FARMING MARS 2024
HOW TO BUILD THE PLAYING ELEMENTS

Below you will find a tutorial to build :

- The solar panels
- The 3D plants in case the official elements are not available for you.

The Planète Sciences association, or national committee, or the eurobot contest, will in no way be responsible for manufacturing defects or any other problem linked to the manufacturing process.

Building of the solar panels

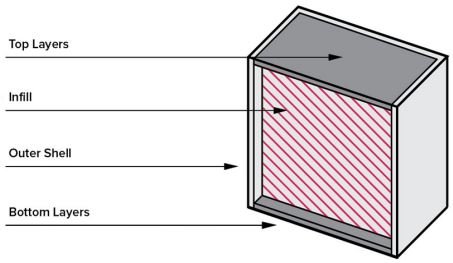
Necessary materials

- A 3D printer with PLA filament (of any color)
- A M6x50mm CHC screw
- A M6 Nylstop nut
- A 18x1.6mm washer
- The vinyl for a solar panel

Printing of the solar panel and its support

From the .stl files that you can download on the competition website[1], you need to print:

- Panneau_Solaire.stl
- Support_Panneau_Solaire.stl



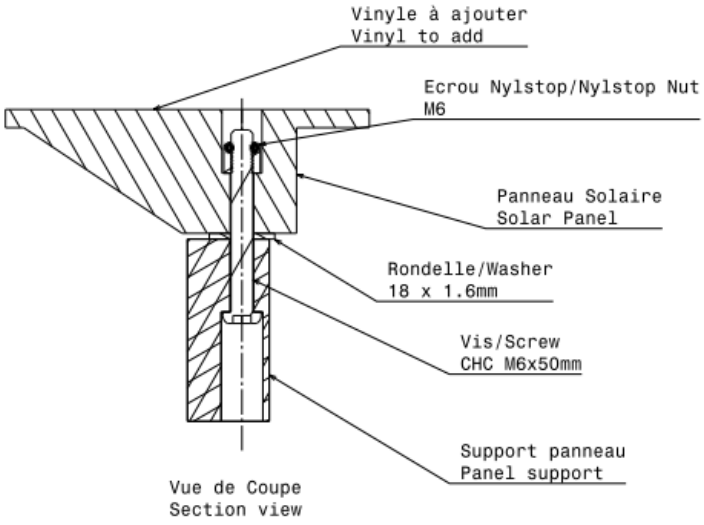
The recommended 3D printing settings are:

- Infill density: 40%
- Infill pattern: cubique
- Printing nozzle: 0.4 mm
- Layer thickness: 0.2 mm
- Wall thickness (*outer shell*): 0.8 mm (i.e. 2 passes)
- Thickness of the top layers: 0.8 mm (i.e. 4 passes)
- Thickness of the bottom layers: 0.8 mm (i.e. 4 passes)

Assembly

1. Place the Nylstop nut in the panel
2. Screw the M6 screw through the support
3. Place washer between support and panel
4. Screw the screw into the nut
5. Be sure to leave enough clearance for the solar panel to rotate effortlessly
6. Put the vinyl on the solar panel in the correct direction
7. Remove any vinyl bits from the solar panel

[1] https://www.eurobot.org/eurobot-contest/eurobot-2024/



Compliance check

Once your assembly has been completed, it is necessary to check whether they are compliant to be game elements. The game element must:

- Have a height between [85, 87] mm

Building of the plants

NOTE : These versions of the game elements were designed to be as close as possible to commercial game elements. However, differences may be present. Organizations committees will try their best to use the commercial version of the game elements.

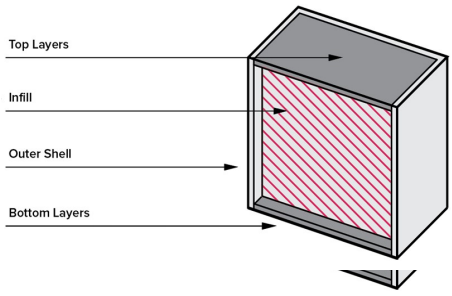
Necessary materials

- A 3D printer with white and black PLA filament
- Branches or foliage of artificial plants (plastic or textile)
- A little bit of glue

Printing of the plants and soil

From the .stl files that you can download on the competition website[2], you need to print:

- Pot_Plante.stl with white PLA filament
- Terre_Plante.stl with black PLA filament



The recommended 3D printing settings are:

- Infill density: 20%
- Infill pattern: cubique
- Printing nozzle: 0.4 mm
- Layer thickness: 0.2 mm
- Wall thickness (*outer shell*): 0.8 mm (i.e. 2 passes)
- Thickness of the top layers: 0.8 mm (i.e. 4 passes)
- Thickness of the bottom layers: 0.8 mm (i.e. 4 passes)

[2] https://www.eurobot.org/eurobot-contest/eurobot-2024/

Assembly

By using a piece of branch or foliage made from an artificial plant as the plant part, you can assemble the pots, soil and plant. If the elements do not hold together even after assembly, you can use a little glue (cyanoacrylate) to fix them.

Compliance check

Once your assembly has been completed, it is necessary to check whether they are compliant to be game elements. The game element must:

- Have a height between [105, 120] mm
- Have a diameter, in vertical projection, of between [70, 85] mm