Room by room our homes are getting smarter

The household gadget has seen some drastic changes. What was once a novelty is beginning to dominate household life and turn homes in smart homes.

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As tech giants like Google, Amazon and Apple have entered the domestic space, a wide range of household and smart home appliances have become part of the "Internet of Things" (IOT); digitised, connected, programmable and controllable remotely.

What was once considered a science fiction fantasy is rapidly becoming reality. Statista predicts the IoT to contain over 75B connected devices worldwide by 2025, while around a quarter of Britons have a connected device in their home today, according to YouGov.

With Alexa and Siri already ubiquitous, and TVs, speakers, lights, doorbells, and cameras controlled via apps, voice commands and motion sensors, what does the future hold for the smart home?

Robot Cleaners

For many, the Roomba will be the first product to come to mind when it comes to domestic gadgetry. On the market since 2002(!), it's one of the most recognisable chore automators/cat antagonisers on the market.

Now it is just the tip of the iceberg of smart house cleaning options. Similar concepts have since been applied to mops, window cleaners and many similar appliances.

Automated cleaners originally still required quite a bit of help; users needed to manually turn them on, move them to the correct room, wait for the randomly determined path to complete, and put them away. Modern products are far more autonomous - with options to program set paths and schedules, map their environments to detect dirty areas, and empty themselves.

Curtains and Blinds - no more?

Electrochromic glass alters its transparency depending on applied voltage, and so can be set to appear tinted or opaque.

If smart windows follow existing trends then in future we can expect them to connect with light and motion sensors, responding autonomously to certain weathers, times of day, occupants in a room, voice commands, and to alter at pre-determined times.

Window technology developments also bring safety and security implications; View Protect windows are set to issue a notification when a pane is damaged, broken or left open.

Intelligent Lighting

The concept of smart lighting is already widespread, so where will it go next? Nanoleaf Lighting, for example, mounts on to walls and responds to touch, as well as the usual voice command and app integration. It can also connect to a music source to visualise sound, and, like others, can adapt to the time of day and other variables.

It doesn't just need to be about aesthetics, however. London startup IoT Stars has developed lighting for the purpose of vegetable growth, which responds intelligently to humidity, other light sources and temperature, and can be adjusted to produce particular flavour.

The Digital Refrigerator

The refrigerator, another mainstay of the kitchen, is also undergoing rapid progress. Current smart fridges, offered by brands including Samsung and Siemens, enable users to control the temperature remotely, check contents via an internal camera, and keep track of food expiration dates to cut down on waste.

The Future of the Home

Overall then, the smart tech trend looks to be towards convenience, with some futurist flourishes for good measure.

However, the impact of home tech advancements could span far beyond delegating chores and impressing visitors.

Vulnerable groups, such as the chronically ill or disabled, can benefit from the reduced importance of physical mobility in the home. Smart speakers can be used to issue medication reminders, voice commands to adjust lighting and temperature to comfortable levels, and alarms can be raised if electrical appliances or taps are left running. Products like Door Pi Plus, a door recognition system intended to assist residents with dementia, and the Fit Home Project, a sensor-based housing approach which monitors and predicts health analytics, illustrate some of the possibilities. UK startup Birdie provides similar offerings directly to the public.

The proliferation of smart home tech has however raised questions around security and privacy.

The UK government is currently developing legislation specifying security standards which smart home manufacturers will be required to meet, following several instances of cameras, microphones and speakers being hacked externally.

Security experts have long warned of the potential risk of cyberattacks involving smart home products, while manufacturers stress the importance of adherence to digital best practice, such as strong passwords and two-factor authentication. A recent survey from Specops Software suggests however that consumers are relatively unconcerned about these risks, with the majority of respondents not aware that such devices could be vulnerable to hackers.

Even when everything works as intended, consumers have concerns about the privacy of their data. The Internet Society found that 53% did not trust their devices to protect their privacy or responsibly process data. 75% were significantly concerned about how data is used by other organisations without their consent or awareness.

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