

AÉROPOT

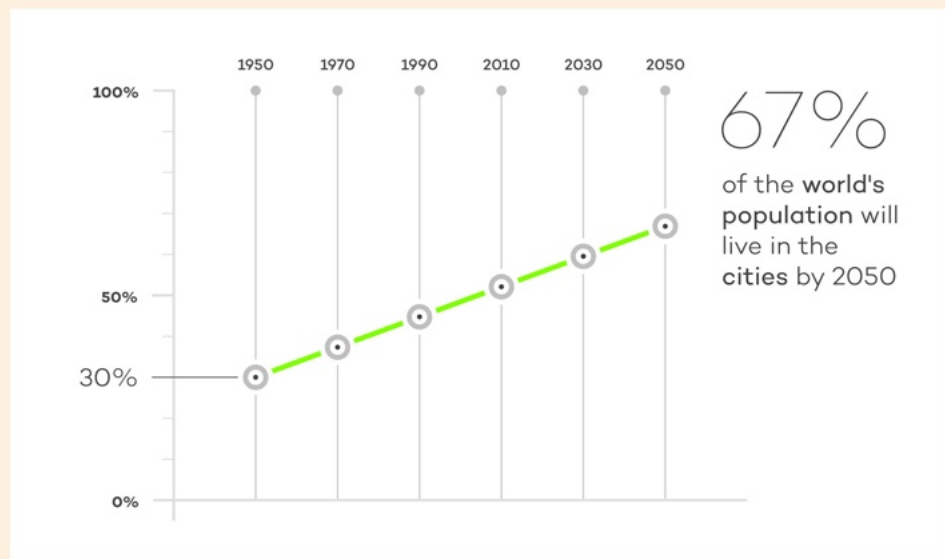
CONNECTING PEOPLE, NATURE AND TECHNOLOGY
AND MAKING GARDENING COOL AGAIN



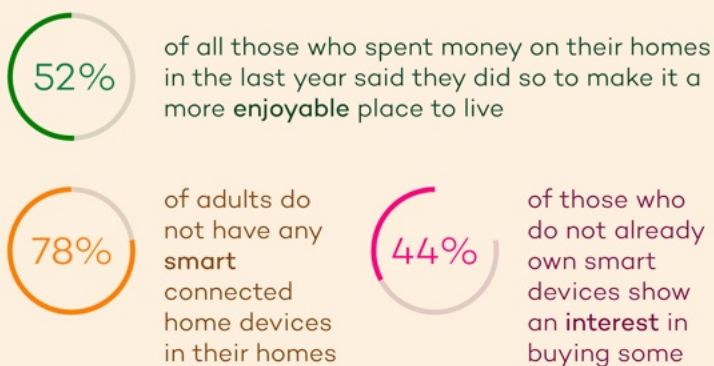
CONNECTING PEOPLE WITH NATURE

Key Insights

POPULATION [1,2,3]

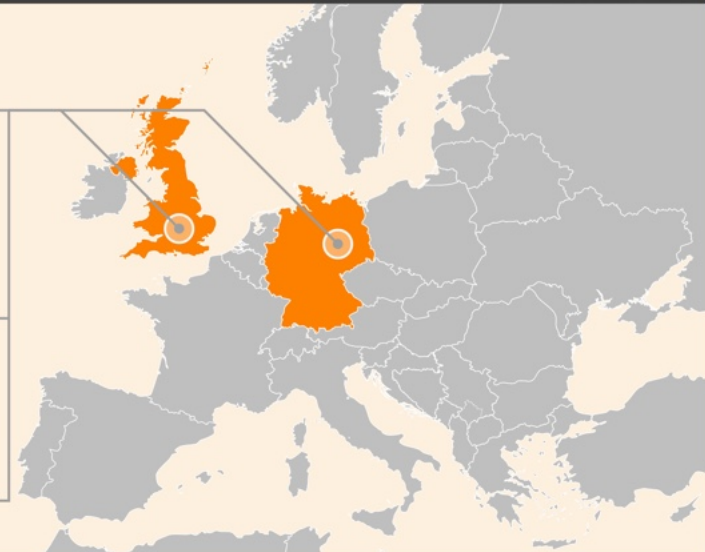
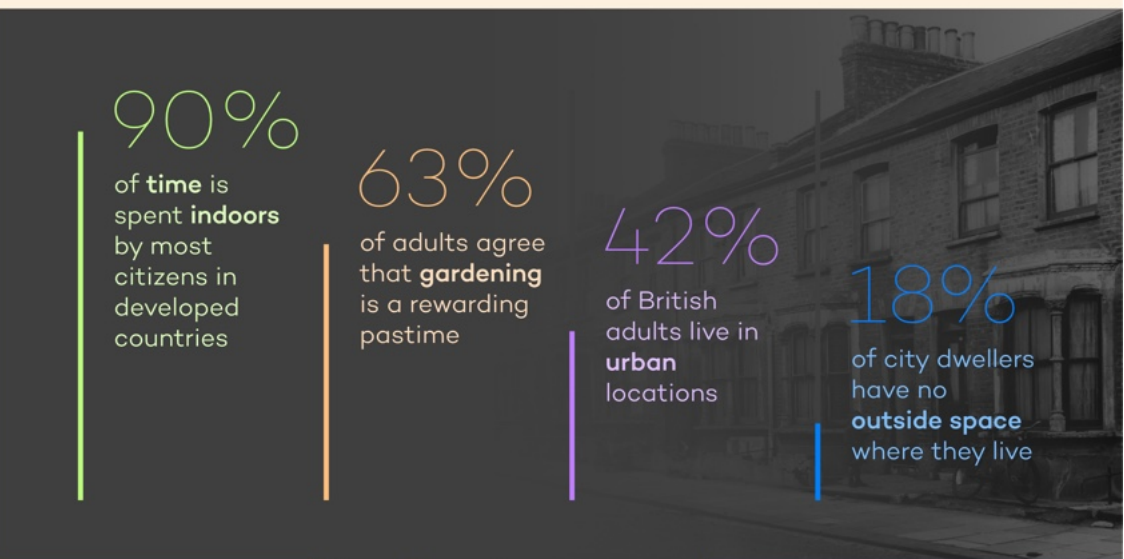


CONSUMER [3,4,5]



Germany and the United Kingdom are the largest gardening markets in the Western Europe, accounting for a 37% value share

The UK has the most lucrative market, consumer spending is forecasted to grow by 22% and reach £7 billion by 2021



... it is expected that companies will invest in products that allow users to save time and money, and curb the effort needed to take care of the garden. This will include a focus on Internet of Things (IoT) technology. Efficient and innovative gardening solutions, such as hydroponics and "smart gardening" will drive innovation. Moreover, as the likelihood of owning a private garden is declining, gardening players are re-thinking their product offerings in favour of indoor gardening ...

Solutions

NATURE [7,8,9,10,11,12,13,14,15]

Biofilia = "an innate and genetically determined affinity of human beings with the natural world."

As more people move from country areas to the city and as land to build homes near the city centre becomes scarce, we're getting further and further away from nature. It turns out this isn't great for our health. The increase in prevalences of conditions such as obesity, attention disorders, and depression is partly due to a decrease in the degree we are exposed to nature. Even minor effects of adding plants can add up to a substantial decrease in the health burden on a global scale. Plants may improve air quality and add pleasant fragrance, but visual contact with them is also a very important factor.



Looking out of a window into the nature acts as a source of pleasure and restoration. Views of gardens, flowers, and landscaped areas play a strong positive role in well-being and residential satisfaction.

Moreover, there is an ever-growing list of literature that suggesting that nature elements must not be considered as amenities but as basic to satisfaction and well-being.

Indoor plants

There are some very functional benefits that go far beyond the aesthetic and the positive psychological effect of being around plants:

- Increasing humidity
- Reducing carbon dioxide levels
- Reducing levels of pollutant (e.g. benzene and nitrogen dioxide)
- Reducing airborne dust levels
- Keeping air temperatures down



- Fiddle Leaf Fig
- Bamboo Plant
- Rubber Plant
- Spider Plant
- Boston Fern
- Snake Plant
- Areca Palm
- Chamomile
- Peace Lilly
- English Ivy
- Aloe Plant
- Rosemary
- Lavender
- Skullcap
- Jasmine
- Gerbera

DESIGN FOR GARDEN INNOVATION 2018

BRANCHING OUT

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[17] <https://en.wikipedia.org/wiki/Minimalism>

[18] <https://www.amoshingmagazine.com/2013/04/the-story-of-scandinavian-design-combining-function-and-aesthetics/>

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[20] <http://spyrstudios.com/minimalist-design-a-brief-history-and-practical-tips/>

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[23] https://cdn-images-1.medium.com/max/1600/1*3xu-Qe_VcYFRFg88bABg.png

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MINIMALISM
JAPANESE DESIGN
SCANDINAVIAN DESIGN
ORGANIC DESIGN

The concept of minimalism is to strip everything down to its essential quality and achieve simplicity. The idea is not completely without ornamentation, but that all parts, details, and joinery are considered as reduced to a stage where no one can remove anything further to improve the design. The basic geometric forms, elements without decoration, simple materials and the repetitions of structures represent a sense of order and essential quality.



The idea of simplicity appears in many cultures, especially the Japanese traditional culture of Zen Philosophy. Japanese manipulate the Zen culture into aesthetic and design elements for their buildings. Zen concepts of simplicity transmit the ideas of freedom and essence of living. Simplicity is not only aesthetic value, it has a moral perception that looks into the nature of truth and reveals the inner qualities and essence of materials and objects.

Scandinavian design is the forerunner for democratisation of design, producing products that are beautiful, accessible, and affordable and upholding design principles that use natural materials, clean lines, and straightforward construction.



Starting by Dieter Rams who laid bases to the modern minimalism in consumer appliances (e.g. Braun products), with strong emphasis on user experience, and continuing up to Jonathan Ive's now-iconic designs for Apple company.

Less, but better.

Looking for "organic" forms that are inspired and possibly aligned with the natural systems. Organic minimalism style references the curves and shapes typically found in nature. It celebrates the harmonious balance between human habitation and the organic world.



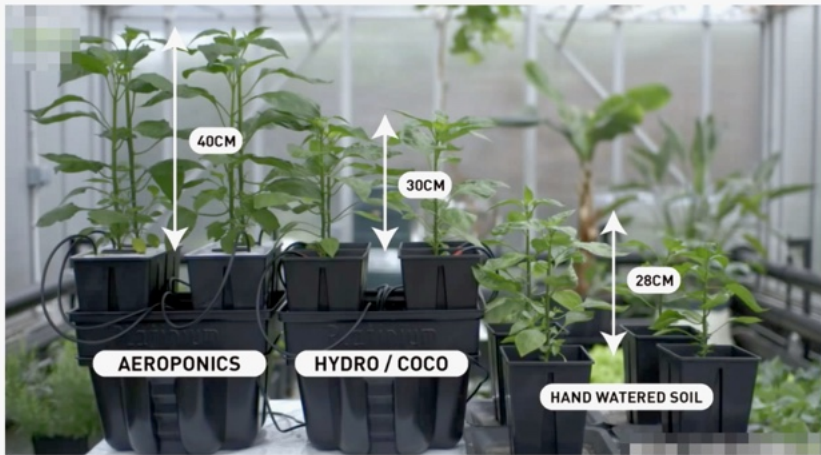
TECHNOLOGY [21,22,23,24,25,26]

Aeroponics

Aeroponics is the process of growing plants in an air or mist environment without the use of soil or an aggregate medium. When growing edible products (e.g. potato minitubers or cherry tomatoes) the effectiveness of aeroponic systems can be 70% higher in comparison to hydroponics (where plants are fully suspended in the liquid nutrient solution).

ADVANTAGES:

- Zero risk of disease and pest infestation
- Plants grow up to 3x more quickly
- Less energy and water required
- Better exposure to oxygen
- Complete control
- It is the future



Smart Home

Smart homes serve users effectively through intercommunication between various computing devices embedded in everyday objects. In the ideal version of a wired future, all devices in smart homes communicate with one another seamlessly. Such automated buildings would have installed detection and control devices, such as air conditioning and heating, ventilation, lighting, hardware, security systems, etc.

Internet of Things
— The world of apps, web services and connected devices is widening every day



Benchmarking

COMPETITOR ANALYSIS [27,28,29,30,31,32,33,34]

CLICK & GROW	PATHONOR	IKEA	AERO-POT
• Sub-irrigated planting • "Smart soil" • LED lighting • Timer (set light cycle) • Variety of models	• Pump • Buoys to indicate water level • Chinese "NoBrand"	• Pump • Many other accessories offered (e.g. light, nutrient packs, etc.)	• Mist maker • Interval cycle timer • Chinese "NoBrand"
£100 32x23x13	£40 41x28x14	£100 44x25x80	£40 21x19x19.5
AEROGARDEN	ATAMI	X-STREAM	AMAZON
• WiFi Enabled • LED light • Interactive LCD Touchscreen + App • Physical Control Panel • Fully Automated • Variety of models	• Pump • Water dripping through the top	• Pump • 360 degree sprinkler heads	• Pump • 360 degree sprinkler heads • Sponge filter system
£100 18x27x30	£80 74x74x40	£70 47x40x40	£130 80x75x40

CONCLUSION:
No comprehensive and unobtrusive smart aeroponic pot solution on the market at the moment.

Soil Hydroponic Aeroponic

[27] <http://www.aerogarden.com/indoor-garden-comparison-chart>
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[29] <https://eu.clickandgrow.com/products/the-smart-garden-3>
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[31] <https://www.amazon.co.uk/Atami-Wilma-Hydroponic-Dripper-System/dp/B00CBWJ0Q6>
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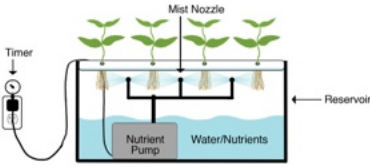
3 The concept

AÉROPOT is a smart aeroponic device that fits into any environment thanks to its universal and elegant design. It aims to provide full, closely-monitored control over the plant's vitality. At the same time, it serves as a tool for ecological education. Combination of high functionality and clean natural form induces emotionally durable bond between the user and product. It encourages people to find appreciation and build respect for nature, technology and underlying scientific knowledge.

Product

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[45] <https://www.infocience.com/wp-content/uploads/2017/12/cannabis-plant-2.jpg>
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[51] Some inspiration drawn from: <http://dribbble.com/>

PRODUCT DESIGN [35,36,37,38,39,40,41]



Classical aeroponic systems (on the left) are not made to be an object of aesthetically pleasing form, rather they are made for industrial, higher-yield purposes. Moreover, the few aeroponic systems that are on the market are not very energy-efficient since they use water pumps, whereas AÉROPOT is using cheap but very effective ultrasonic misting technology. Lighting, misting, measuring – all of it – is controlled by an internal logic board linked with the app.

- DIMENSIONS:**
Height: 340mm
Width: 340mm
Depth: 250mm
Weight: 2000g
- COLOURS:**
Multiple variations
Subtle shades
Soft matt surface

MATERIAL:
The casing and individual pots are made out of 100% recycled BPA-free polypropylene (PP) and polyethylene (PE) plastic products that have been collected from illegal forest dumps and rivers around the country. Shell/casing of AÉROPOT is produced utilising injection moulding technique. PP and/or PE were chosen for their stiffness and outlook properties.

- HOW IT WORKS:**
- Step 1**
- The app is pre-configured with the right plants + positions
- Solution calc.
 - Step 2**
- Inside is filled with the solution
- Pots are filled with clay pallets and seeds
 - Step 3**
- The programme is started
- The device automatically mists the roots

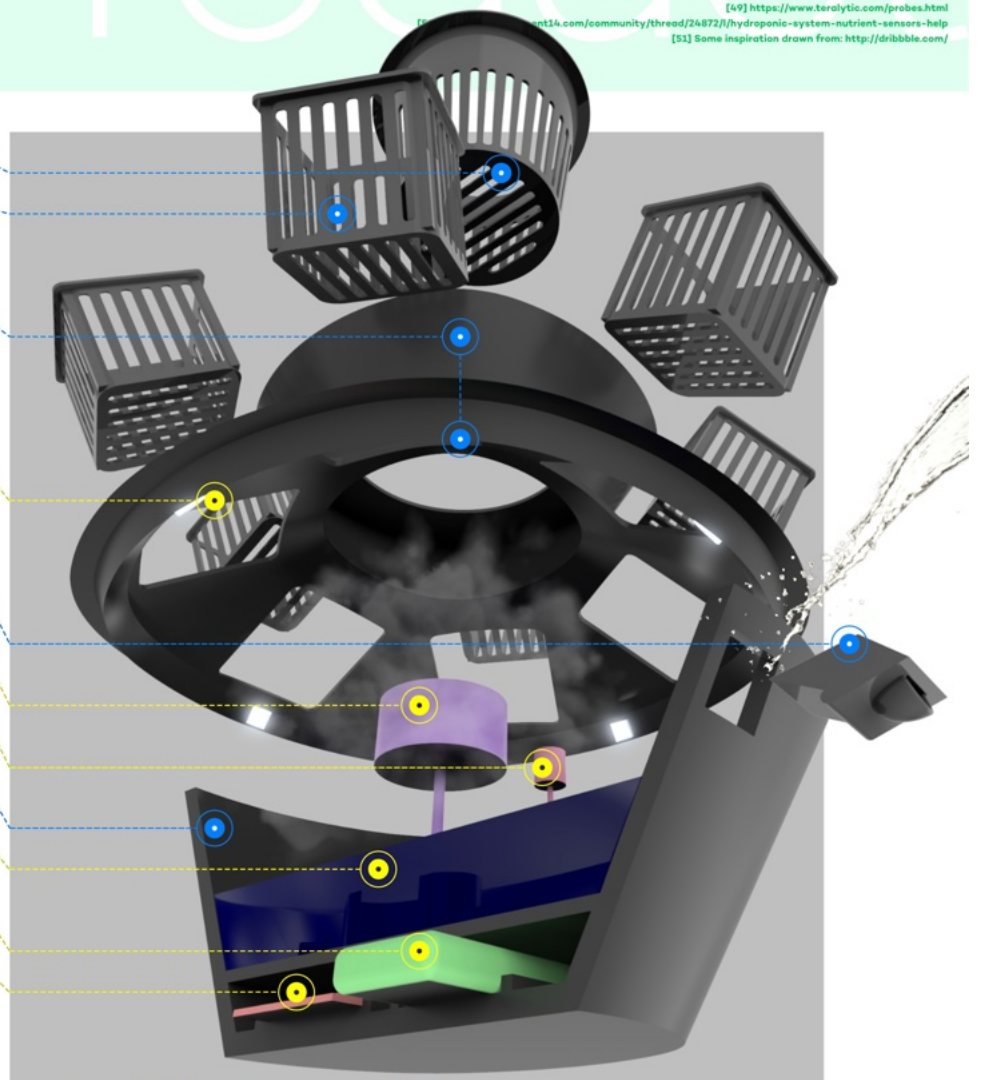
WAYS TO USE [42,43,44,45,46]



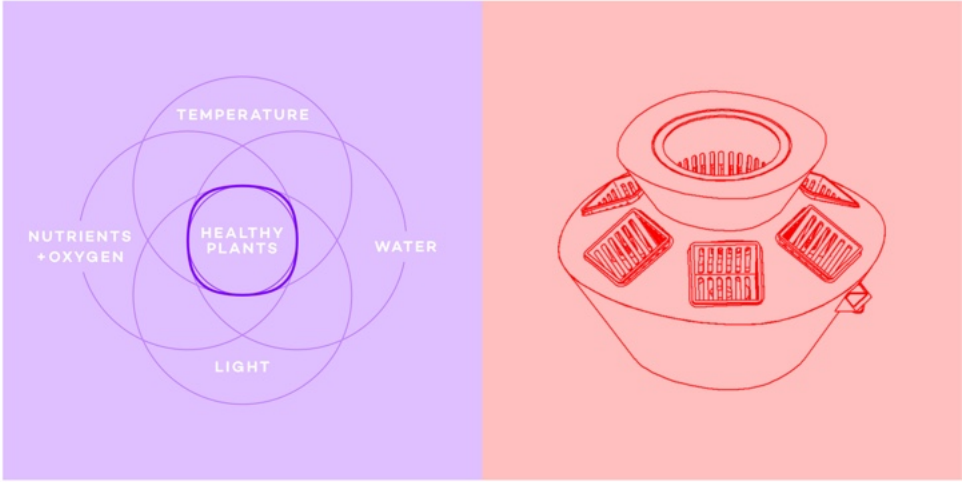
- PASSION**
— Flower caring, adding aesthetic value
- FUNCTIONALITY**
— Air purification, oxygen production
- INDEPENDENCE**
— Edible plants (vegetables, fruits, and herbs)
- THIS GUY**
— "... simply helps to soothe mind and body after a long and stressful day."



- 1 x ø13cm pot; ±£0.25
- 6 x ø7cm pot; ±£1
- Shell upper part with holes for pots + (built-in) magnetic sealing rim; ±£20
- Multicoloured LED UV light (algae and bacteria prevention); ±£3
- Latching opening
- Ultrasonic mist maker; ±£3
- Optional modular sensor(s); price varies
- Shell bottom part with space for nutrient solution and electronics; ±£10
- Liquid nutrient solution
- Battery (USB); ±10£
- Control logic board; ±5£



Active ■ Passive ■ Total manufacturing cost = ±60£



USER INTERFACE [47,48,49,50,51]

3 Modes

- Eco**
low energy consumption, slow growth
- Moderate**
moderate energy consumption, moderate growth
- Rapid**
high energy consumption, fast growth

Mist&Light:

- 15 minutes in every 2 hours
- 15 minutes in every 1 hour
- 5 minutes in every 15 minutes

Nutrients:
Composition of the nutrition solution is created according to the chosen mode and specific plant(s). This is all calculated and tested by an ever-evolving mathematical algorithm.

REGIPE
All ingredients: Available at **amazon**

13cm Pot

Tomato plant
52 days into growth
Seeding on 12/01/2018

The plant should be flowering by now

NEXT PHASE

1 ————— 6

4. Budding Phase (DAY 40-50 NORMALLY)

PLANT SPECIFICATIONS
STATISTICS
THEORY

My AÉROPOT

SETTINGS

- Light
- Mist
- Nutrients

Dashboard

Air ✓
TEMPERATURE: 21.2 °C
HUMIDITY: 39 %

Water ✓
TEMPERATURE: 23.4 °C
PH LEVEL: 6.1
TDS LEVEL: 353 ppm

Light ✓
WHITE: 50%
BLUE/RED: 30%/20%
UV: 0 %

NITRATE ✓
POTASSIUM ✗ ↑
PHOSPHORUS ✗ ↓
IRON ✓

20ppm
97ppm
150ppm
70ppm

CHATBOT
How are the plants doing today?

Aeroponic systems and growing plants in general requires a lot of energy, time and resources. AÉROPOT allows for maintaining perfect levels of nutrients in the spray which is the most critical criteria for the aeroponic system to be successful. Basic sensors are integrated into the chassis of the device, where optional modular sensors can be added anytime, which allows for detailed system monitoring and prevention.

AÉROPOT is dealing with the most common issues while growing plants, those include:

- Lack of time
- Forgetting to water
- Limited gardening knowledge/skills
- Root decay
- Wrong nutrient levels
- Not the right exposure to light
- Green algae and/or bacteria

AÉROPOT is an intuitive tool for ecological education that is empowering individuals to get true data and understanding of their gardening efforts.

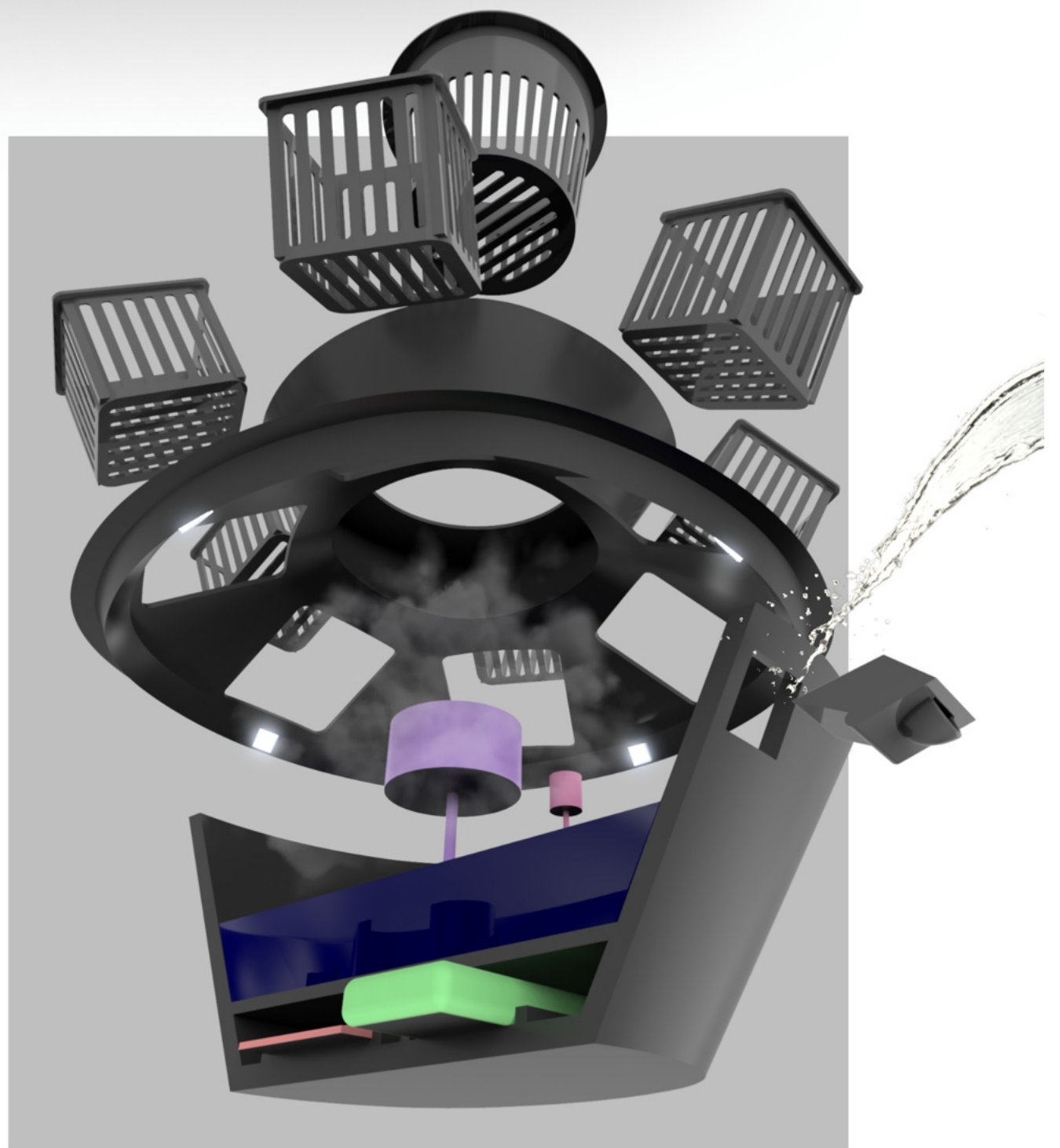
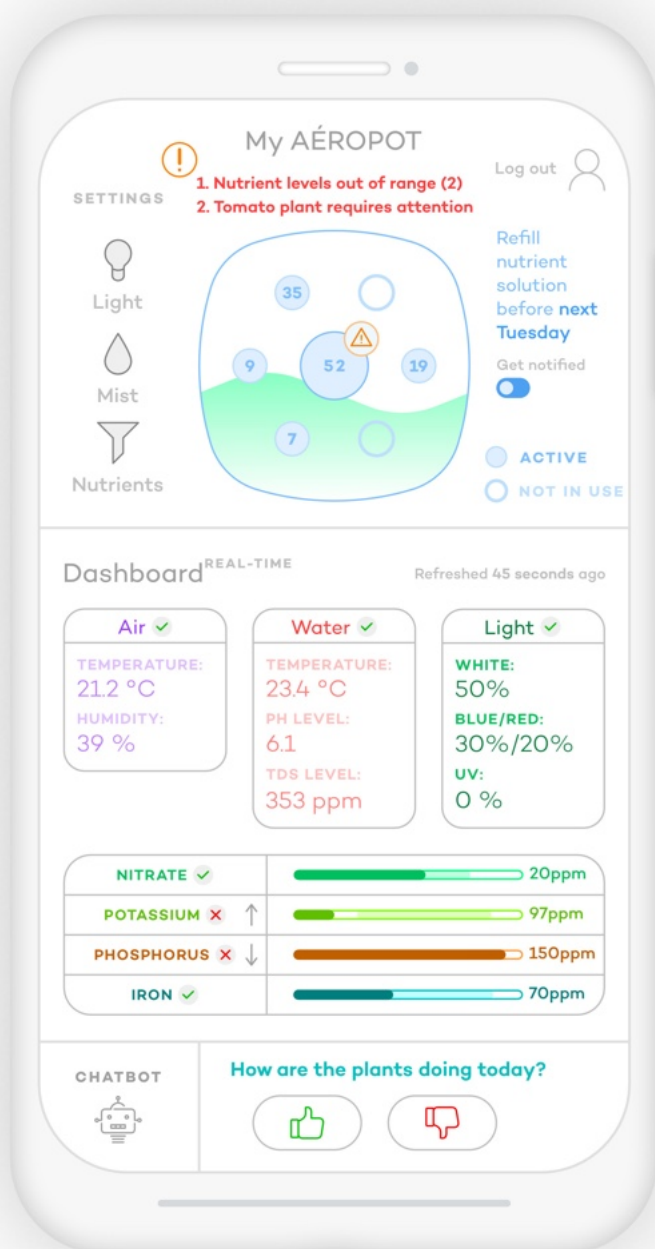
It is in your hands now...



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BRANCHING OUT



3D
Print

