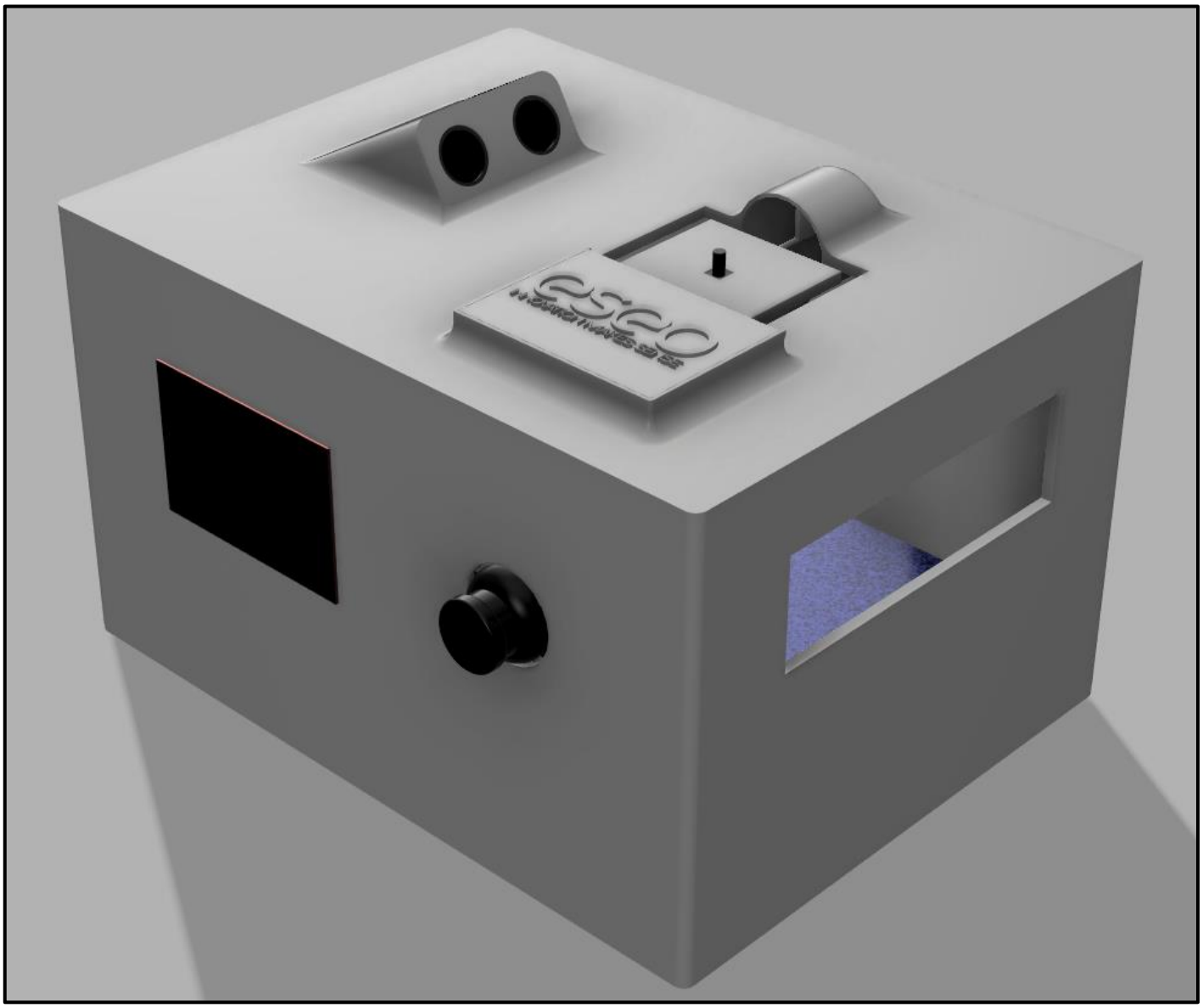
Victor BENOIT

CAD Process

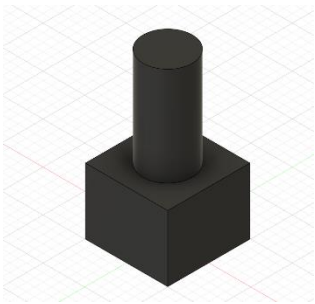
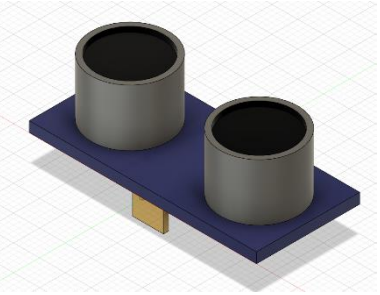
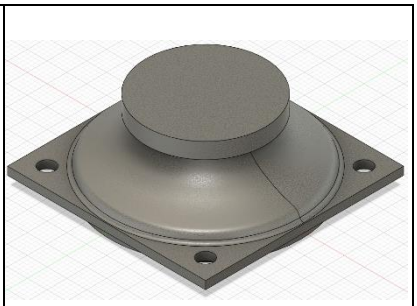
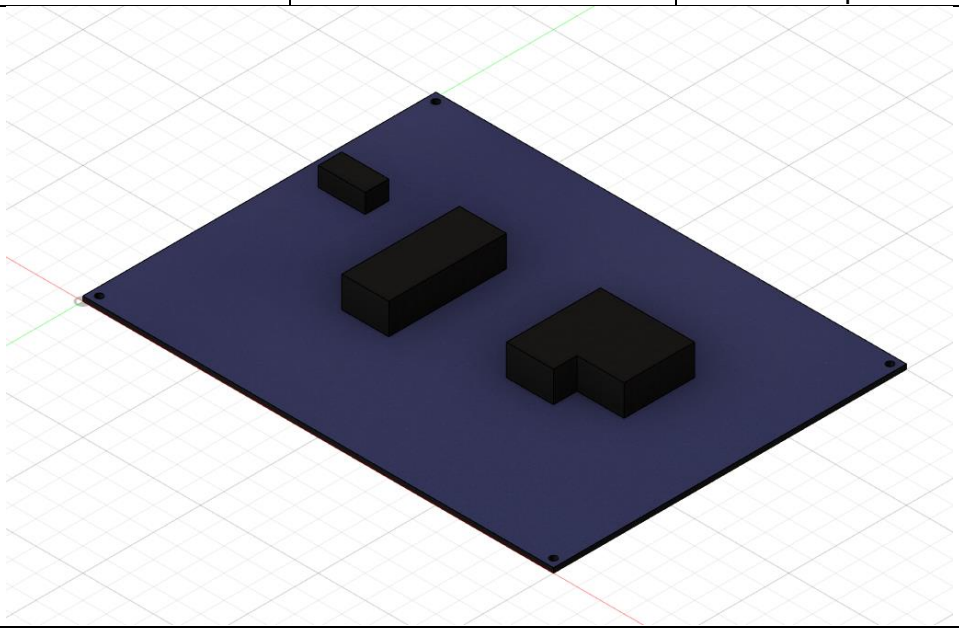
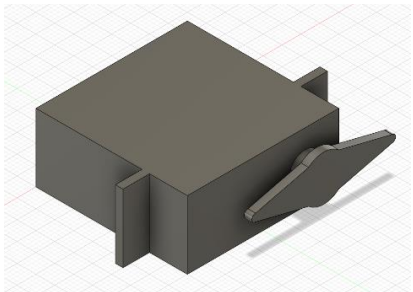
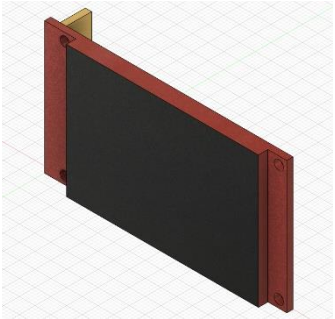
Embedded Systems Project



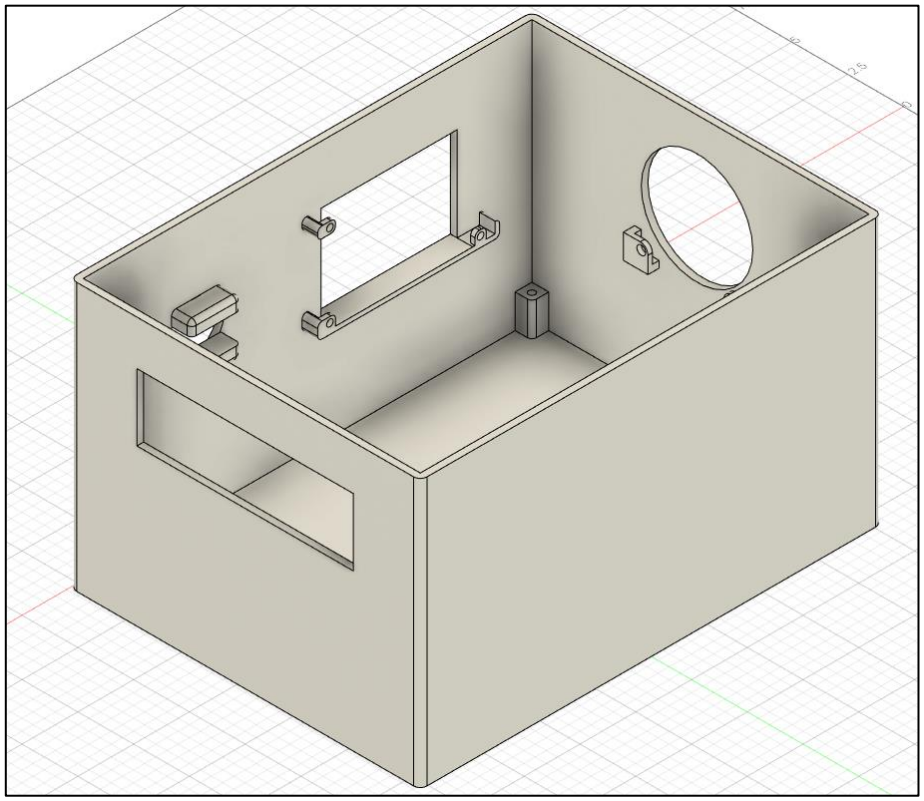
MISSION UNSPLEEPABLE

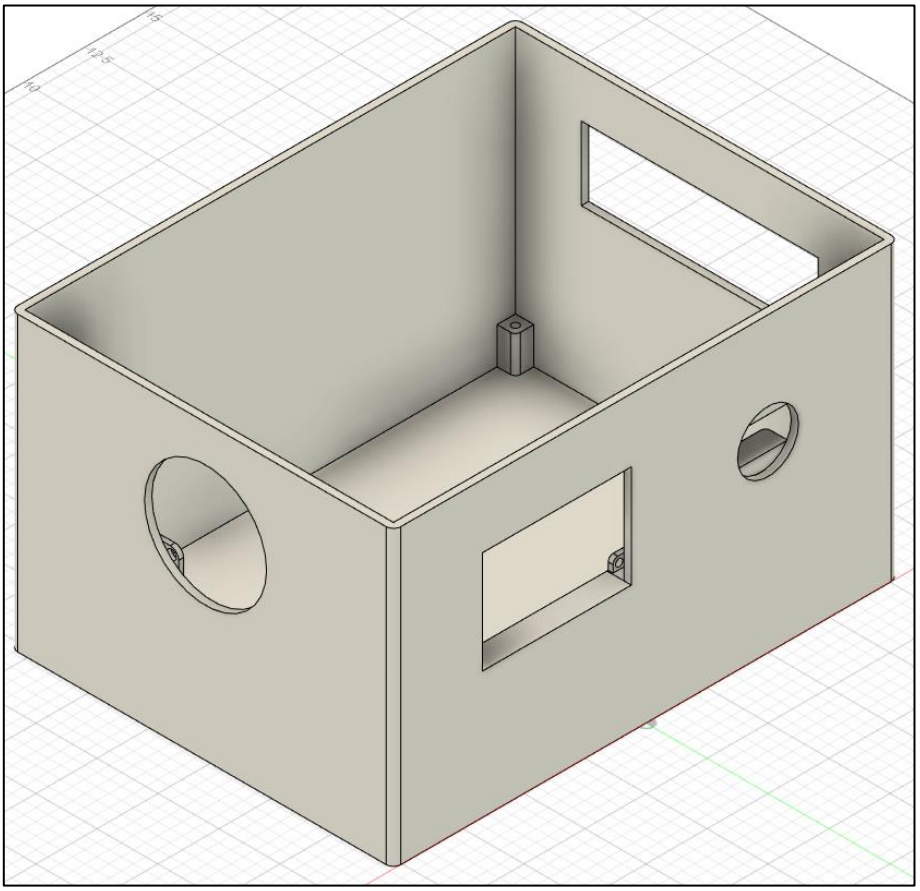
Steps of design development:

Step 1: Components have firstly been measured and modelized in Autodesk Fusion 360 in order to make sure constraints were respected:

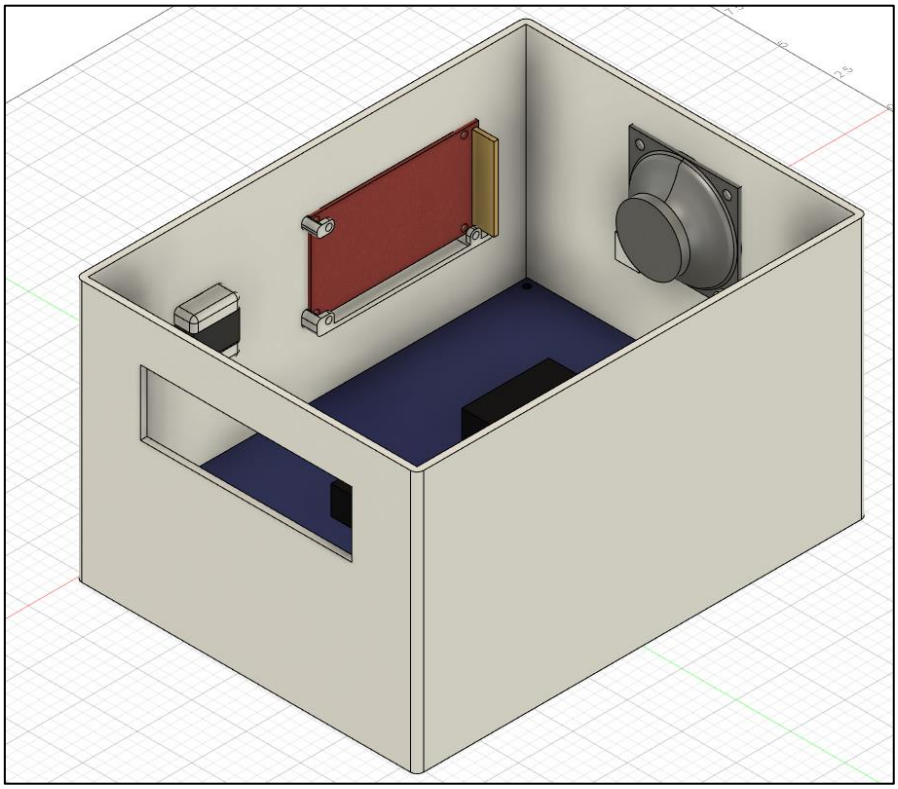
<table>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Button</td><td>Ultrasonic Sensor</td><td>Speaker</td></tr>
<tr><td colspan="3">  </td></tr>
<tr><td colspan="3">PCB Card</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Servo Motor</td><td>Joystick</td><td>LCD Screen</td></tr>
</table>

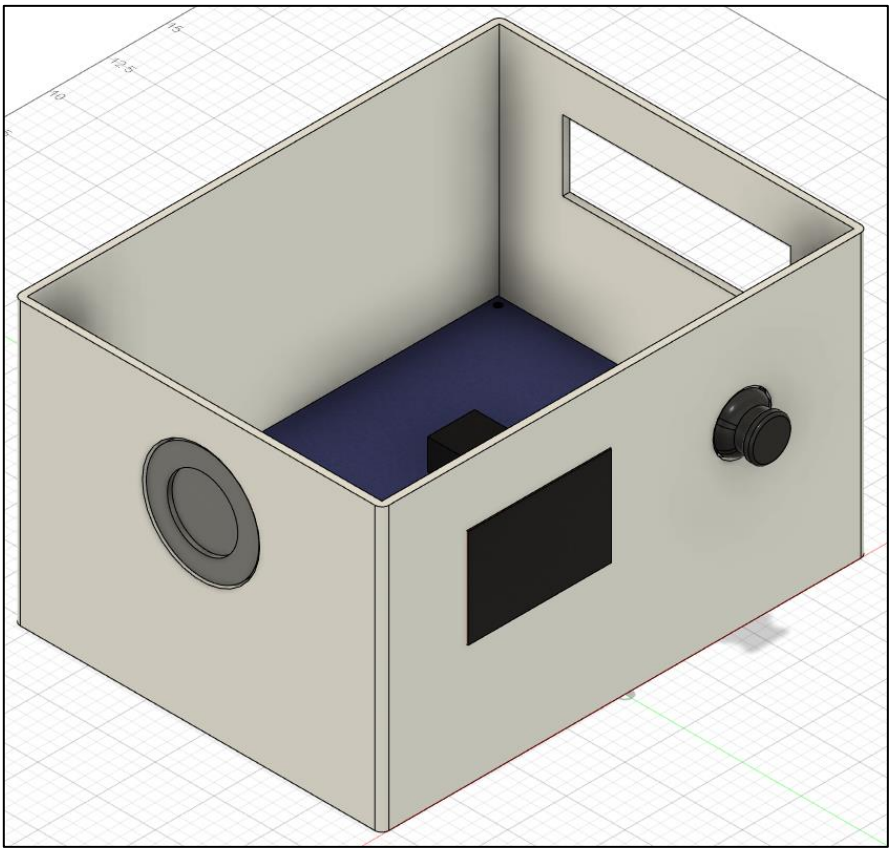
Step 2: The case has been realized with housings made to integrate the components.



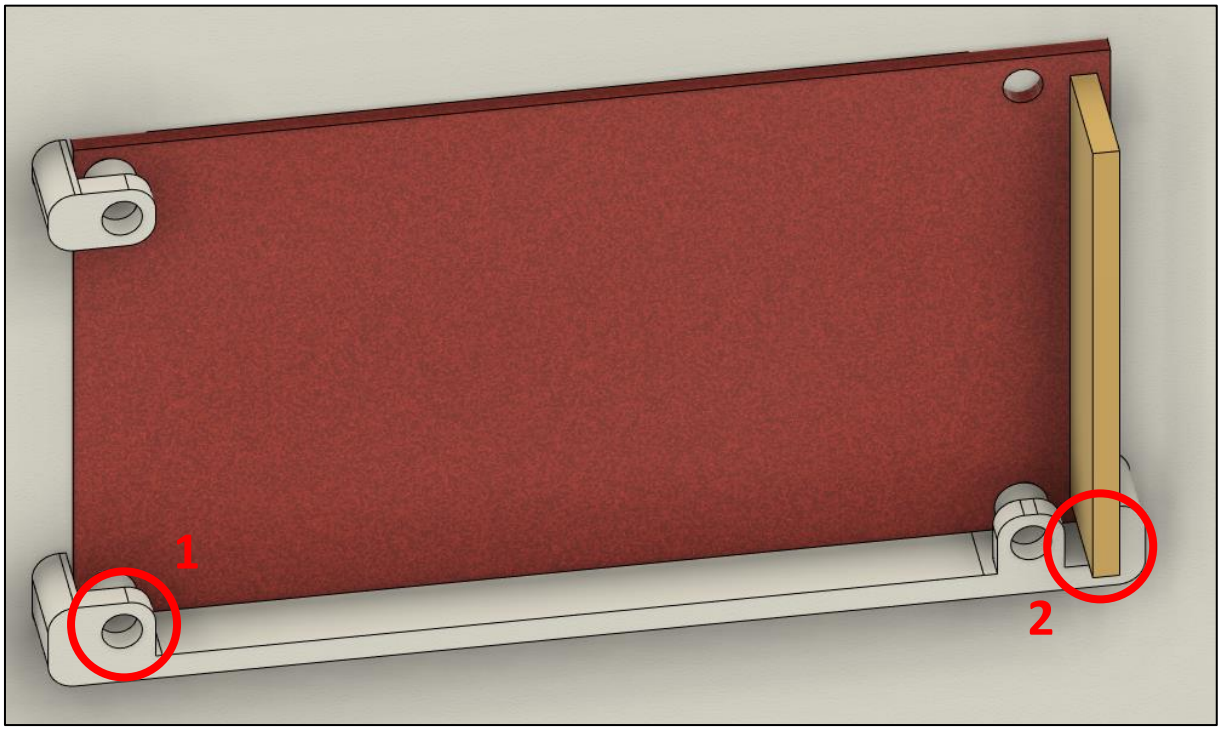


View with the components:





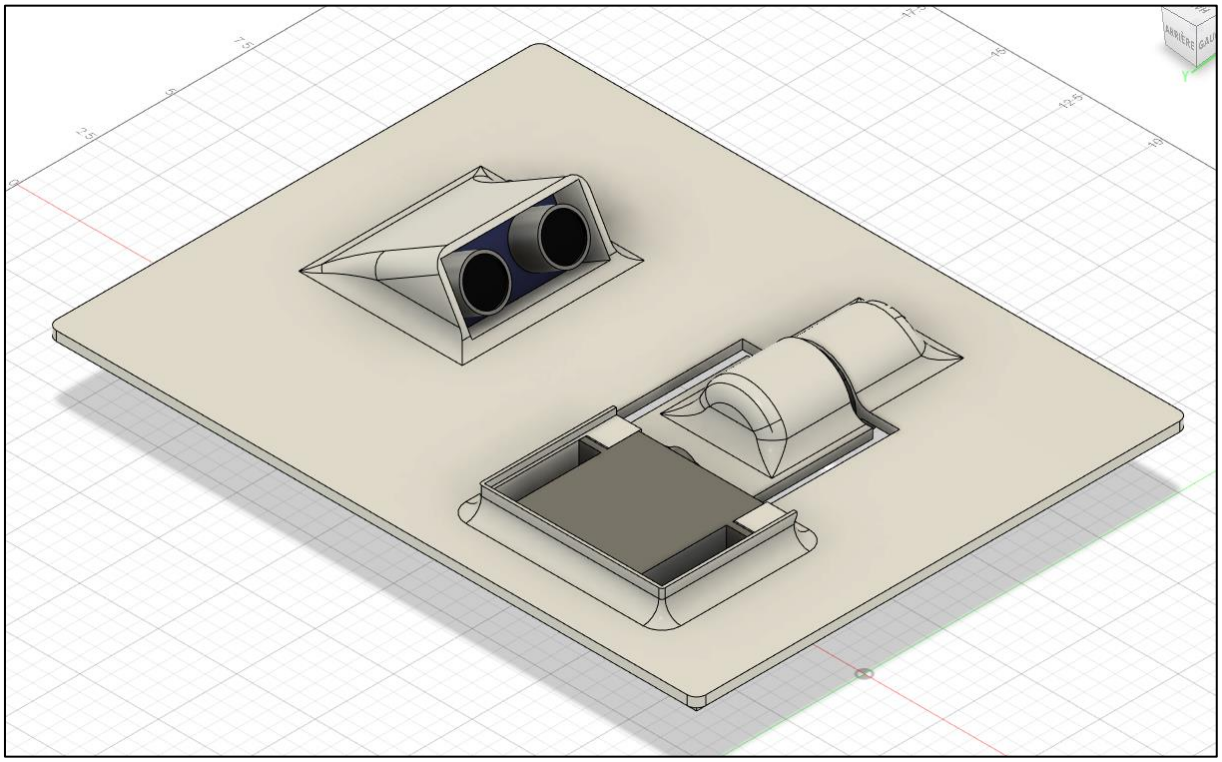
Example of a fixation system:



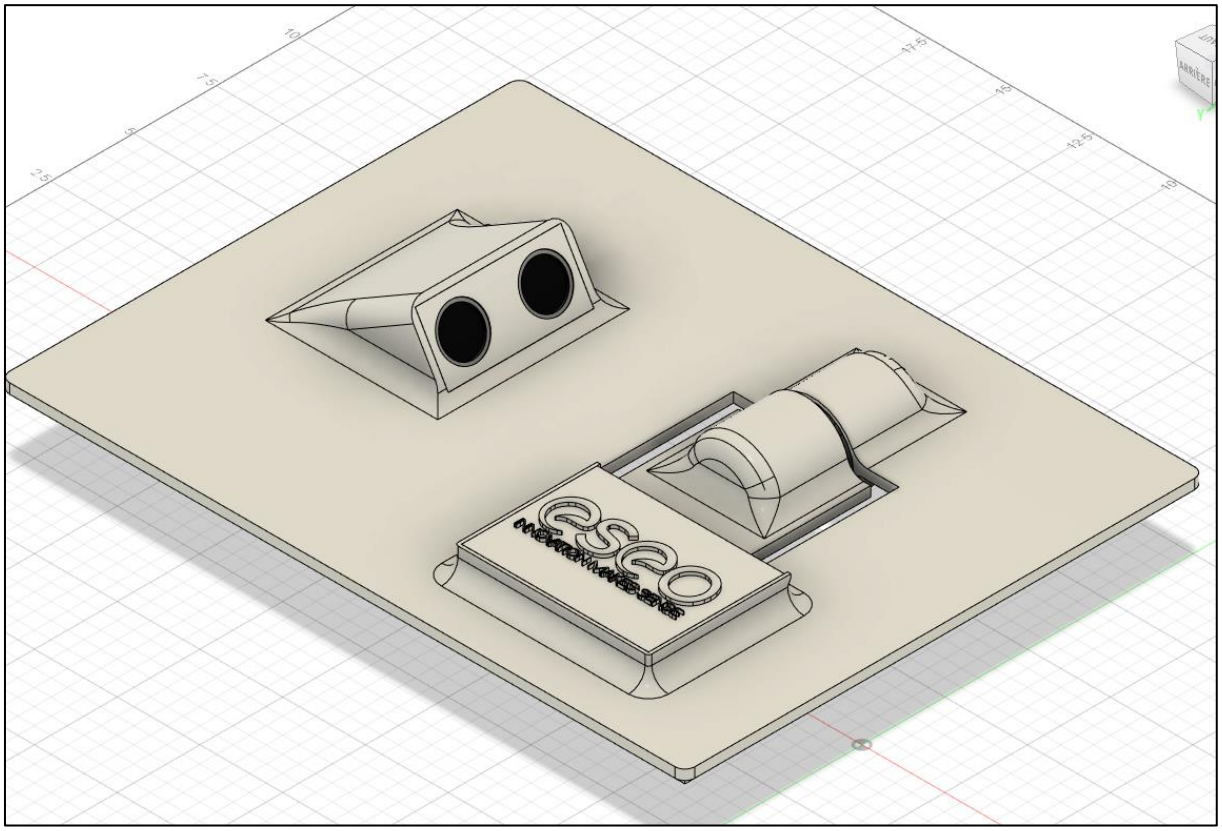
1) Space of 0.5mm made to slide the LCD Screen in from the top and then push it into the housing. The width of the screen is 0.3mm and the card 0.2mm. Once pushed in, bolts of 0.3mm can be placed to fix the component.

2) Space planned to have access to the pins of the LCD. Ledge designed to maintain the horizontal support of the card.

Step 3: Realization of the lid of the case which will contain a slot for the ultrasonic sensor and the mechanism with the hatch and servo motor.

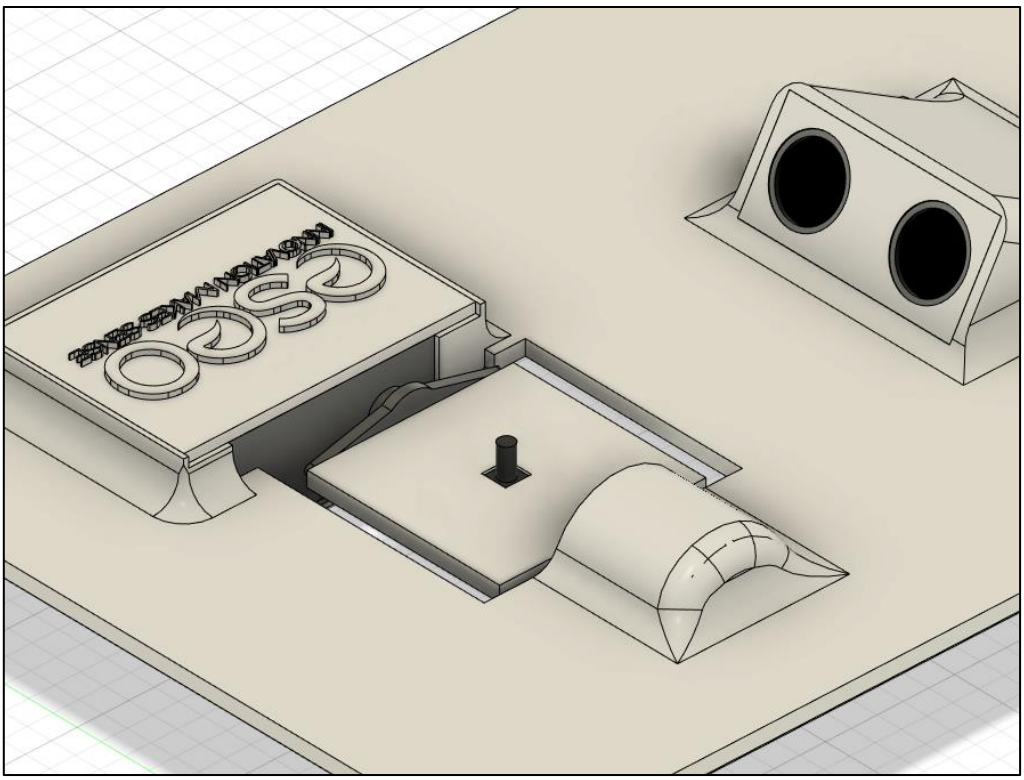


View with the protection plates of the components:

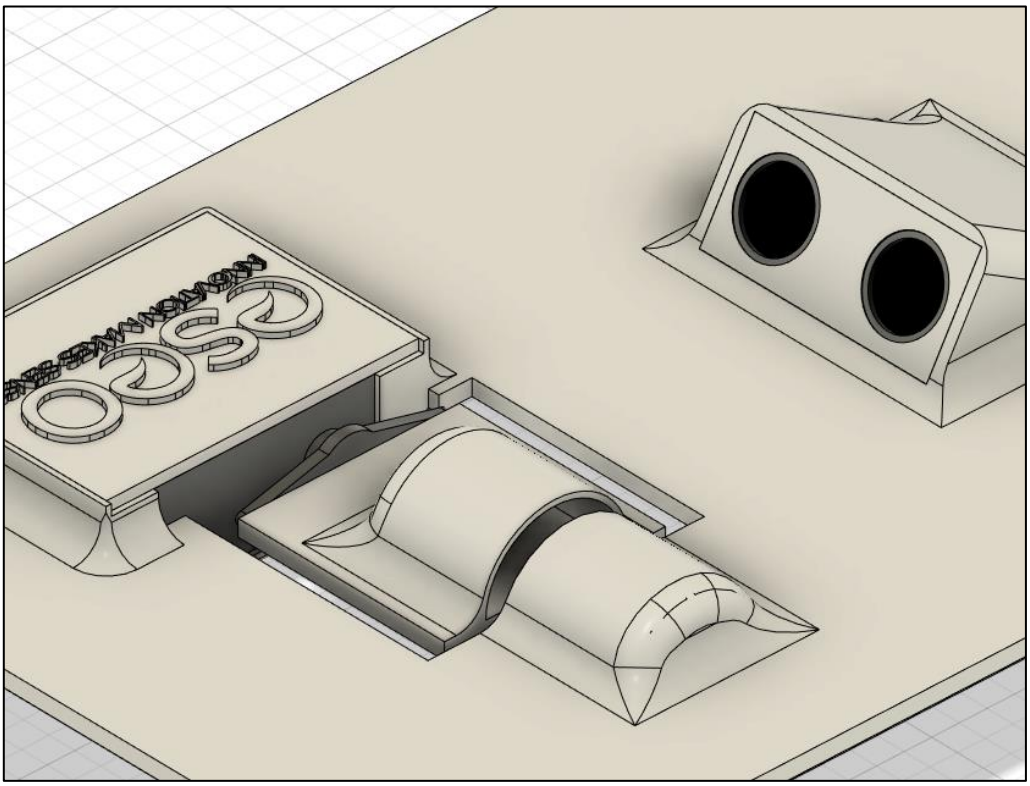


Functioning of the hatch:

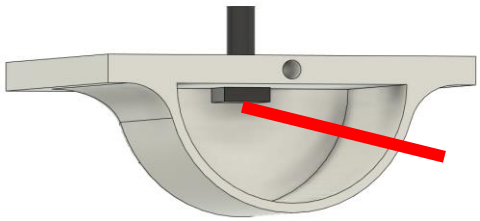
Case 1: The hand is not in the detection area; the hatch is on the button side.

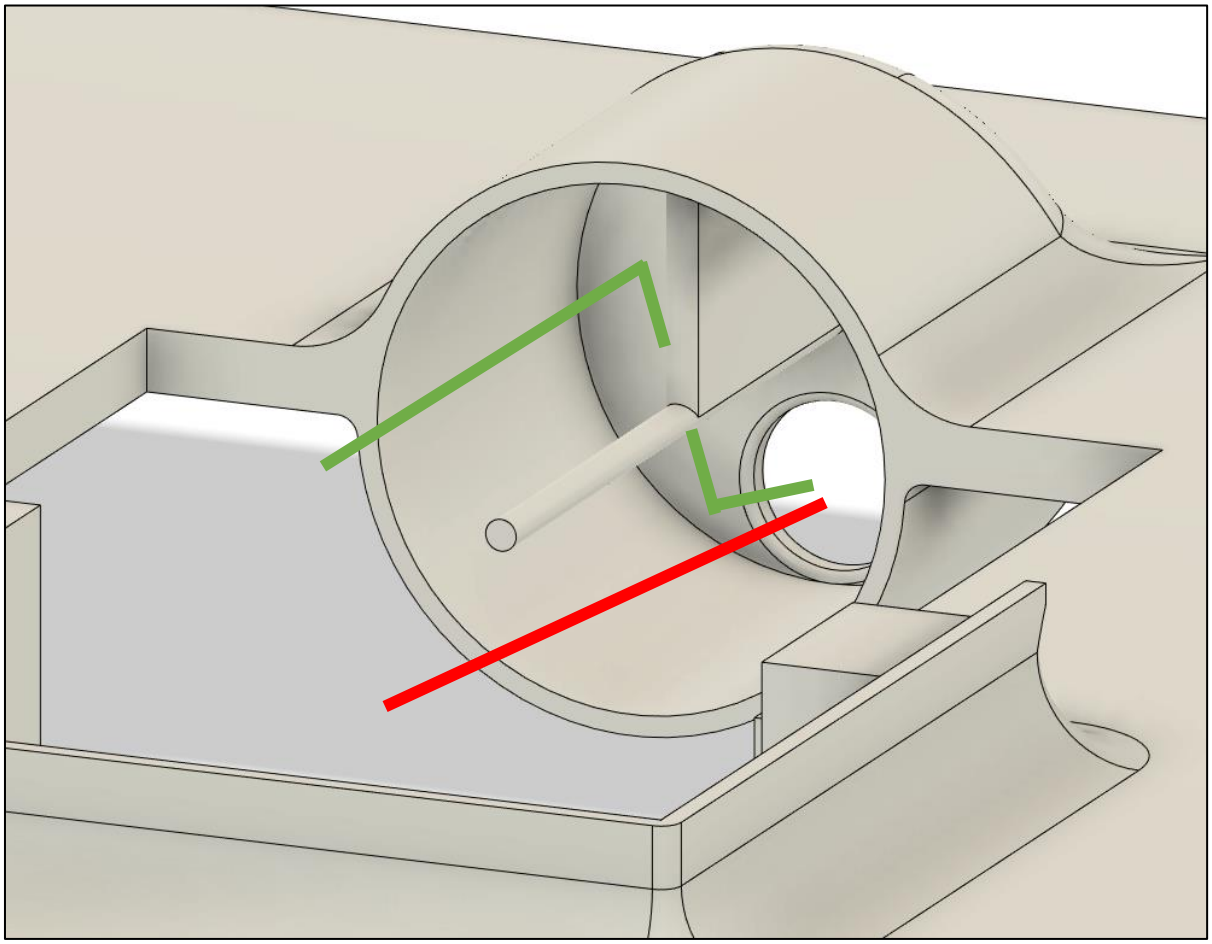


Case 2: The hand is in the detection area; the hatch performs a rotation of 180°.



Consideration: Cable management during the rotation of the hatch.

Case 1: Hatch on the button side	Case 2: Hatch turned over
	



Final version once the components assembled: