UNIVERSIDAD MILITAR
NUEVA GRANADA

PROYECTO FINAL FINITOS

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Subject	Elementos Finitos
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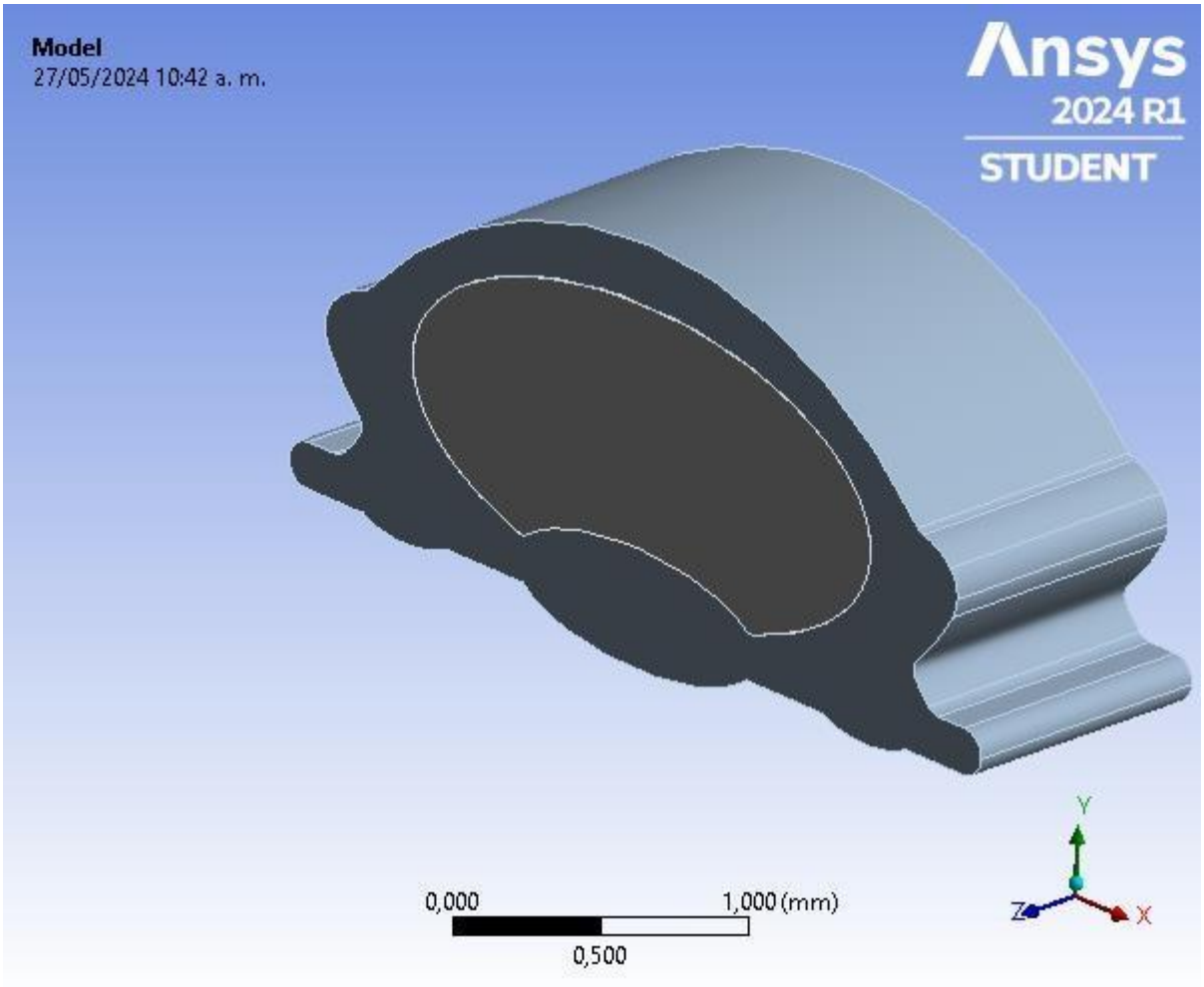
First Saved	Monday, May 27, 2024
Last Saved	Monday, May 27, 2024
Product Version	2024 R1



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Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius

Geometry

TABLE 4
Model (A4) > Geometry

Bounding Box	
Length X	3,3218 mm
Length Y	1,5526 mm
Length Z	1, mm
Properties	
Volume	3,6348 mm³
Mass	5,326e-006 kg
Scale Factor Value	1,

TABLE 5
Model (A4) > Geometry > Parts

Object Name	*Solid*	*Solid*
State	Meshed	
Graphics Properties		
Visible	Yes	
Transparency	1	
Definition		
Suppressed	No	
Stiffness Behavior	Flexible	
Coordinate System	Default Coordinate System	
Reference Temperature	By Environment	
Treatment	None	
Material		
Assignment	Medula	Hueso
Nonlinear Effects	Yes	
Thermal Strain Effects	Yes	
Bounding Box		
Length X	2,2 mm	3,3218 mm
Length Y	1,0239 mm	1,5526 mm
Length Z	1, mm	
Properties		
Volume	1,7479 mm³	1,8869 mm³
Mass	1,8352e-006 kg	3,4908e-006 kg
Centroid X	33,009 mm	
Centroid Y	5,7134 mm	5,5172 mm
Centroid Z	-3,8772e-016 mm	1,7862e-016 mm
Moment of Inertia Ip1	2,6363e-007 kg·mm²	1,0278e-006 kg·mm²
Moment of Inertia Ip2	7,4118e-007 kg·mm²	3,3161e-006 kg·mm²
Moment of Inertia Ip3	7,0145e-007 kg·mm²	3,7625e-006 kg·mm²
Statistics		
Nodes	10743	27109
Elements	2300	17073
Mesh Metric	None	

TABLE 18
Model (A4) > Static Structural (A5) > Solution (A6) > Results

Object Name	*Total Deformation*	*Equivalent Stress*	*Equivalent Stress 2*	*Equivalent Stress 3*
State	Solved			
Scope				
Scoping Method	Geometry Selection			
Geometry	All Bodies		1 Body	
Definition				
Type	Total Deformation	Equivalent (von-Mises) Stress		
By	Time			
Display Time	Last			
Separate Data by Entity	No			
Calculate Time History	Yes			

Identifier				
Suppressed	No			
Results				
Minimum	0, mm	5,5624e-005 MPa	9,3956e-002 MPa	5,5624e-005 MPa

Maximum	1,7252e-002 mm	153,04 MPa		1,3534e-003 MPa
Average	3,7664e-003 mm	18,002 MPa	25,136 MPa	6,6964e-004 MPa
Minimum Occurs On	Solid			
Maximum Occurs On	Solid			
Information				
Time	1, s			
Load Step	1			
Substep	1			
Iteration Number	1			
Integration Point Results				
Display Option		Averaged		
Average Across Bodies		No		

TABLE 19
Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1,	0,	1,7252e-002	3,7664e-003

FIGURE 3
Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation > Figure

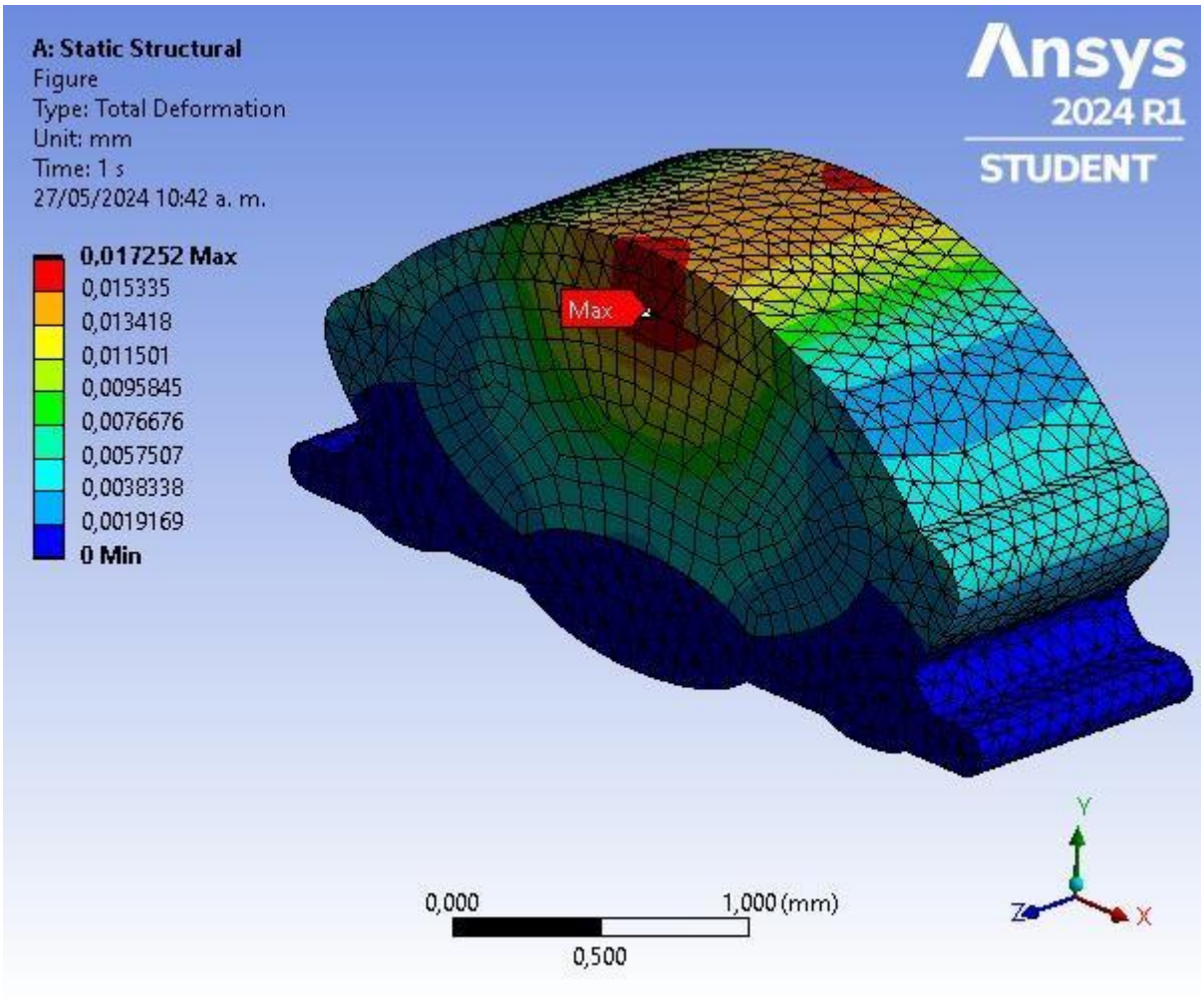


TABLE 20
Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	5,5624e-005	153,04	18,002

FIGURE 5
Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress > Figure

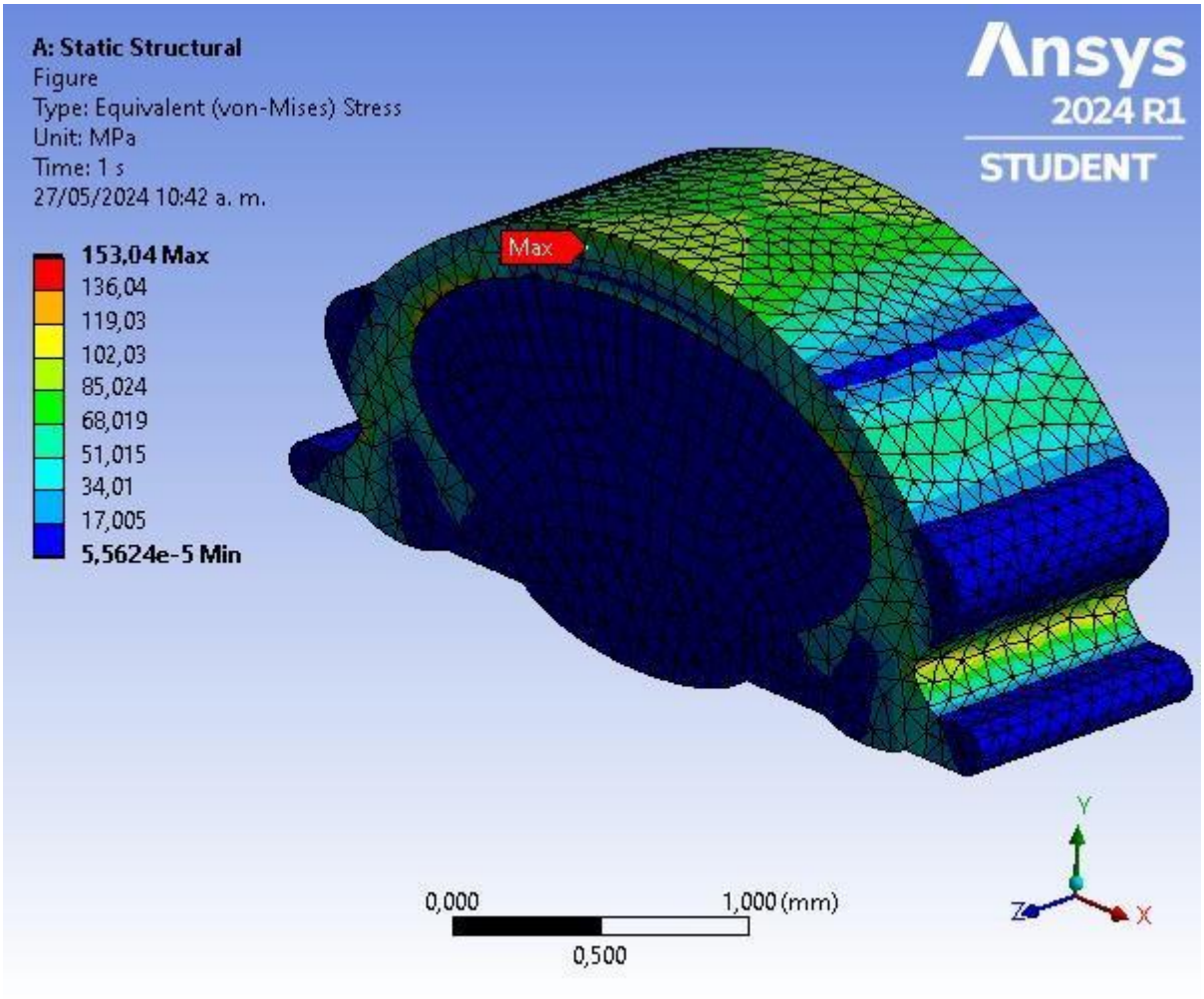


FIGURE 6
Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress 2

TABLE 21
Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress 2

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	9,3956e-002	153,04	25,136

TABLE 22
Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress 3

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	5,5624e-005	1,3534e-003	6,6964e-004

TABLE 25
Model (A4) > Static Structural (A5) > Solution (A6) > Stress Tool > Safety Factor

Time [s]	Minimum	Maximum	Average
1,	0,84943	15,	8,6229

FIGURE 9
Model (A4) > Static Structural (A5) > Solution (A6) > Stress Tool > Safety Factor > Figure

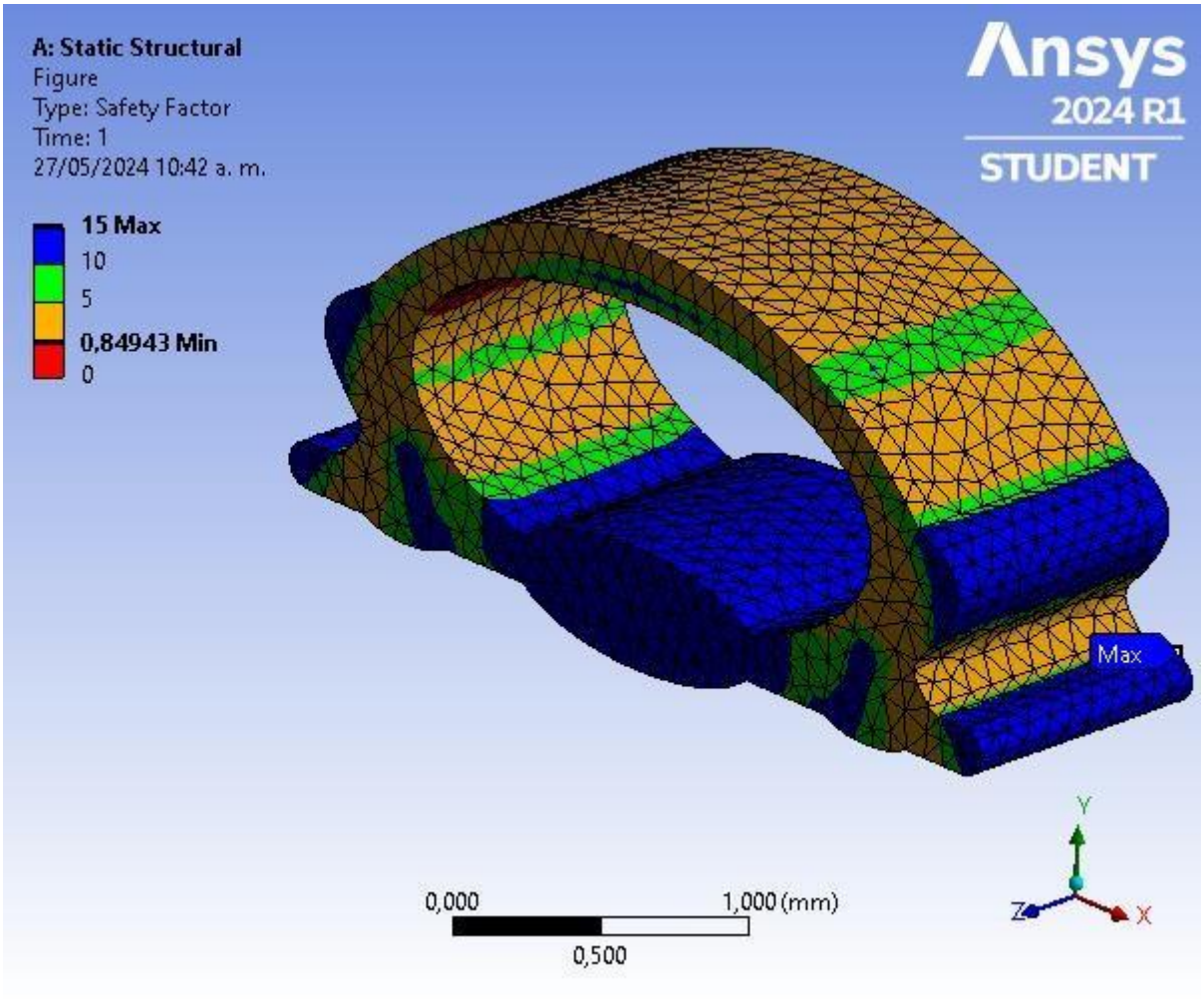
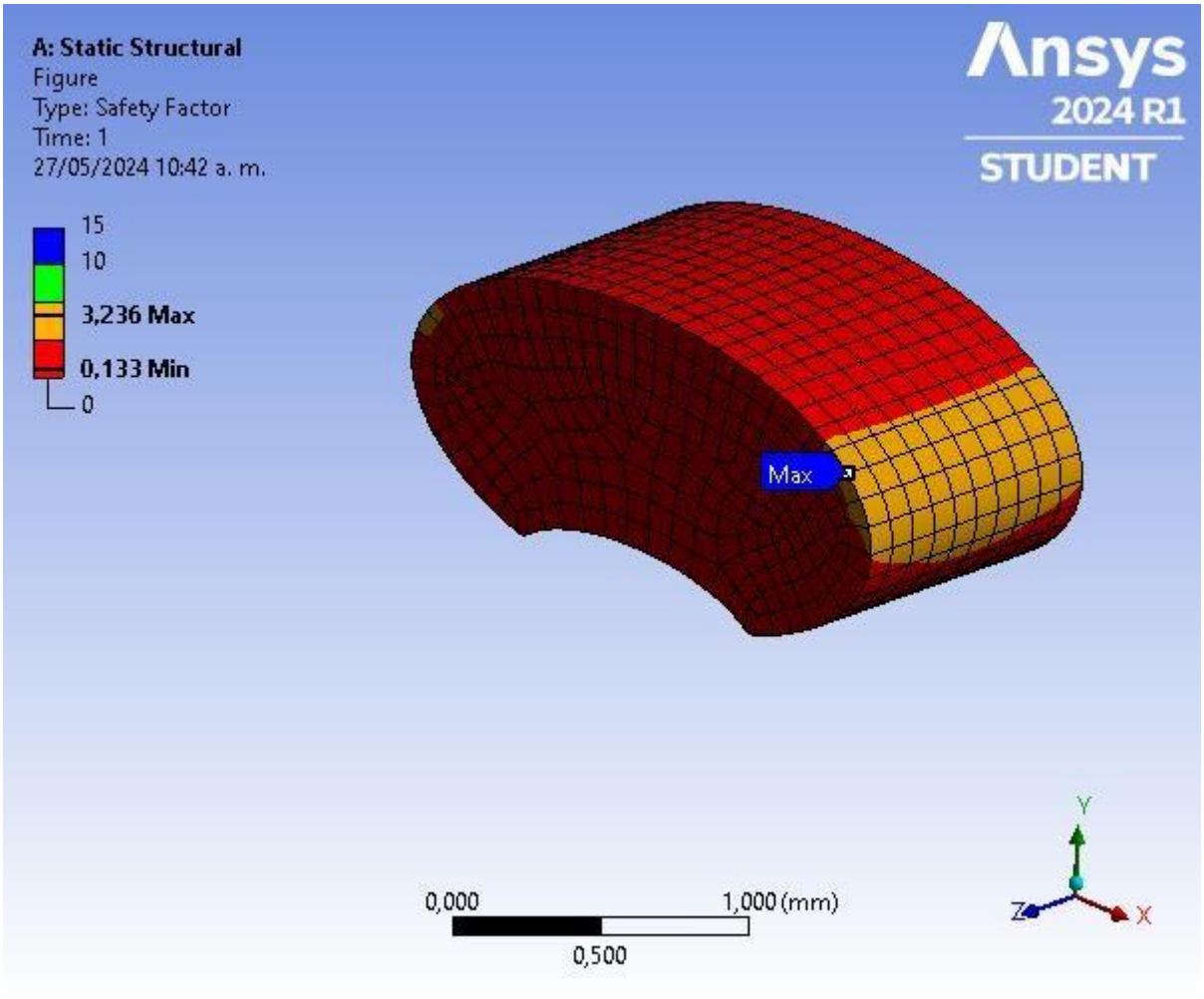


FIGURE 10
Model (A4) > Static Structural (A5) > Solution (A6) > Stress Tool > Safety Factor 2

TABLE 26
Model (A4) > Static Structural (A5) > Solution (A6) > Stress Tool > Safety Factor 2

Time [s]	Minimum	Maximum	Average
1,	0,133	3,236	0,35587

FIGURE 11
Model (A4) > Static Structural (A5) > Solution (A6) > Stress Tool > Safety Factor 2 > Figure



Material Data

Medula

TABLE 27
Medula > Constants

Density	1,05e-006 kg mm^-3

TABLE 28
Medula > Color

Red	Green	Blue
234,	171,	189,

TABLE 29
Medula > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
6,e-002	0,4	1,e-001	2,1429e-002	

TABLE 30
Medula > Tensile Yield Strength

Tensile Yield Strength MPa
1,8e-004

TABLE 31
Medula > Compressive Yield Strength

Compressive Yield Strength MPa
1,8e-004

Hueso

TABLE 32
Hueso > Constants

Density	1,85e-006 kg mm^-3

TABLE 33
Hueso > Color

Red	Green	Blue
234,	227,	215,

TABLE 34
Hueso > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
20350	0,3	16958	7826,9	

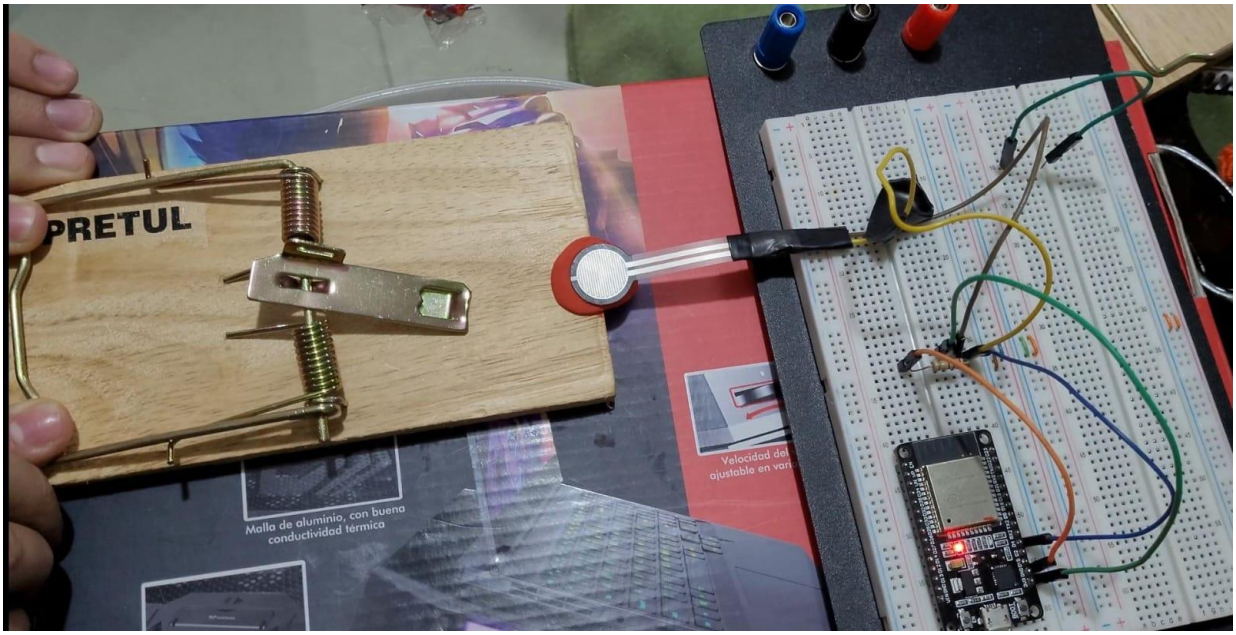
TABLE 35
Hueso > Tensile Yield Strength

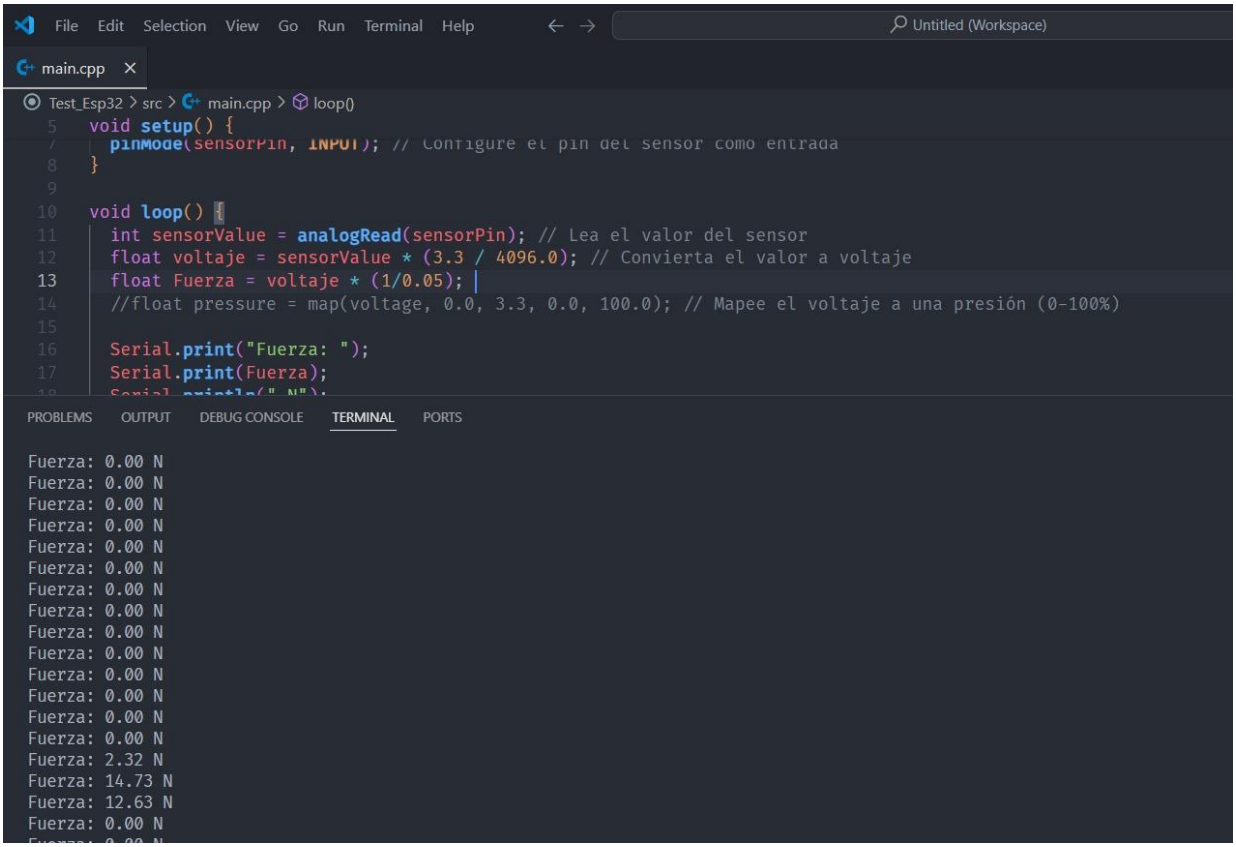
Tensile Yield Strength MPa
130,

TABLE 36
Hueso > Compressive Yield Strength

Compressive Yield Strength MPa
130,

A continuación, se muestra el código que se utilizo para el sensor y como este fue adecuado para medir la fuerza ejercida por la trampa.





Para finalizar se presentan los enlaces de los cuales se sacaron los datos del Hueso y de la carne para poder realizar el proyecto.

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