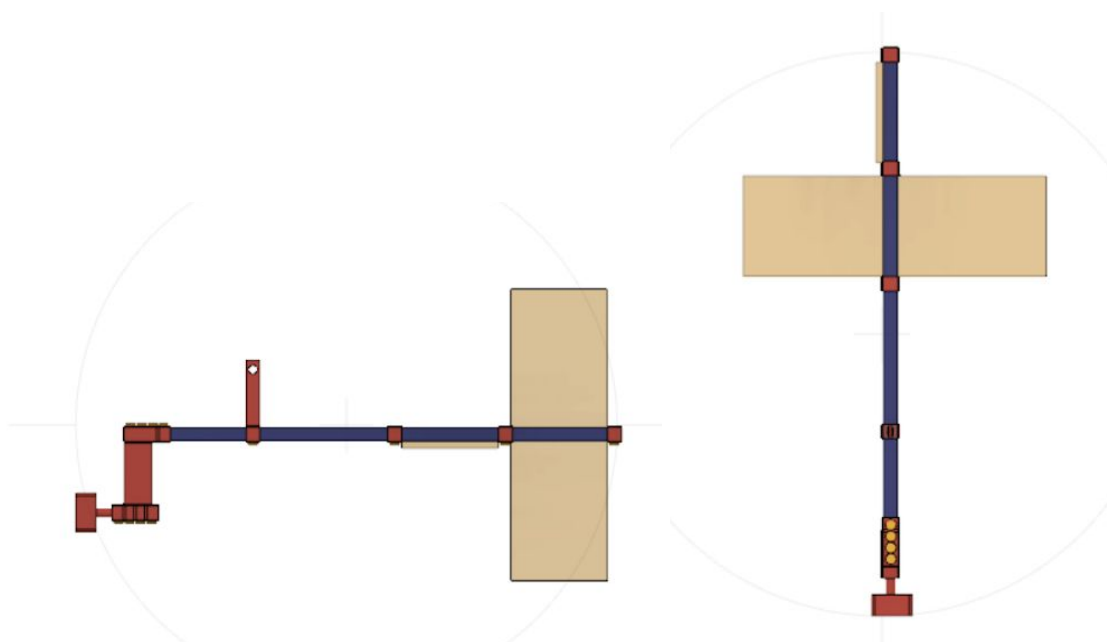
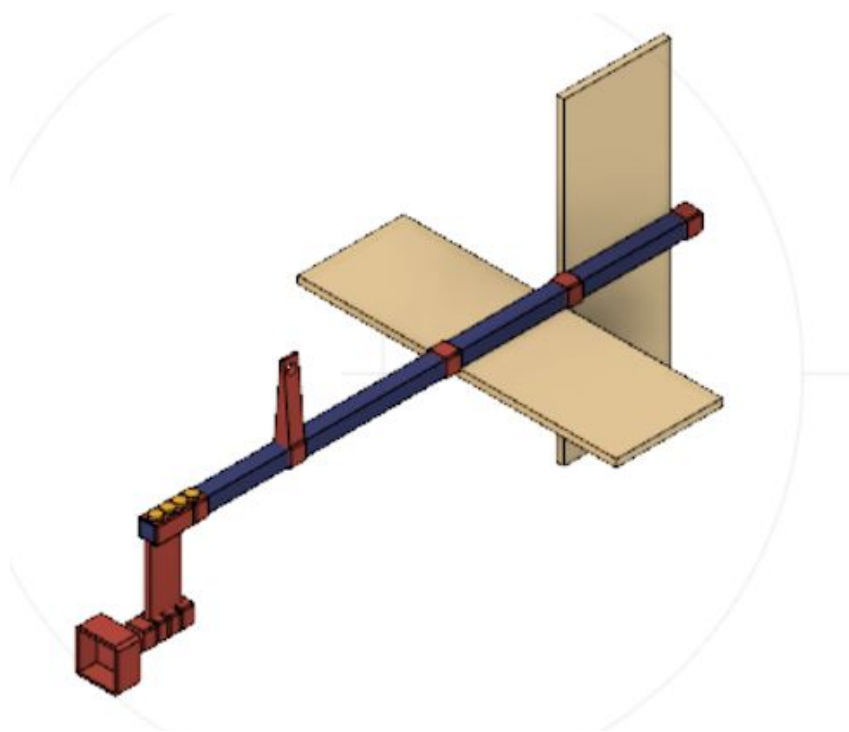


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Functional Design



For this project, I choose to use the International System of Units over the System of Imperial Units.

To do my functional design, I had to get my idea that I had described in the previous step of the project (CAD 2 - Cosmetic Design) and adequate to be more realistic and functional. To do so, I first had to set the right measures and shapes in my design.

I will state the measures of each piece of my project in the same order as I've planned that the kids would follow when themselves assemble the aeropod. As you can see in the Image on the previous page the dowel, the part that connects the two poles of the Aeropod, is 1.61 cm^2 by 45.72 cm long.

The next part of the design is the two localized in the back of the bowel. These two boards will be responsible for the aerodynamics of the aeropod, giving stability to it. The boards are 26.67 cm wide, with a height of 0.635 cm, and a length of 8.89 cm. One of the boards will be positioned parallel to the top face and 27.3 cm distant of the "beginning" of the bowel. The bowel will also be exactly in the middle of the board. This first board will be "fixed" to the board with the support of two other pieces, they are the red pieces in the design. The second board will be perpendicular to the first one, and "fixed" to either the right or left face of the bowel. This board will also have the support of the red pieces as you can see in the design.

The following piece it would be the Aeropod pylon, which is used to connect the aeropod with its leader that will be connected to the kite line. This piece will be 6 cm tall, with a hollow circle in the top. The radius of the circle is 1.2 cm. This piece will be "fixed" 8 cm distant from the "beginning" of the bowel with the support of a screw.

As you can see in the images, attached by two screws in the "beginning" of the bowel, it is the piece which acts as a support to the camera. This piece is 9 cm tall, and it has in the top a hollow rectangle prism, which will be filled by the bowel. In the bottom of this piece, there is another screw which helps in the connection with the camera mount.

Finally, the camera will be an action camera, with a length of 5.8 cm, a width of 2.92 cm, and a height of 4.025 cm.

Besides this changes in the measures, all of my intentions that I had mentioned in my cosmetic design are the same. I will propose to my team the QR code idea, that will integrate with an application to make the assembly more interactive and productive. This was the passage explaining the QR code idea in the cosmetic design:

"... I thought about putting a specific QR code to each piece, and then my team would develop an app which would allow the kids to scan the different pieces and to see where they belong and what are their importance in the aeropod, making the process of assembly much easier, more interactive, and it would also allow the kids to have a better understanding about what they are really doing. The app would also have the purpose of teaching the kids about field research, having information about such topic. If possible, my team would also

try to connect the app with the GoPro in the aeropod, making the process of collecting data more interactive for the students. If my team decide to design this app, we would also make an easy to use User Interface for the sake of the students.”

Weighting

Aesthetics	6
Interactive while assembly	9
Cost	8

The drawings in the next page are in millimeters not centimeters.

