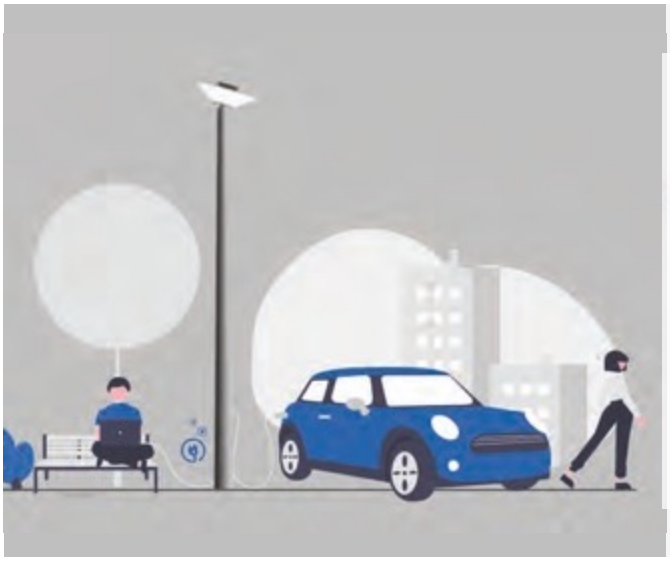
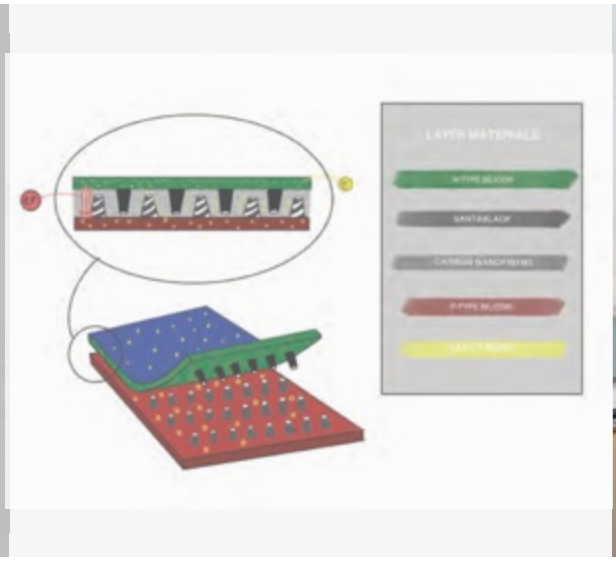
3D SOLAR STREETLIGHT

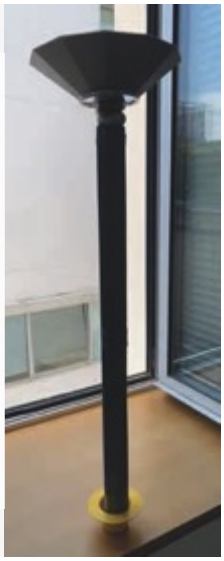
Energy harvesting street lamp

A street lamp powered by a 3D solar panel, mad highly efficient thanks to the increased surface, because of its shape, mirrors and nano fibres material.

3D Solar Streetlight includes a rotational system activated by photo sensors (LDR sensors) that allows the panel to be oriented towards the sun as long as possible during the day time. Instead of conventional materials, this concept uses a combination of Vanta Black and Grupo Antolin carbon nano-fibres, that respectively captures all the light of the environment and convert that light in energy efficiently. The improvement of performances allows not only to power the street lights, but also to capture the surplus of the energy that can be used to charge electric vehicles and provide electricity to the buildings.







Areas of materials involved.

Feasibility of the idea.

CONCEPTUAL — READY-TO-MARKET

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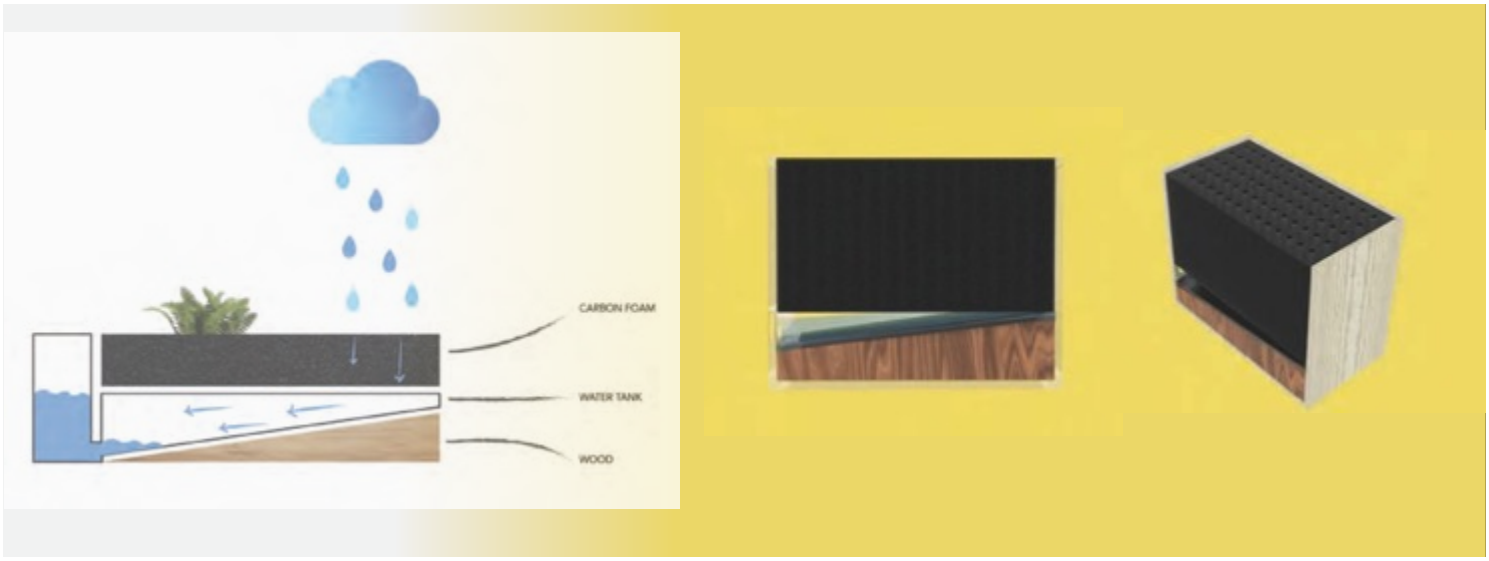
MENINA

Filtrating and gardening kit

A planter for rooftops, collecting rain water. A layer of carbon foam composite act as bed for plants and as filter for water, to be collected in the tank underneath.

Menina's purpose is to collect drinking water. A pyrolyzed carbon foam with a small porosity allows for good quality drinking water. A carbonized elastic foam with high porosity creates space for the roots of plants to expand freely. There is no need to use soil, because the foam is dipped in the water. In addition, this layer is lightweight and works as insulation. Information about the expiration of the filter gets collected through carbon conductivity and micro-controller and appears on a display. When the filter is expired it needs to be replaced. The whole kit is designed with sustainable approach.



Areas of materials involved.

Feasibility of the idea.

CONCEPTUAL — READY-TO-MARKET

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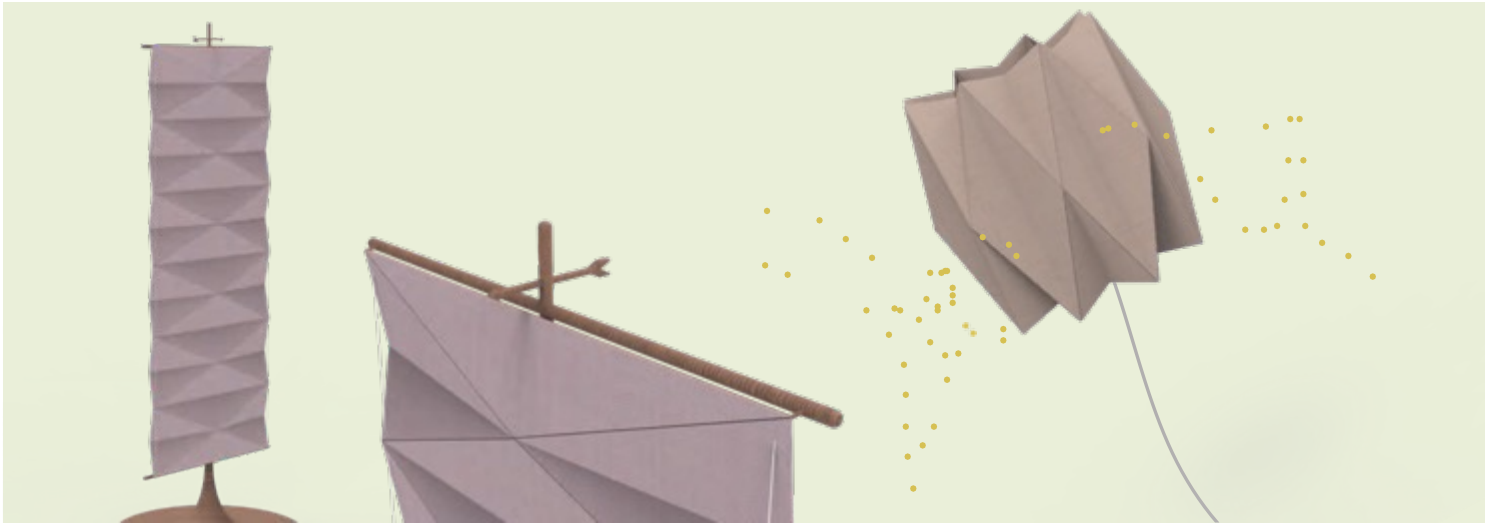
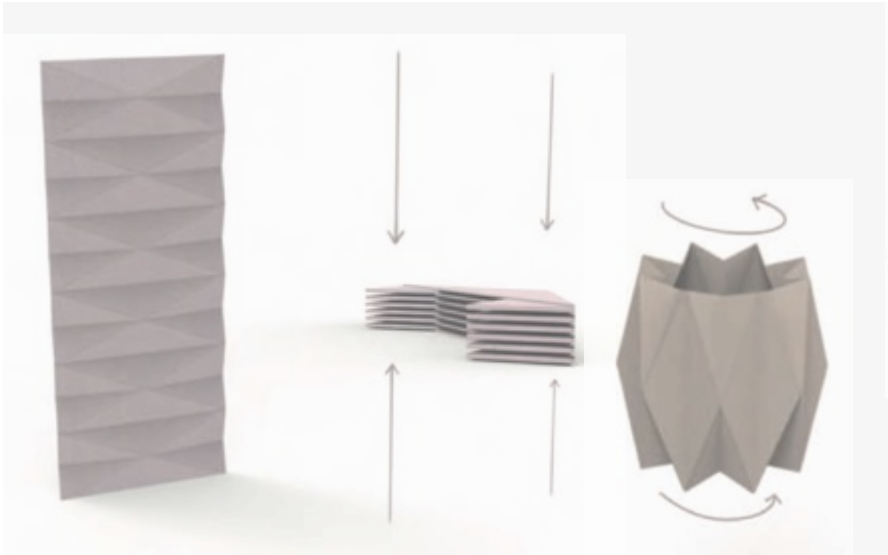
WIND FLOWER

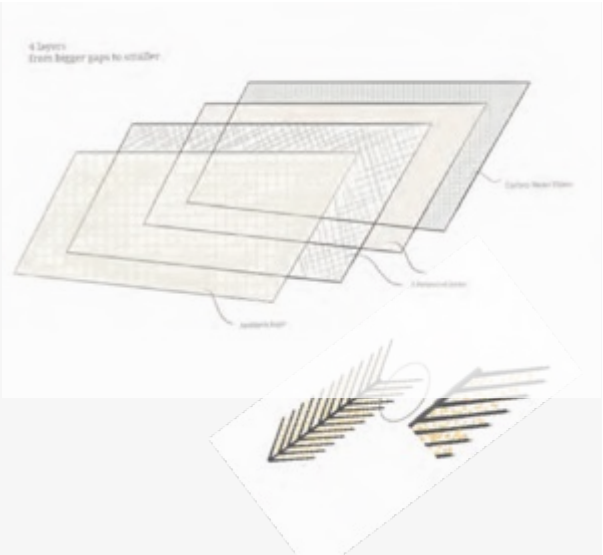
Aerial pollen collector



An origami shaped cloth panel, made of carbon nano-fibres-infused textile, collect pollen from air, store it and re-spread it.

The loss of bee population requires to design for the future of our planet. Wind Flower is a 'home use' product for private use, but with a collective output. When placed in open spaces, such as gardens, balconies, it collects flying pollen particles, that can be spread later. It embeds a playful shape: the sail origami structure for pollen collection that, when folded, becomes a kite sprinkling pollen from above.
The panel is composed by a textile with carbon nano-fibres, that works as a filter and it captures airborne pollen thanks to its structure.





Areas of materials involved.

Feasibility of the idea.

CONCEPTUAL — READY-TO-MARKET

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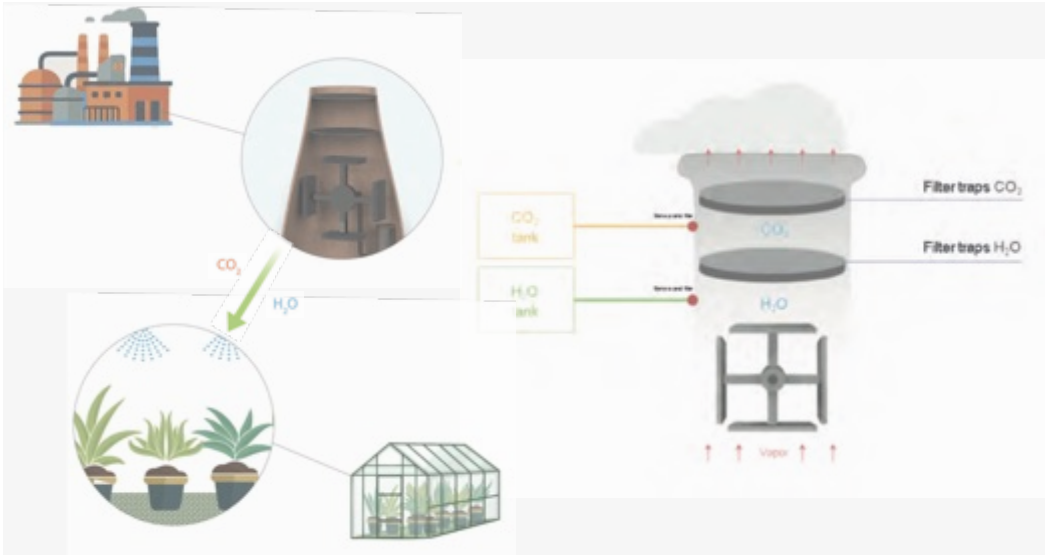
POLLUTION VACUUM

CO_2 and H_2O harvesting system for factories

Combination of an automatic system combined with filters infused with carbon nanofibres that captures CO_2 and creates H_2O to feed plants in greenhouses.

The vacuum helps to reduce CO_2 air pollution, while assisting plants growth, concurring further to the air quality improvement. Designed to be placed in industrial chimneys, in collaboration with agricultural industry, the principle of the concept is based on the chemical reaction $LiOH + CO_2 \rightarrow H_2O + Li_2CO_3$ Carbon nano-fibres are used as filters and sensors, to capture the CO_2, measure the moisture level in the filtration panels, allow the reaction to produce water and then be heated to dry the filters. It would be a service provided by factories to generate more profit by selling their pollution.



Areas of materials involved.

Feasibility of the idea.

CONCEPTUAL — READY-TO-MARKET

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NANOHOUSE

Synergistic greenhouse structure

Interaction between CNF and the elements in a greenhouse. A temperature-controlled and water-collecting system increasing crop quality and opens up new possibilities for plants in new places.

Superior thermal conductivity and carbon nano-fibres (CNF) surface treatment allow for temperature-controlled and water-collecting closed system. Taking advantage of geothermal energy, super-conductive CNF rods efficiently transmit constant deep ground temperature (~15°C) up to root level. Further temperature regulation (up to 22°C) is achieved thanks to a light-polarizing CNF mechanism actuated by shape memory alloys, accumulating heat inside the greenhouse. Special surface coating in the aluminium tubes enables water condensation that is redirected towards the plant roots, reducing water consumption.

Areas of materials involved.

Feasibility of the idea.

CONCEPTUAL **READY-TO-MARKET**

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