

THE KITCHEN OF THE FUTURE SMARTER AND FAR GREENER

Tiny flying robots to help you clean, a washing machine that uses dry ice to save water and an insect farm for crunchy treats: scientists are developing them all, writes [Josh Davis](#)

INSECT GROWER

Already a staple source of protein for billions of people, insects as a food source are incredibly efficient, producing few greenhouse gases and taking up a fraction of the space of other livestock. This unit developed by Mansour Oursanah and KitchenAid is designed to breed, grow, harvest and kill grasshoppers.

CONNECTED HOME

The smart home has been a long time coming. The problem has always been how to get dozens of objects to talk to each other. But now companies such as Nest and SmartThings are making it possible for us to control everything through our tablets and smartphones, such as door locks, the washing machine, heating, lights and CCTV.

BEEES

Live in an apartment or don't have a back garden? That won't stop you from keeping bees. This hive developed by Phillips could be fitted directly into a glass window to allow the bees to come and go as they please, all the time allowing you to watch them busily make a little treat for you to harvest.

DRY WASHING

With water shortages anticipated to shape the next 100 years, this concept from Elle Ahovi for Electrolux replaces water with dry ice and could make dry washing a reality. The CO₂ would interact with the organic molecules on the clothes, breaking them down and cleaning your laundry of even the toughest stains.

LAB-GROWN MEAT

Still a little pricey at £215,000 a burger, the price of lab-grown meat is expected to fall. With more than 1 billion cattle, 918 million pigs and 24 billion chickens raised worldwide, vegetarians and environmentalists agree that one day this could be the solution to our ethically dubious meat industry. See pages 8-9

WATER RECYCLING

As dry spells become more frequent and intense, and climate change has a greater effect, our kitchen will need to help us conserve water. Water from the sink could be saved and used for the washing machine, and water from the dishwasher fed into a cultivator and used to grow herbs and vegetables.

NUTRITION SCALES

Problems associated with obesity and type-2 diabetes are only set to grow, so increased awareness about what we eat and its implications for our health will rise in importance. One day we could see scales that can measure not only weight but nutritious content, 'freshness', and levels of toxins, such as mercury.

URBAN CULTIVATOR

As populations grow and food demands become harder to meet, it's predicted that we'll all become more environmentally minded and eager to reduce food miles and our carbon footprint. Using automated hydroponic systems, we could be growing our own veggies right in the kitchen we intend to cook them in.

SMART FRIDGE

Don't know what to cook for dinner? The smart fridge will scan all the items inside it and then suggest recipes. Chinese manufacturer Haier recently displayed a prototype fridge which featured an LCD screen covering the front which allow users to 'see' what's inside while bringing up recipes and ideas for you to peruse.

ROBOT CHEF

Like hover boards and personal jetpacks, we've been promised house robots for decades. While domestic robots may still be some way off, a humanoid robot called ARMAR can understand commands and retrieve objects such as milk and eggs without breaking them and watch humans perform tasks before copying them.

FOOD PRINTER

As 3D printing takes off, it is already possible to print complex sugar and chocolate sweets. With Nasa putting money into researching food printers for astronauts, and a plethora of other companies also investing, it looks set that at some point we will be able to print a whole menu, from ravioli to hamburgers.

CLEANING 'SWARM'

This concept from Colombian designer Adrian Perez Zapata uses tiny flying robots to spruce up the house. A compact circular unit hosts 908 flying mini robots designed to clean surfaces around the kitchen. Each mini robot would be fitted with solar technology on the wings with which to generate clean energy.

COUNTERTOP STOVE

Already on the market, induction stoves will become far more common. They work by heating an electrically conducting object, such as a pan, using electromagnets within the countertop. Induction stoves have major advantages as only the pan heats up and the surface stays cool to the touch. They are also more efficient.