

Plantus

Hydroponic plant growing and fish-developing device

Thesis project at Budapest University of Technology and Economics (BUTE)

The goal of my thesis was to design an eco-kitchen product and its surrounding that calls the attention to eco-conscious way of living and consuming, and gives high priority to up to date technical possibilities.

Plantus project is the result of the co-operation of BUTE and Kitchen Budapest with the help of András Szalai, dr. Manuéla Lukács, Márton András Juhász, Melinda Sipos, Péter Grob and Zoltán Csík-Kovács.

Tutor: Dr Katalin Máthé
(Department of Machine and Product Design, BUTE)

Judit Zita Boros
2009 @ Kitchen Budapest & BUTE



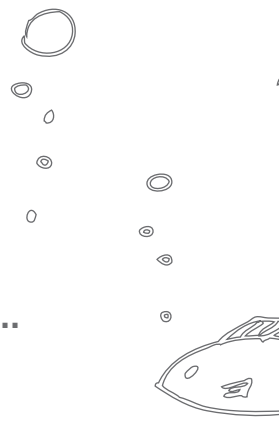
Plantus

A hydroponic plant-growing and fish-developing kitchen device, that completes today's kitchen to make it a real eco-tech part of a 21st century's household.

Plantus is a self-supporting system for growing plants, herbs and vegetables using nutrient solutions without soil, caters fish (also edible) and disposes a separated sprouting unit. Plantus is interactive and customizable, according to consumer's need.



fish...



parsley

chive

thyme

herbs

mint

basil



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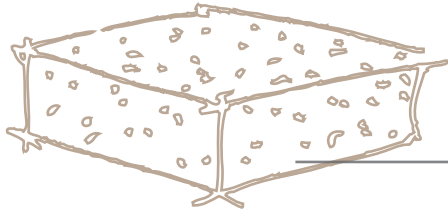
Plants and fish

They furnish oxygen and also a refreshing ambient.

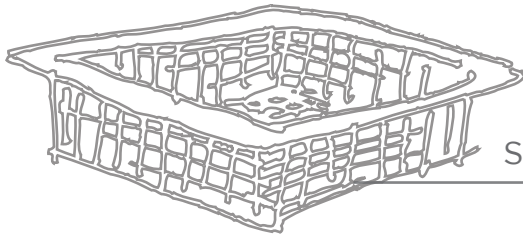
The functioning is based on hydroponics; a nutrient water circulating system provides the water supply of the plants, the daily washing of the sprouts and the feeding of the fish. The plant-, sprout- and fish-support constitutes a complete system, where the leftover is rebuild and reused.



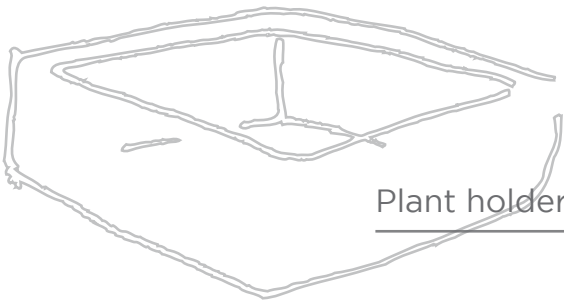
Sprouting unit



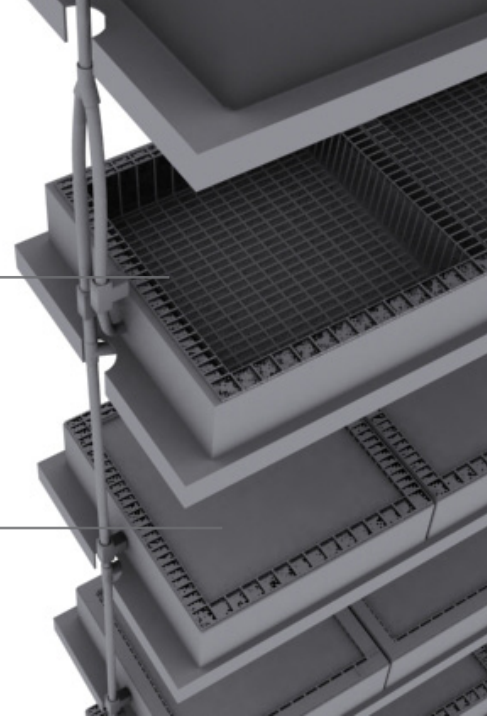
Coconut fiber



Strainer



Plant holder



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Structure

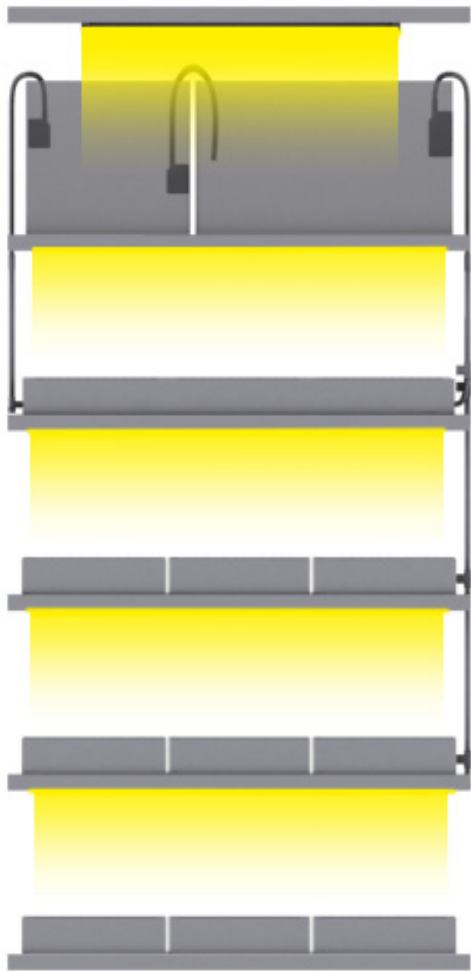
The modular units can be configured by personal preferences, in an open, expandable and self-supported system.

Herbs and spices: coconut fiber block, strainer, holder

Sprouts: sprouting plates, strainers

Fish: partitioned aquarium; water buffer and fish part, pumps, filters

Frame: water-system, lighting system, accumulators, microprocessors

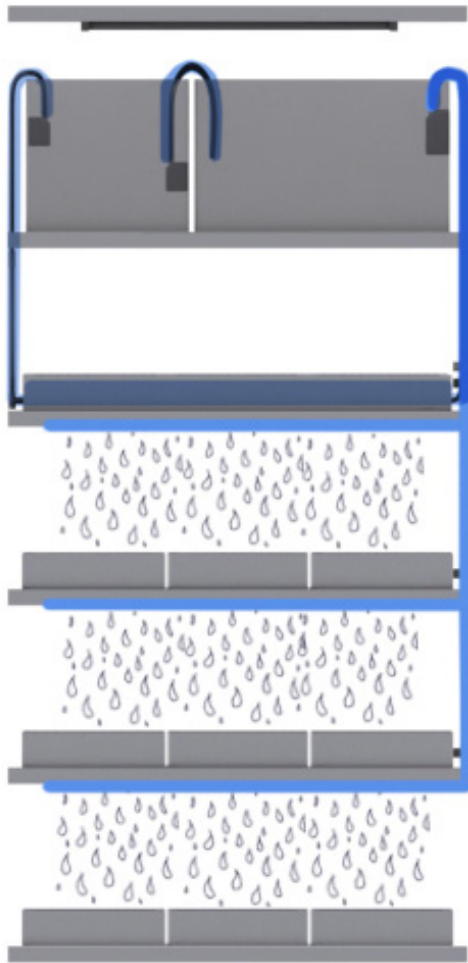


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Lighting-system

With the help of built-in sensors, the plants can decide on the amount of light required. The nutrition and water supply functions the same way too.

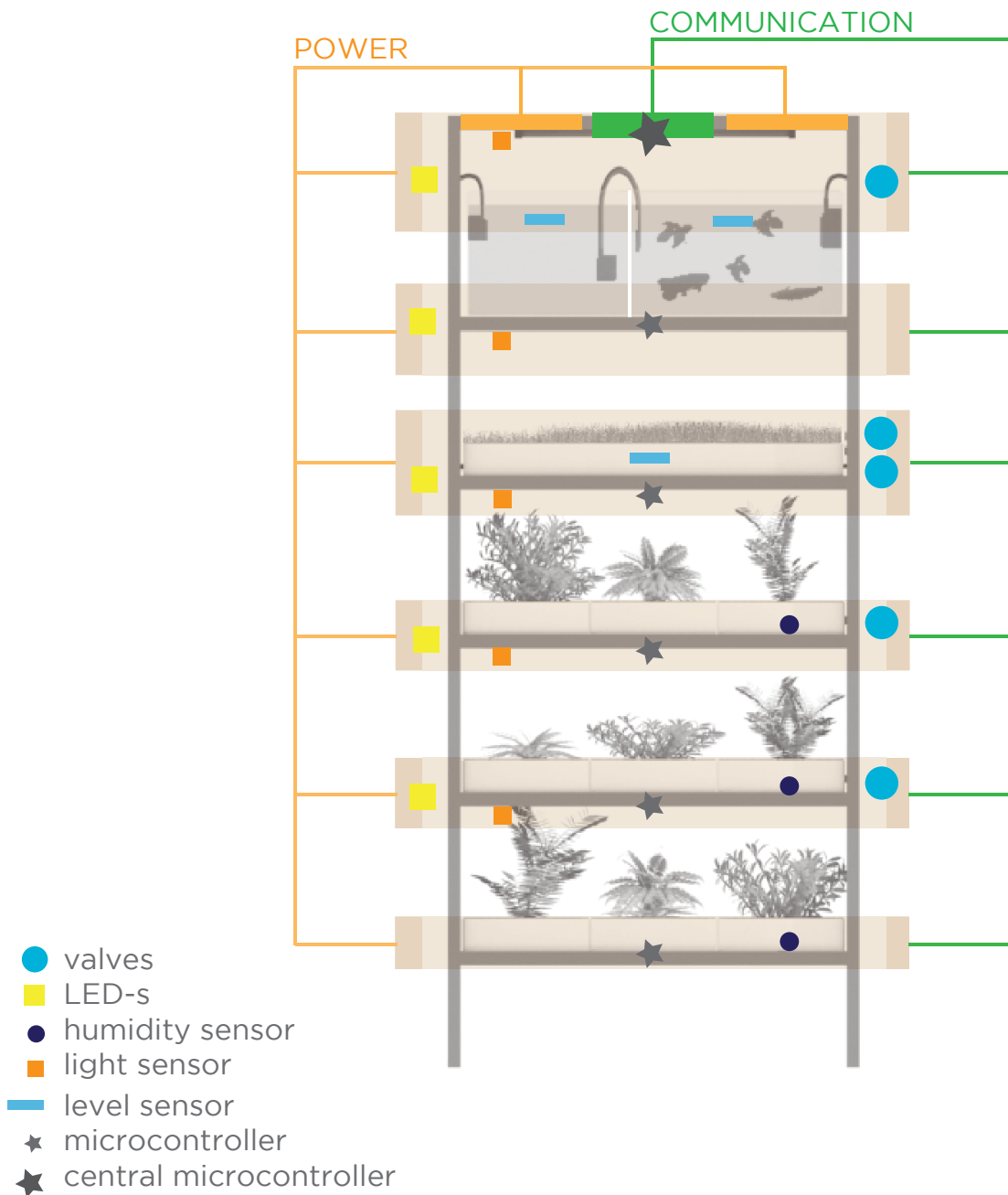
LED tubes provide the necessary lighting for the fish, and LED rows for the plants (situated under the roof of each shelf).



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Water-system

The aquarium of the fish serves as a water-tank too, divided in two, for hygienic reasons, to water buffer and fish keeper part. From the aquarium the water flows to the irrigation system, divides into to circles; the sprout-washer and the plant-watering part. The sprouting plate is washed through according to the programmed settings and than the water goes back to the fish tank, to the buffer part and than is reused again. The plants are watered from above, through the leakage of the tubes.



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Energy support and communication between the units

Two accumulators are responsible for the energy support of Plantus, one is always set aside, so that the system would not stop working even when the other is being recharged.

The communication system is operated by a central microcontroller. Based on the signals of the light-, humidity- and water level sensors, the microcontroller runs the light and water supply by managing the valves and LED-s of each shelf.



Plantus 24/7

Plantus offers a 24 hour surveillance and full support for the inhabiting plants and fish, so they prosper and develop in the perfect conditions, always showing you their best shape.



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Plantus in the house

In the kitchen, in the living room -or as a space divider set- Plantus is humbly changing your rooms into a real living space.