ADDITIVE MANUFACTURING AND ASSEMBLY INSTRUCTIONS

ProGS-19

Protective Glasses adjusted by sealing

1. Product Data

This is a protection device, called *ProGS-19*, totally developed for Open Source purpose. This device have been design on 20/03/2020 by Pablo Rodríguez González, Mechanical Design engineer, specialized on R&D Engineering and Design for manufacturing like Additive, Plastic extrusion, injection, metal machining parts and Composite Materials.

I invite you to contact me and help me with your feedback about this 1.0 version *ProGS-19* update through Linkedin:

https://www.linkedin.com/in/pablo-rodriguez-mechanical-engineer/

This device has not any commercial purpose, it is only designed for helping the necessity of every medical worker during the complex context f the COVID-19 in Europe and world-wide. The ergonomic parameters have been followed to design for western complexion people

Due to this situation, the non-commercial use of this *ProGS-19* device is completely free for any MAKER technician or any person who wants to help the society around the world in this difficult situation.

You can download the file for free in the next link:

ProGS-19 Download

2. Bill of Material (BOM)

At first, we need a Bill of Materials to prepare in order to open the manufacturing process:

- **3D Printer**

- **PLA Filament**

- **Elastic strap (75cm at least).**

Have a look to the link:

https://www.amazon.es/Fellowes-Cristal-Portadas-encuadernación-transparente/dp/B002BARBEK/ref=sr_1_1?__mk_es_ES=%C3%85M%C3%85%C5%BD%C3%95%C3%91&dchild=1&keywords=lamina+pvc+transparente&qid=1585321767&sr=8-1

- **Transparent colour laminar PVC (180-200 micrometer thickness).**

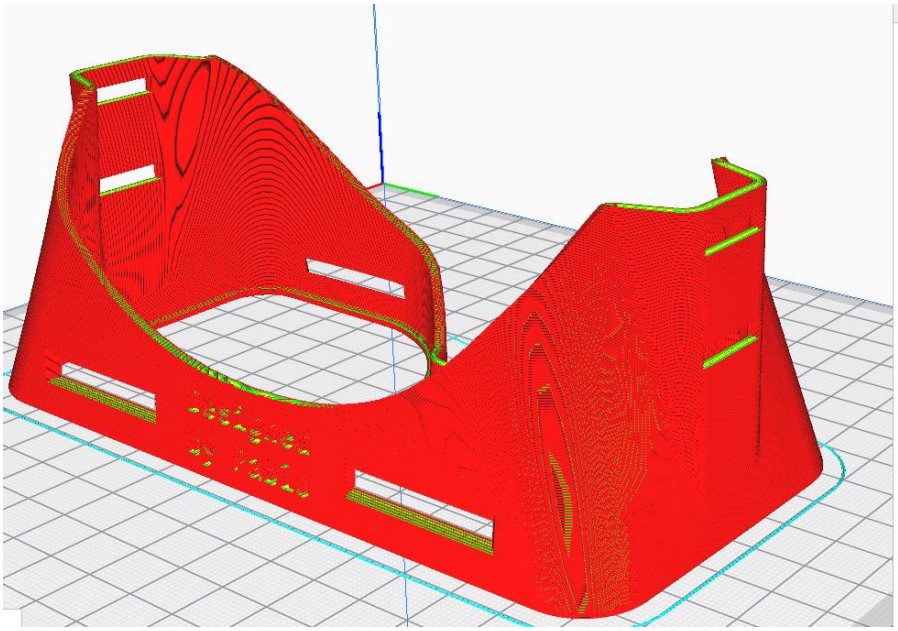
Have a look to the link:

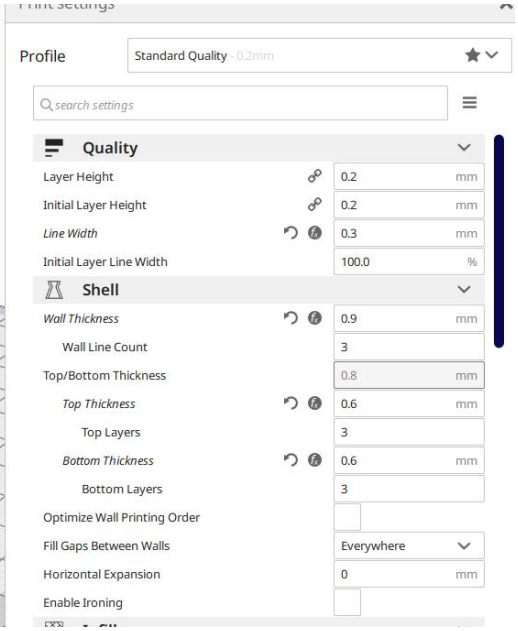
https://www.amazon.es/LYTIVAGEN-Elástico-Fabricación-Manualidades-Abalorios/dp/B07TF4GVYQ/ref=sr_1_1?__mk_es_ES=%C3%85M%C3%85%C5%BD%C3%95%C3%91&dchild=1&keywords=lytivagen+cordon+elastico&qid=1585321866&sr=8-1

3. Manufacturing Instructions

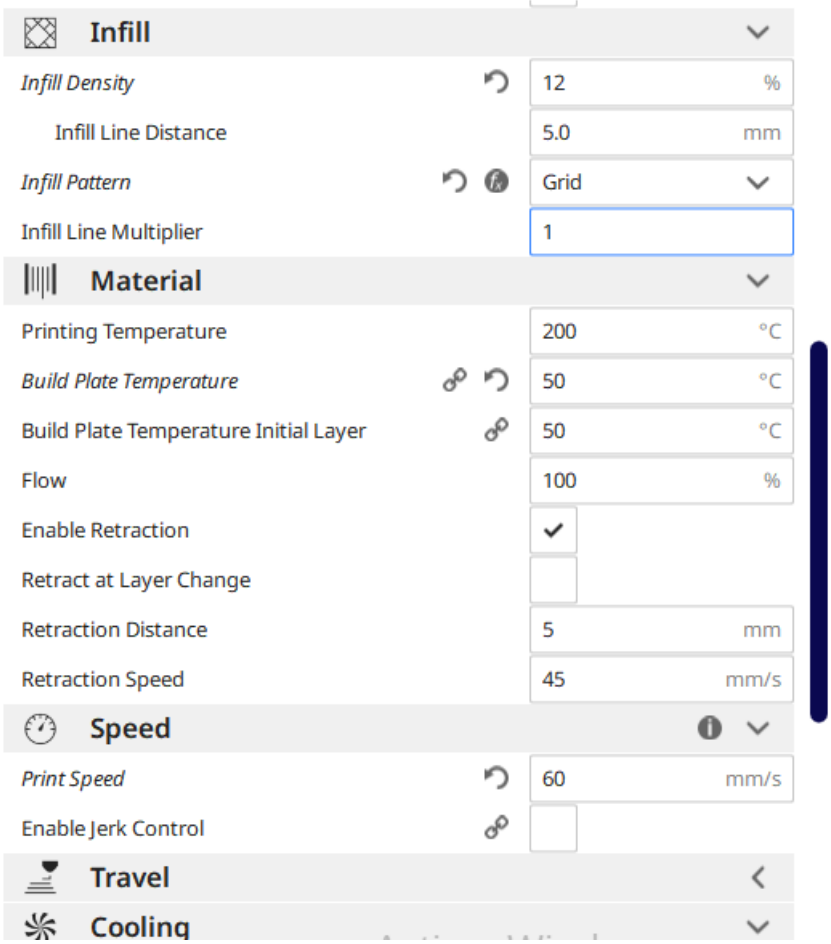
Please, consider that the exact additive parameters will depend of the 3D printer used. In this case, we use both Creality-Ender3 and custommed Prusa i3Hephestos.

Step 1.





Step 2.


Infill
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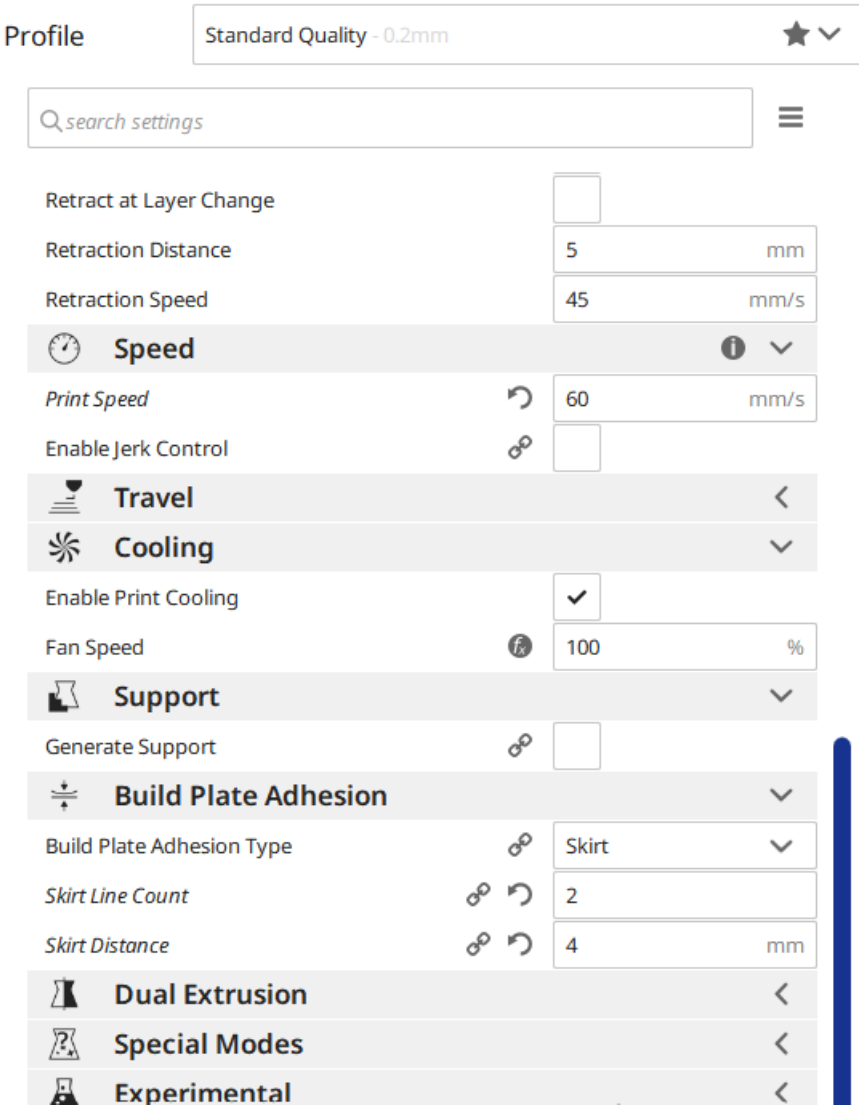
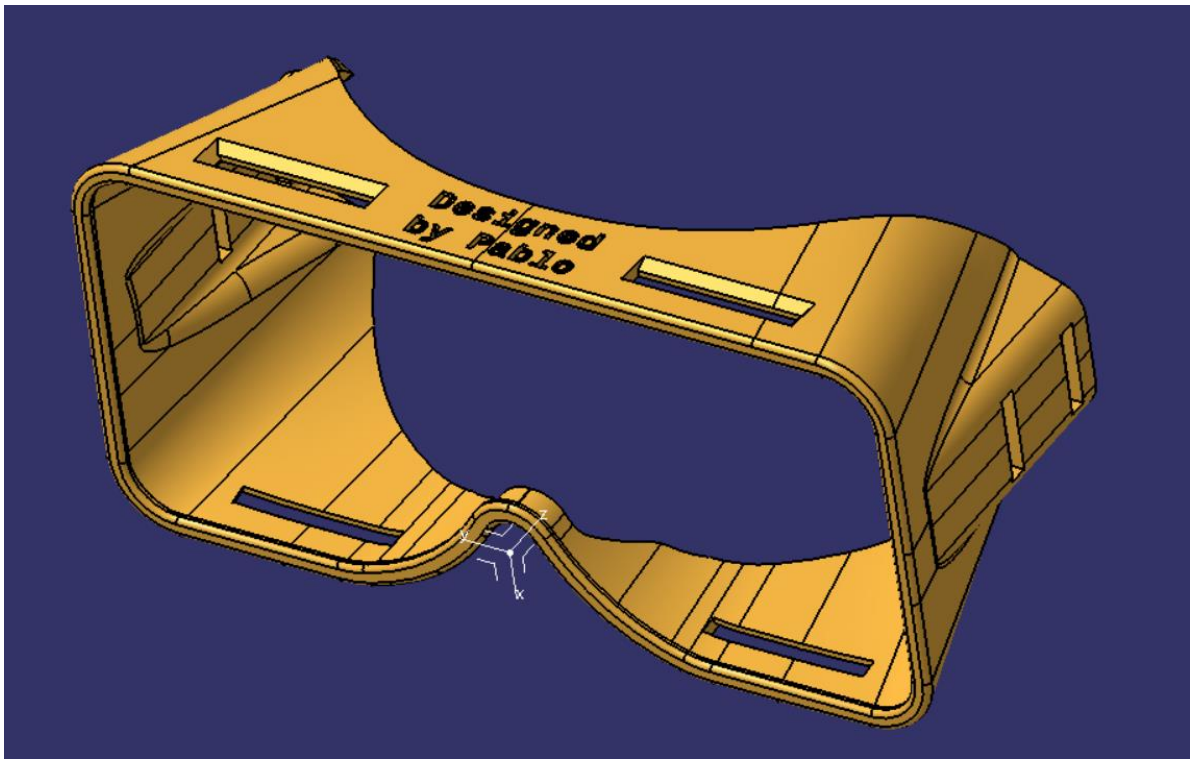
12
%
Infill Line Distance
5.0
mm
Infill Pattern
Grid
Infill Line Multiplier
1
Material
Printing Temperature
200
°C
Build Plate Temperature
50
°C
Build Plate Temperature Initial Layer
50
°C
Flow
100
%
Enable Retraction
Retract at Layer Change
Retraction Distance
5
mm
Retraction Speed
45
mm/s
Speed
Print Speed
60
mm/s
Enable Jerk Control
Travel
Cooling

Step 3.


Profile
Standard Quality - 0.2mm
search settings
Retract at Layer Change
Retraction Distance
5
mm
Retraction Speed
45
mm/s
Speed
Print Speed
60
mm/s
Enable Jerk Control
Travel
Cooling
Enable Print Cooling
Fan Speed
100
%
Support
Generate Support
Build Plate Adhesion
Build Plate Adhesion Type
Skirt
Skirt Line Count
2
Skirt Distance
4
mm
Dual Extrusion
Special Modes
Experimental

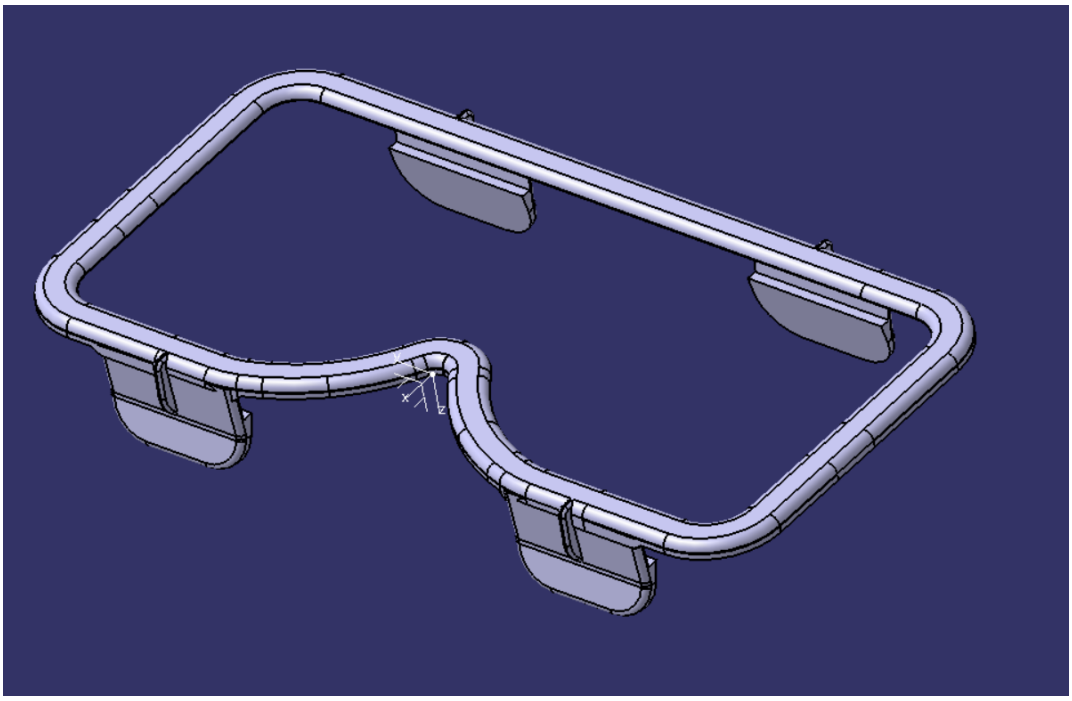
Step 4.

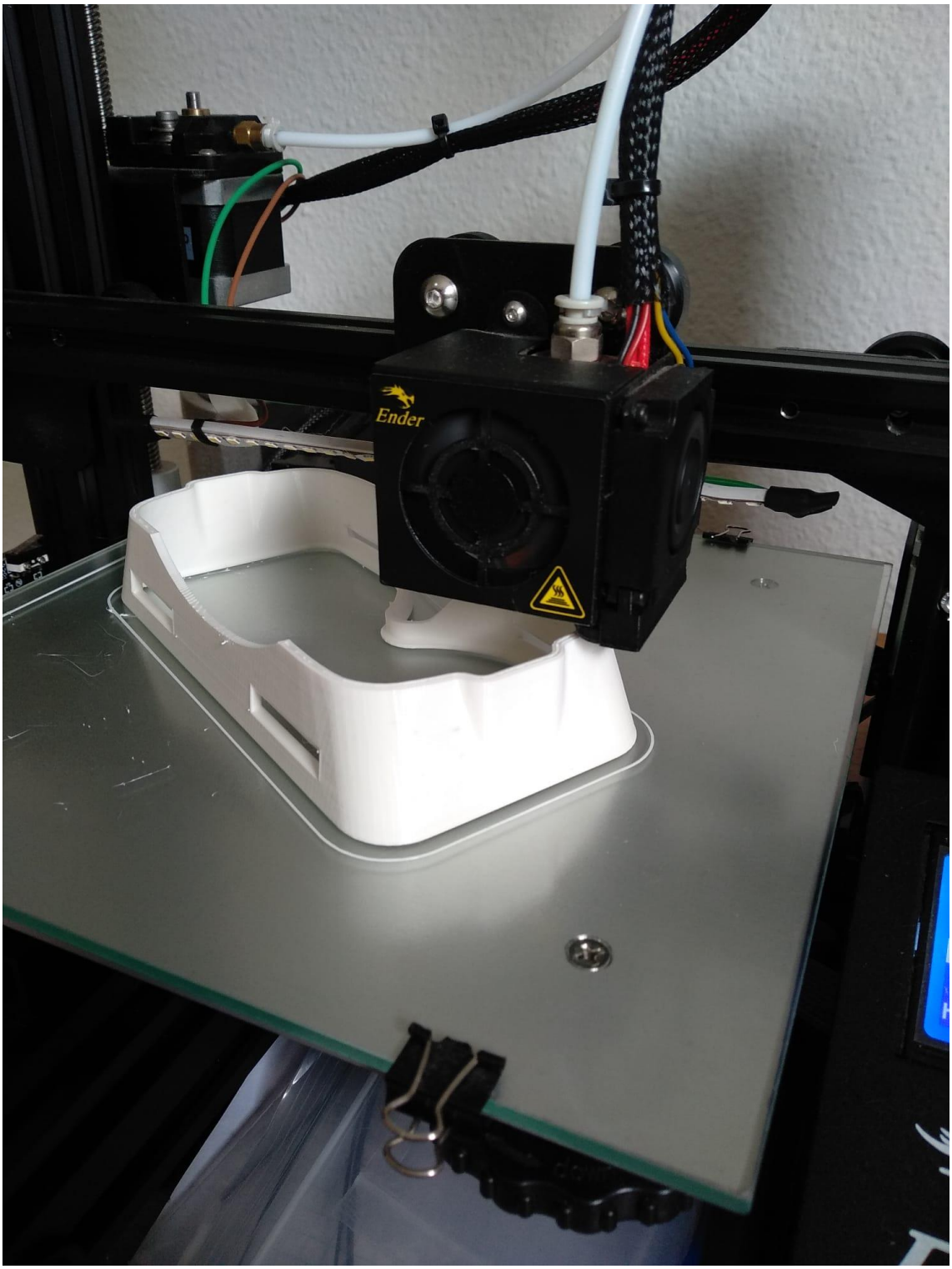
Printing the file called: “ *Frame_ProGS_CV19_v1_1* ”



Step 5.

Printing the file called: “ *ClipWdow_ProGS_CV19* ”

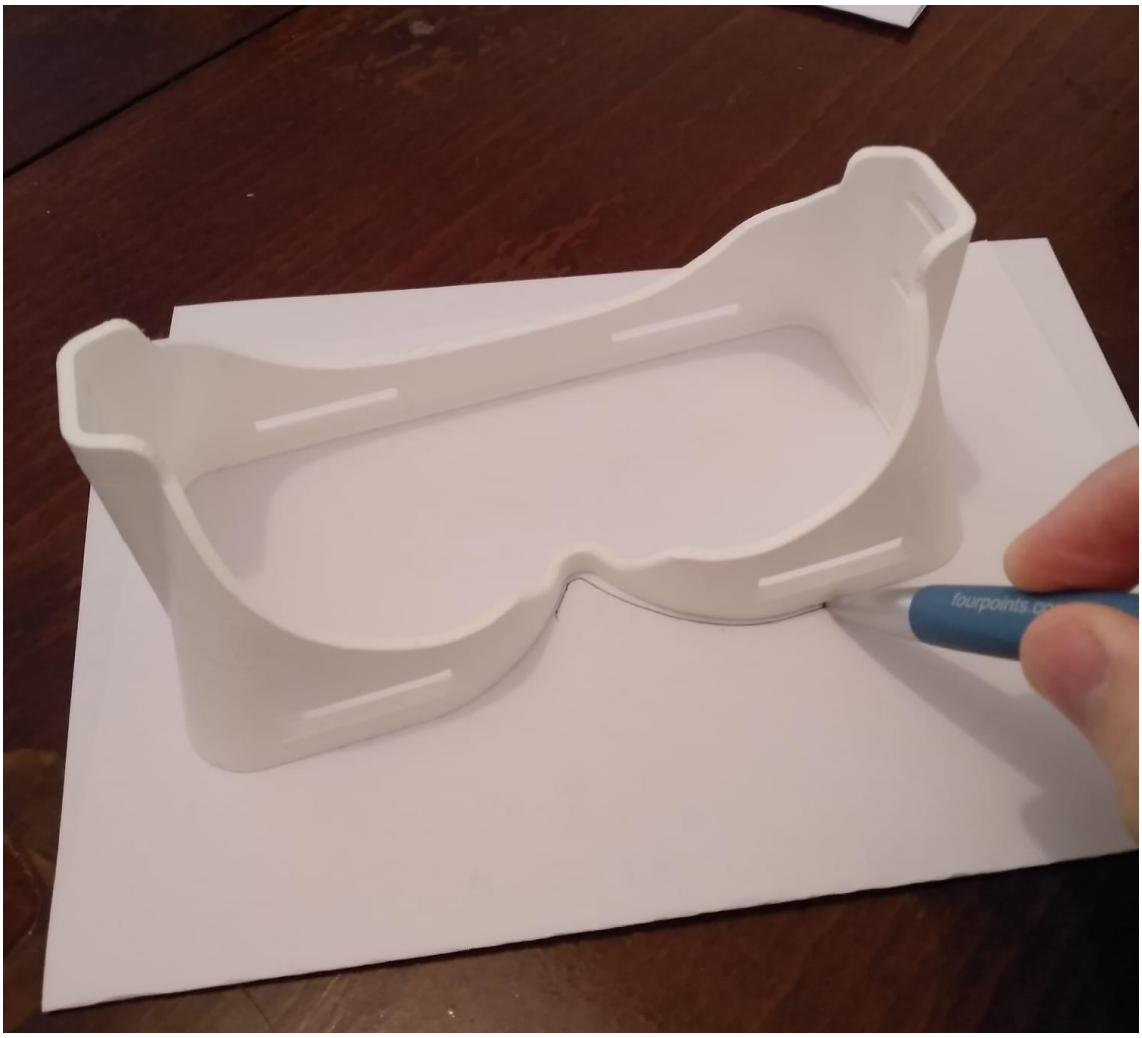



Ender

Step 6.

Prepare all the components to develop the mechanical assembly.

Cut the Laminar PVC using the boundary shape of the file called " *Frame_ProGS_CV19_v1_1* ", please look at the picture below:



Step 7.

Fellowes
WORK BETTER
Deckblätter zum Binden
Portadas de encuadernación
Copertine per rilegatura
Dekbladen voor inbinden
omslag för inbindning
Okładki do bindowania
Обложки для переплета
Capas de encadernação
PVC
COLOUR
CLEAR
FINISH
SMOOTH
SIZE
A4
QUANTITY
100
SHEETS
WEIGHT
LIGHT
THICKNESS
180
MICRONS
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Itasca, Illinois 60143-1095 USA
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For other locations please visit
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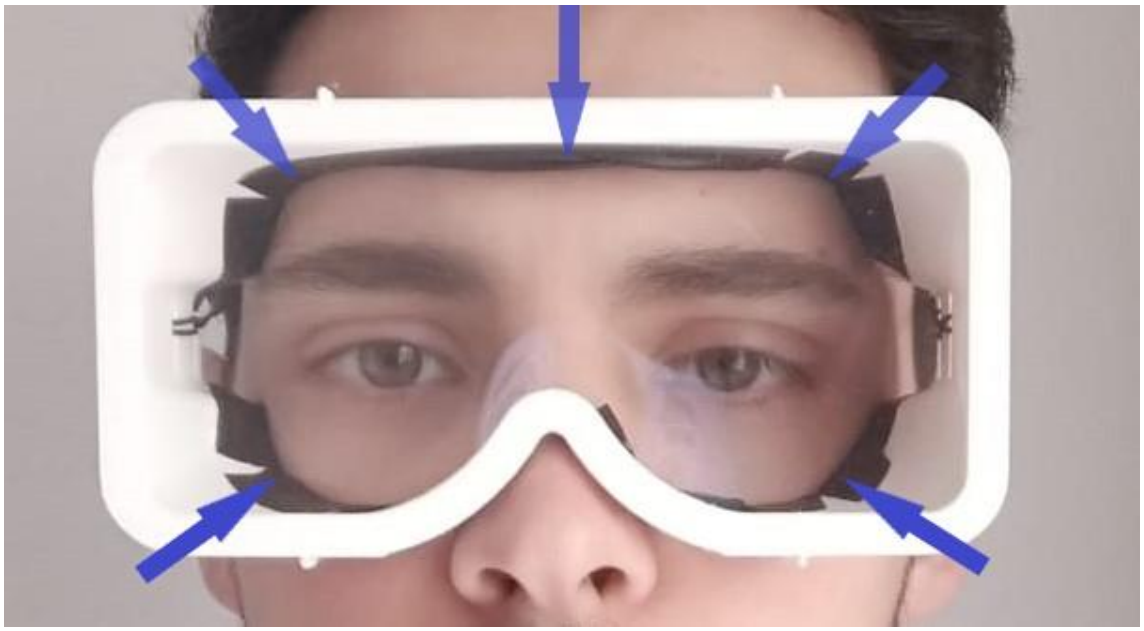
Step 8.

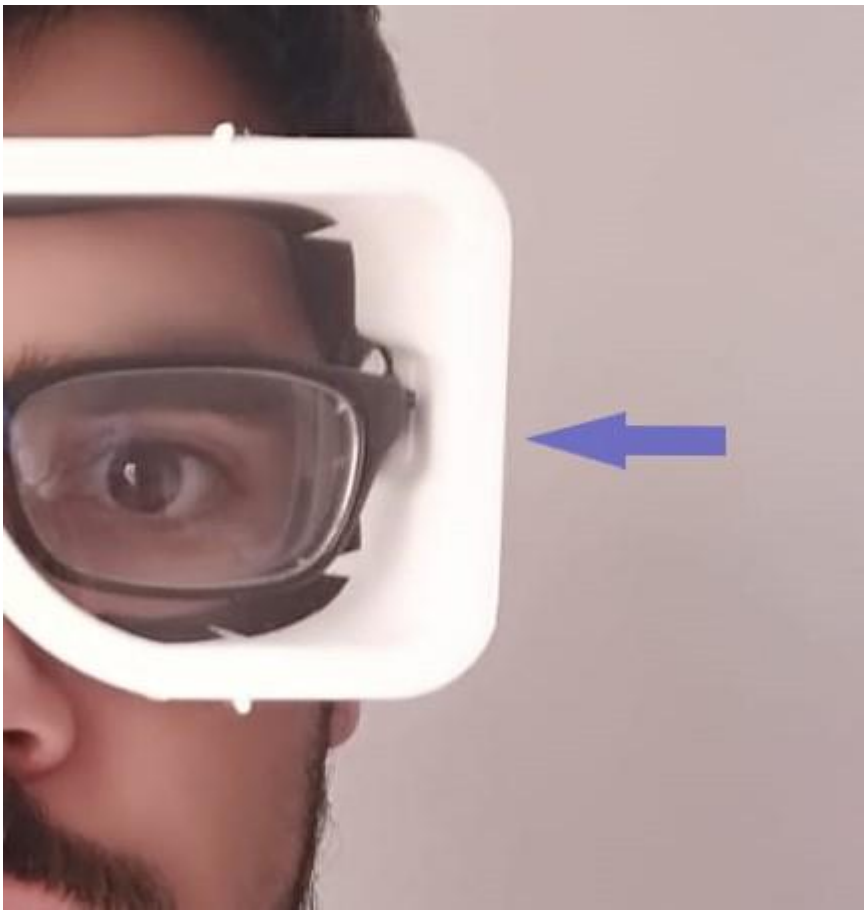
4. Complementary adjustment

Once you assemble the whole product, It will be interesting trying to improve the adjustment of the *ProGS-19* to the face complexion. It will be possible using an adhesive Isolation tape like it is showing in the following picture:

Then you will make a smoother surface finishing in the parts which are in physical contact with the person skin. Even you will improve the sealing of the *ProGS-19* to avoid any bacterial risk. See the picture below:



As you can see, the *ProGS-19* device design is provided of two little holes in order to combine the device with any standard glasses and use them simultaneously. Please have a look to the picture below:



Furthermore, the *ProGS-19* device can be sterilized manually using any Chloride or Alcoholic disinfectant gel. We use the following gel you can see in this picture:

HO
OHÓLICA
DE MANOS
Con Glicerina
ES CARACTERÍSTICAS: Loción higienizante de manos sin agua, formulado con agentes bactericidas. Ideal para la limpieza e higiene de las manos en aquellas situaciones donde se recomienda la utilización de geles hidroalcoholicos por fricción.
MODO DE EMPLEO: Dosificar una pequeña cantidad de producto en el hueco de la mano y frotar ambas manos hasta que se absorba y se evapore.
P CARACTERISTICAS: Loção higienizante das mãos sem agua formulado com agentes bactericidas. Ideal para a limpeza das mãos naquelas situações onde se recomenda a utilização dos geles hidroalcohólicos pela fricção.
INSTRUÇÕES DE USO: Aplicar um pouco de produto na cavidade da mão e esfregan-do até que estiver absorbido e evaporado.
INGREDIENTES: Alcohol denat, Aqua, Isopropyl alcohol, Glycerin, Hidroxipropyl Methylcillulose, Benzalkomium Chloride.
PELIGRO

5. Commentary

Finally, we necessary clarify the use of the *ProGS-19* is completely free purpose. Although, the commercial use of this technical research is totally forbidden.

Let's share this resource with everybody to help medical workers in hospitals and try to reduce the future impact of the Coronavirus.

Please, personally I ask you to collaborate with us manufacturing and sending every ProGS-19 protective glasses to the hospitals of your town.

Thank you in advance for your help and comprehension.