

Transport of the main prototype

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1 EPFL Carbon Team

We are a MAKE Project, building a prototype able to perform direct air capture (DAC). Our main prototype, Astérix, can be seen like a big air vent. Air flows from one side to another thanks to a fan in the entrance, and will pass through structures containing adsorbents. This is where the capture process happens, those adsorbents are small chemical structures on which the CO_2 sticks when passing through. Using temperature swings, the machine captures CO_2 at ambient temperatures and releases it in a highly concentrated form when heated, making it ready for storage

You will join a dynamic team of 60 members coming from various sections. Joining a MAKE Project means you will be surrounded by students available to help you, and give you advice if needed. On top of that, working in the SPOT gives you access to every tool or machinery you might find useful, and highly competent coaches here to help as well.

Every semester, we have mechanical engineering students joining us for semesters project. We always received good feedback, and some of them chose to remain involved with the team afterward.

Do not hesitate to check [our website](#), and if you have any questions or are interested in joining the project, you can contact us at presidentcarbonteam@epfl.ch

2 Description of the project

2.1 Context

Our prototype is pretty massive, the fact that it is about 3 meter long and weighting around 400kg makes it challenging to move. Like all other MAKE projects, we often have events on campus where we like to showcase Astérix (Figure 1). Currently it has small wheels, which allow movement, but with difficulty and terrible maneuverability. Besides, we are concerned that vibrations caused by uneven surfaces during transport could damage the electronics.



Figure 1: Picture of our prototype brought (not without struggle) to the esplanade

2.2 Your task

We are looking for a practical transport solution for medium distances, the longest would probably be from the BCH to the STCC. This structure must be compact, we do not have a big storage and the prototype already occupies substantial space. The structure must provide good maneuverability and smooth transport, damping the oscillations on unequal ground.

From here, we are open to various ideas of design. This could be components permanently implemented on the prototype, in which case it is important that it does not significantly increase its volume. Alternatively, it could be a separate structure that we can easily be attached to (and detached from) the prototype.

We are looking forward to hear about your design proposals !

2.3 Number of people required

For this project we expect 3 to 4 students. If there are too few members, we might drop the building part and focus the project only on the CAD design of the structure.