ARUN BHATIA

TECH LIFE

Tech Life picks for your inspiration and reading

Arun Bhatia Apr 4 2 min read

SOLAR-POWERED WATER DISTILLATION PRODUCES NO WASTE

Unlike other systems, the new solution does not produce brine – a salty byproduct that can be harmful to the eco-system

United Arab Emirates startup Manhat has developed water distillation plants that produce no waste because of their open top design. Traditionally, desalination produces substantial amounts of salty brine that must either be treated or used in a way that avoids creating pollution. Manhat's design, on the other hand, uses an open-topped pyramid shape with collection barrels for gathering the condensed water from the sides of the container.

Water naturally evaporates from the world's oceans, and Manhat's design takes advantage of that process by coupling it with another free resource – sunlight. Requiring no electricity or power of any kind, the distillation plants are designed for ease of use, portability and affordability. Island and coastal countries are ideally situated to benefit from the technology.

Manhat is also developing floating farm solutions that will benefit coastal cities where the looming threat of rising sea levels due to climate change is especially high.

The company is experimenting with three metre by three metre and one-and-a-half metre square versions and says that it plans to standardise the final product for ease of production and scalability. The company holds several patents for the design with the Gulf Cooperation Council and plans an initial expansion into Singapore.

Clean water is inaccessible for millions of citizens, which is why innovators seek a variety of solutions to the problem. Springwise has spotted an atmospheric water generator for use in vehicles, and a portable design that also uses solar power to cleanse contaminated water.

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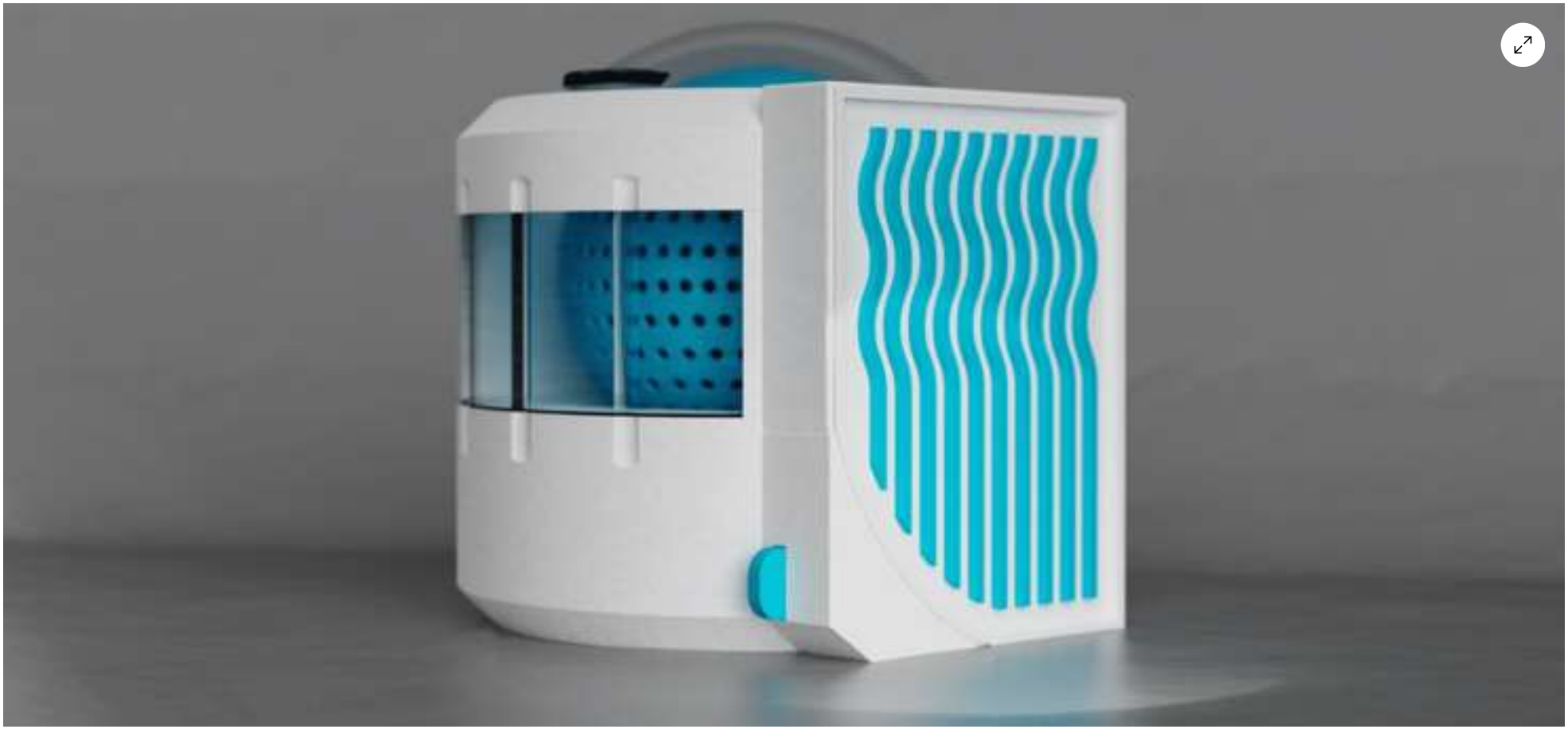
WASHING CLOTHES WITH SHOWER WATER



A new device that washes clothes with recycled shower water provides a cost-effective alternative to a washing machine

The average washing machine uses between 50 and 80 litres of water – in a world where over two billion people live in countries where water supply is inadequate.

To tackle this, Lylo Products has developed a device that allows users to wash their laundry using less water than a normal washing machine. Water is collected in a removable water tank that is placed on the floor of a shower like a mat. As the user showers, this tank fills up and is then reattached to the device's base. The machine then filters the water and uses it to wash dirty clothes.

Lylo co-founder Joanne Powers explains that she was inspired to found the company after learning the shocking statistic that England could run short of water within 25 years.
One of the key benefits of Lylo is as an educational tool. "When people are using a device that collects and reuses water they suddenly start realising that water re-use is a possibility and is actually safe," Powers explains. In this way the hope is that Lylo will act as a catalyst, inspiring other hardware innovators to explore ways for re-using water.

Affordability is another of the startup's main aims. Students are a key target market for Lylo, as on-campus launderette facilities are often very expensive for those living on a tight budget. Eventually Powers hopes to develop a product that could be used in student accommodation – putting the responsibility for water saving onto universities rather than individual consumers.
The company's short-term roadmap is to build a small number of units for pilot testing by the end of 2022. The purpose of this testing will be to check whether a device that involves such a lifestyle change is comfortable for people, and whether any further tweaks are needed before it goes into commercial manufacturing.

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VERTICAL FOREST COMPLEX RISES IN CHINA'S HUBEI PROVINCE

A unique residential complex in China includes two buildings designed as a vertical forest

Architecture firm Stefano Boeri Architetti China has announced that it has completed construction of its very first vertical forest complex, located in the city of Huanggang in Hubei province, China. The complex covers an area of 4.54 hectares and includes five towers, two of which were designed as a vertical forest. The towers combine open and closed balconies planted with 404 trees, 4,620 shrubs, and 2,408 square metres of perennial grass, flowers, and climbing plants.

The inclusion of plantings in the vertical complex not only adds to the aesthetic appeal – the architects claim it will absorb 22 tonnes of carbon dioxide and produce 11 tonnes of oxygen per year. All of the plants were carefully chosen with the local climate in mind, and painstakingly craned into position. The two forest towers contain a total of 209 apartments, and tenants have already moved in.

According to the architect, Stefano Boeri, the two residential towers represent a new way of thinking about development. The elevations use cantilevered elements to interrupt the regularity of the building and create a sense of movement. In addition, the combination of open and closed balconies generates a 'transitional space between nature and the human living environment'.
Boeri adds that, "The design allows an excellent view of the tree-lined façades, enhancing the sensorial experience of the greenery and integrating the plant landscape with the architectural dimension. Thus, the inhabitants of the residential towers have the opportunity to experience the urban space from a different perspective while fully enjoying the comfort of being surrounded by nature."

Sustainability and the need to reduce global warming have become part of the vernacular of architecture, with a range of ideas and designs weaving their way into new constructions around the world. Innovations that we particularly like include a simple bench that prevents urban runoff and a fold-out urban garden that brings nature to small spaces.

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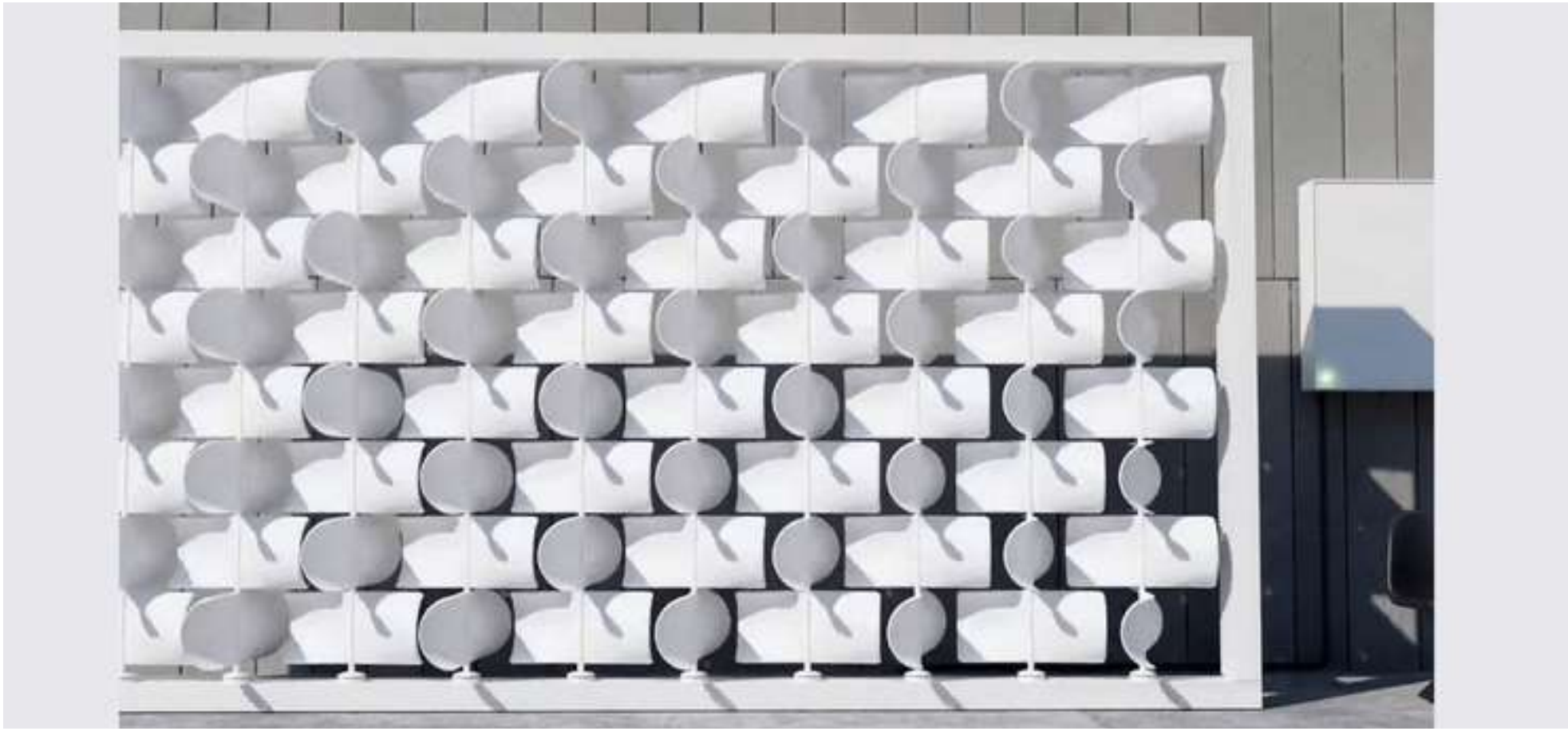
DESIGNER CREATES BESPOKE WIND TURBINE WALL FOR HOME USE



The installation can be scaled up or down and can fully power a home

Designer Joe Doucet has created a wind turbine wall that brings wind power to the home. The design concept uses off-the-shelf wind turbine generators set within a 2.4 metre by 7.6 metre frame. The size and colour of the installation, as well as the shape of the blades, can be personalised. Installed vertically, the

turbines take up minimal space and are intended to be as inconspicuous and simple to use as possible.

Given the endless options for customising the wall, users can find the perfect size and shape for their space, whether home or business. Using an aluminium frame as a base for custom cladding, the turbine structure is relatively lightweight and easy to maneuver into position. Owners can scale it up or down as needed, with the initial size capable of producing more than 10,000 kilowatt hours per year, a volume of energy that is enough to power a typical family home. The turbines drive a small generator, creating electricity that can be used directly, stored in a battery, or sold to the local grid. Depending on an owner's use, the turbine wall could generate both electricity and income.

Additionally, a key component of the design aesthetic is the ability to choose from a variety of shapes of turbine blades, with each option providing a distinct look and feel to the wall. Doucet is currently in discussion with potential producers and is working towards a sooner-rather-than-later timeline for bringing the product to market.

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Electric airplane progress

The Lilium Jet is a prototype five-seat German electric vertical take-off and landing (eVTOL) electrically powered airplane designed by Lilium GmbH.[1] A seven-seat production version is planned.

Initial design studies included forward-folding wings, so that the aircraft could be piloted as a VTOL and recharge in only few hours from a standard 240 V electrical outlet. A first half-scale demonstrator, Falcon, flew in 2015.

The unmanned first flight of the two-seat Eagle full size prototype was on 20 April 2017 at the Mindelheim-Mattsies airfield, Bavaria, Germany.

The five-seat unmanned Lilium Jet was flight tested at Oberpfaffenhofen airfield near Munich. It first flew in May 2019.[3][4] By October 2019, after 100 flights, it could transition from vertical to horizontal flight, reaching over 100 km/h, but not yet fully horizontal.It managed 25° banked turns, high ascent/descent rates like in operations, hover turns and sideward translations. Electrical, fan and flap failures were mitigated by the electrical and flight control systems.