



FUTURE TECH & GARDEN GIZMOS

In the second article on innovation, [Annie Guilfoyle](#) looks at developments in technology that will affect the future of gardens and garden making

Allegedly, we are only five years off travelling around in autonomous, self-driving vehicles, which makes you wonder what advances are coming in technology for outdoor spaces and placemakers.

At Senseable City Lab (SCL) at Massachusetts Institute of Technology (MIT), a team is developing projects that focus on sustainability and the value of urban greening, such as Treepedia, which measures canopy cover in cities. It should be no surprise to learn that the director leading SCL at MIT is the trail-blazing Italian architect Carlo Ratti, heralded by *Blueprint* magazine as “one of the 25 people who will change the world of design”.

I asked Ratti for his predictions for landscape design. “Today, we are living the initial phase of a major technological revolution. The internet is entering the physical space and becoming what people call the ‘Internet of Things’ [IoT],” he says. “I believe that in the next years, the domain of landscape design could be affected, leading to the exciting augmentation of nature with digital technologies. In the future, we might have a sustainable Internet of Plants, as we have imagined in our project ‘Garden of the Four Seasons’, where hundreds of vegetable species live under a transparent, responsive membrane of EFTE that uses sensors to open and close, allowing an accurate regulation of the environmental conditions underneath. Thanks to digital sensors, it is possible to measure the quantity of water, temperature, humidity and nutrients needed.”

Smart gardens

So what smart tech is on the market now for use in gardens? At present, it is already possible to remotely monitor the weather, soil and growing conditions in the garden, as well as communicate with a robot lawn mower or irrigation system via a smartphone. Some of these smart devices are also capable of collecting useful data, which could be helpful if you are unfamiliar with an area or climate zone and need to carry out research. Some devices are completely independent and will respond to the collected data without any intervention.

There are systems that not only measure soil moisture, nutrition levels, humidity and ambient light, but can also be programmed with specific plant data, which provides feedback if the conditions change or when the plant requires attention. →

“WE ARE LIVING THE INITIAL PHASE OF A MAJOR TECHNOLOGICAL REVOLUTION... LEADING TO THE EXCITING AUGMENTATION OF NATURE WITH DIGITAL TECHNOLOGIES”

In 2015, The Husqvarna Group (who produce Gardena products) acquired Koubachi, the pioneering Swiss Company that is a world leader in everything IoT for home and garden, including intelligent watering and mowing products.

Should this be something that designers include as part of the garden maintenance plan? Would these apps give clients greater knowledge and control to maintain their gardens? Possibly, but these devices are not yet smart enough to monitor whether there are any potential problems with pests or diseases. Many companies offer smart watering systems, but early reviews of the more complex smart products report that there is still some way to go before they are as useful as their marketing may suggest.

In 2016, landscape architect Hay Jung Hwang won a Silvergilt medal at Chelsea with her LG Smart Garden, showcasing IoT garden products such as Parrot Flower Power, which analyses a plant's health and condition and sends an alert if it needs water or feed. According to Hwang, “these products are unlikely to transform our homes or gardens into ‘smart central’ overnight, and none are completely life-changing. But whether it is taking control of our plants, or turning on outdoor lights from our phones, they can make life simpler and help save money. Much of what has been designed needs refinement, but manufacturers are still innovating.”

Blue-sky thinking

At the professional end of the scale, drones are becoming more popular for documenting gardens, and designer John Wyr MSGD has been using them to photograph finished sites. “This has been great, as the translation from the plans to the drone shots is really good and reinforces the design in a way that ground level shots get nowhere near,” he explains.

Could drone filming also be useful for surveying gardens? “We are only just starting to trial photometry surveys using drones that can then translate directly into 3D models in CAD,” Wyr says. “This is very powerful, although trees are not brilliant (similar to those on Google Earth). Also there are quite a lot of restrictions on using the drones in London, which tends to push the cost up a little, although out of London it is quite affordable.”

If you want to invest in a drone, be prepared to spend upwards of £1,000, and like any other technological purchase, you really need to do your homework to ensure you are buying a product that will give you the results you need; and check you



Photo: Gardena



Photo: RHS Neil Hepworth



Photo: Dragons Eye Filming

CLOCKWISE FROM TOP LEFT The Sileno robotic mower is one of a number of smart products in the Gardena range, managed via an app on your phone; Hay Hwang's LG Garden at RHS Chelsea 2016 displayed a selection of IoT products; an image of Walton Hall Gardens taken from above with a drone; Treepedia measures canopy cover in cities by analysing the green perceived while walking down the street

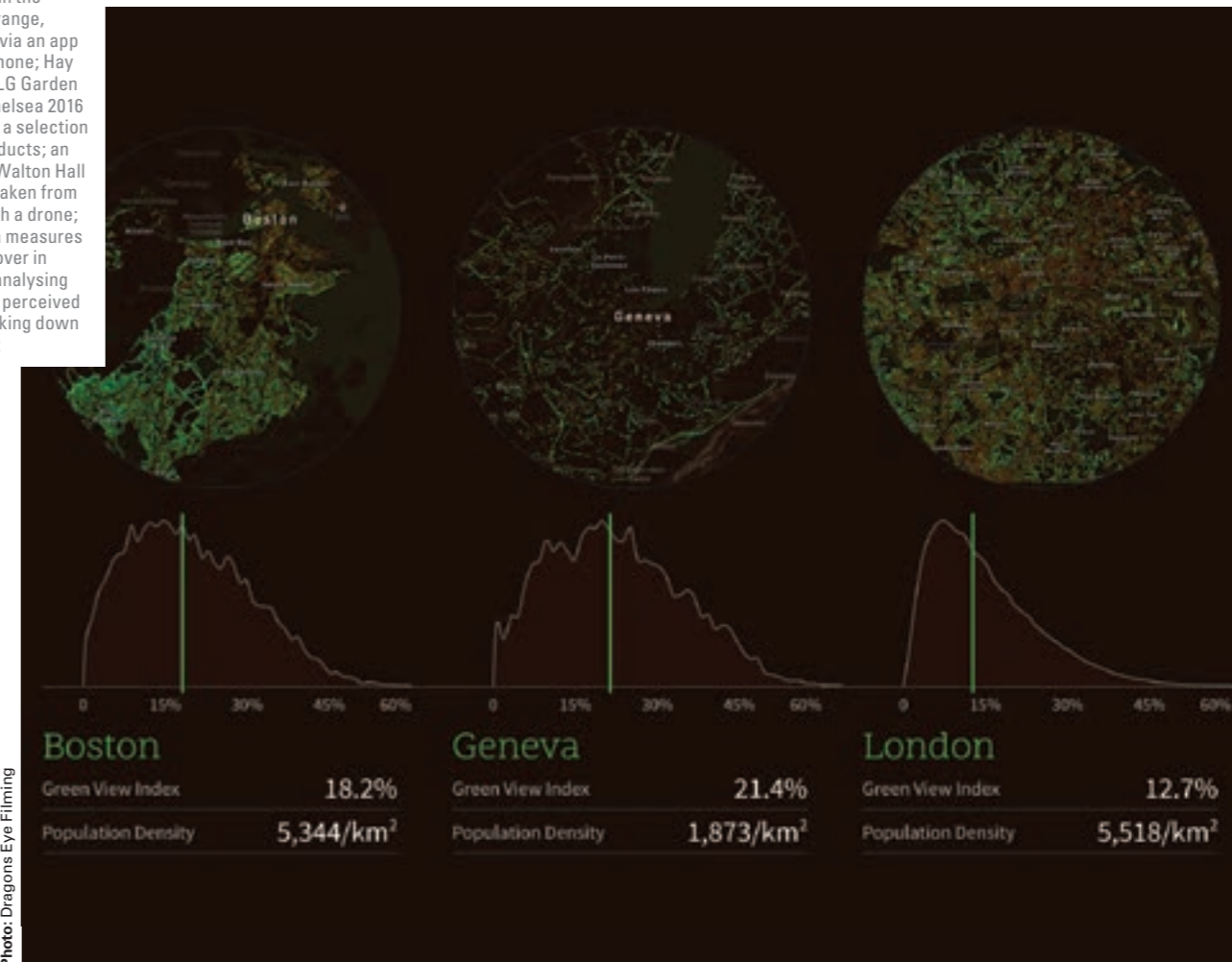


Photo: MIT Senseable City Lab



Photo: Amanda Cogan Barber

ABOVE Simon Stickland with his Black Dragon drone, which can capture images and video of landscapes

are operating within the law (see tips panel). Alternatively, consider hiring a company to do it for you. Skypower managing director Amy Willis says its day rate for drone hire is £1,600 but this does not include any post-production or editing, just raw images and footage. The cost for drone filming including the video edit would be £3,000-5,000 depending on post-production requirements. There would also be travel expenses to consider as they work all over the UK and abroad.

Legalities are the most important thing to consider when using drones, Willis says. "We work with our clients to ensure the relevant permissions are in place and conduct a full location assessment prior to conducting aerial filming." So it seems that now the sky really is the limit for gardens. ○

FOR MORE INFORMATION

- senseable.mit.edu
- www.husqvarna.com/uk/products/robotic-lawn-mowers
- www.parrot.com/uk/connected-garden/parrot-pot#parrot-pot
- www.skypower.co.uk
- www.dragonseyefilming.co.uk

TOP DRONE TIPS

- **Simon Stickland of Dragons Eye Filming** says anyone getting commercial gain from operating a drone must be CAA approved, so for professional use "don't be tempted to buy your own drone or use a friend with one, as you and the drone operator would be breaking the law, resulting in prosecutions and large fines. A CAA-approved drone operator will have been independently assessed to ensure that their operations and flights are safe and follow regulations." Check the official list of members at www.caa.co.uk
- **Check what the drone operator can and cannot do** – it can vary.

Amy Willis' company, Skypower, holds an OSC (operational safety case) with the CAA, which "enables us to fly much closer in congested areas plus we have permission to operate up to 650ft high (400ft is the standard restriction). This means we can operate in locations where other operators cannot."

- **Prices also vary.** While Skypower's fees start at £1,600, Stickland of Dragons Eye Filming says its minimum charges start from £250 – this would be for a half-day basic photography shoot. "A good all-day shoot with photo editing will start from about £600," he says.
- **To use drones** in any congested

area, all operators, whether hobby or commercial, must check and follow Article 95 (www.caa.co.uk/Consumers/Unmanned-aircraft/Recreational-drones/Recreational-drone-flights). Central London has many No Fly Zones for obvious reasons, these can be checked for free on the NATS website www.nats.aero or on its free phone app.

- **At the end of July**, the government announced plans to introduce registration and safety awareness courses for owners of all drones weighing more than 250g. Geo-fencing will also be introduced, with no-fly zones around areas such as prisons and airports programmed into drones.