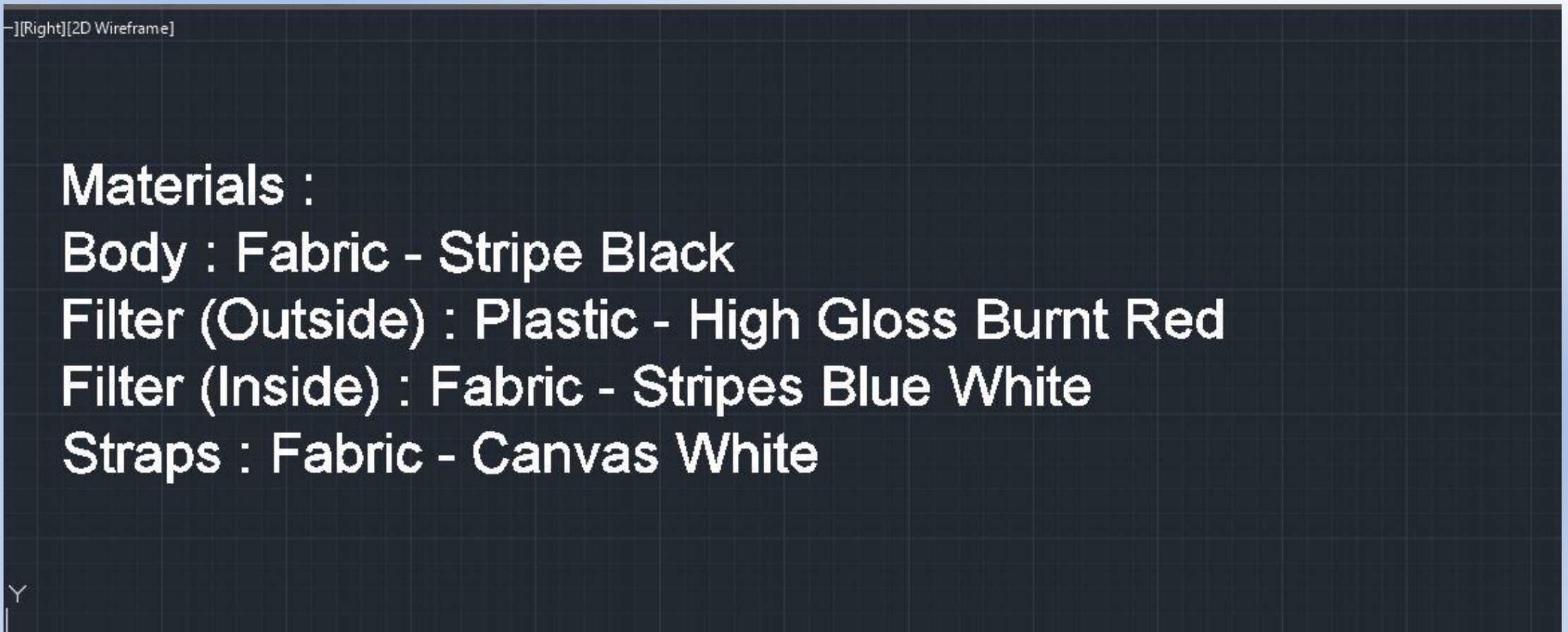
- Some angles and shapes are taken conveniently to look good.



Manufacturing Guidelines

Using AutoCAD materials from Autodesk Library.

And using below materials for n95 mask.



A cost analysis of the manufacturing of the product so that it can be mass produced

Overview:

A cost analysis is needed to manufacture product broadly. It helps to take perfect decision of producing the product with the list of pricing and helpfulness of that product. We will discuss a cost analysis of n95 mask here.

Raw material of the product:

Body	Fabrics
Filter Cap	Plastic
Filter	Non-woven fabrics
Ear loop	Stretchable fabrics
Nose adjustment	Steel

Pricing:

Raw material	Price/kg (tk)	Pcs/kg	Price/unit(tk)
Fabrics for body	170	120	1.42
Plastic	24	35	0.7
Non-woven fabrics	425	250	1.7
Stretchable fabrics	5/meter	2 pair/meter	2.5
Steel nose adjustment	-	-	2
		Total raw material price	8.32

N.B: All the raw material price are taken from Alibaba.com

Problem We Faced

- Due to low graphics, render image quality is low although we selected high option.
- As we have used loft to join the surface, when we were trying to convert to solid or surface in Mesh option, it didn’t work out. We tried several option to convert it but it showed “ object can not be converted” message.
- For this reason, we can not make full stl file as body object and rope can not be selected.