GLIMPSES OF THE FUTURE

A monthly digest of technologies, developments and trends that may shape our lives. (If you would prefer not to receive these digests, flip back 'NO THANKS' and you will be removed from the list). For daily glimpses follow me on Twitter: @hammondfuturist

Airbus To Build Flying Cars

Aerospace giant Airbus plans to test a prototype of a flying car by the end of this year, a move that legitimizes what has previously been a fringe concept. If successful, in the longer term it could also be a big step towards easing congestion on urban roads.

Airbus's chief executive Tom Enders told a technology conference in Germany that it planned to test a small prototype vehicle by the end of 2017.

Last year Airbus formed a division called Urban Air Mobility to investigate ideas such as a vehicle to transport individuals or a helicopter-style vehicle that can carry multiple riders. The aim would be for people to book the vehicle using an app, similar to car-sharing schemes.

Robots For Older People Nudge Them To Be More Active

A new robot companion for older people aims to promote activity and tackle loneliness by nudging them to take part in digital and physical activities.

A prototype of the ElliQ robot, made by Israel-based start-up Intuition Robotics, was unveiled at the Design Museum in London recently. ElliQ is a small desktop device that consists of a stylised domed "body" and a separate detachable screen.

Created in collaboration with Swiss designer Yves Béhar, the robot is able to tilt and turn to indicate what it is doing and encourage a degree of social engagement. Similar to home assistants like the Amazon Echo, people can simply talk to it, and there are visual cues that could be particularly helpful for those with hearing difficulties.

A key purpose of ElliQ is to act as an easy interface to access existing services such as social media, messaging programs, and audio and video streaming. For example, the device could alert the user that their grandchild has posted a new photo on Facebook, show it to them on the screen, and allow them to comment using speech-to-text technology.

Airbus has been working on "vertical take-off and landing" (VTOL) technology that would allow vehicles to pick up passengers in busy urban areas, and has said it expects to be putting them into production by 2021.

Although flying cars have been a staple of science fiction for decades, investment in the concept is finally emerging. Google founder Larry Page has invested millions into two flying car start-ups, while Chinese company E-Hang also has a prototype design.

DARPA Building Underwater Communications Network

To keep the US Navy and allied fleets operating when data systems are disrupted, DARPA is developing its Tactical Undersea Network Architectures (TUNA) program, which has completed its first phase of development.

The tactical data network uses a system of rapidly-deployable buoys and advanced fiber optic technology to temporarily reestablish data networks at sea, that may have been destroyed due to enemy action or other forces.

Unlike most other home assistants, ElliQ can recommend activities of its own accord. It might ask if you're interested in watching a video, for instance, or suggest a walk. It can also act as reminder to take medication.

Short Range Body Radar Helps Sight-Impaired People Navigate

A short-range radar wearable being developed by the VTT Technical Research Center of Finland could soon be guiding the visually impaired through their outdoor activities. VTT's Guidesense is a chest-worn monitor that alerts the wearer of potential obstacles through vibrations and voice feedback.

Guidesense works through short-range millimeter wave sensing, a type of "miniature radar" array that can be incorporated in everything from self-driving vehicles to smart, intrusion-detecting buildings.

In this application, it's worn in a manner similar to a heart rate monitor. According to VTT, it detects most obstacles surrounding the user, with the exception of particularly small objects like

According to DARPA, the TUNA project is a self-powering, quickly-deployable RF network that uses buoys connected by thin underwater fiber optic cables that are designed to last up to 30 days – the agency believes is enough time to bring the damaged primary network back online. The recently completed Phase 1 was intended to develop concepts and technologies in the fields of modelling and simulation, as well as at-sea testing of the buoys and cables.

Noise-Cancelling Ear Plugs

I am told that I have been known to snore from time to time. Now a U.S. start-up may have the answer for my long-suffering partner in the form of active, noise-cancelling ear plugs.

The core vision behind QuietOn is one of those

thin branches and bushes.

It's not the first wearable meant to assist the blind – everything from wrist-mounted sonar devices to "SpiderSense" perception suits have been floated as potential tech aids for the visually impaired. However, the Guidesense has a few potential advantages over other offerings.

For one, the device can be worn in a low-profile way. "Guidesense functions based on radio waves, so that the signal passes through normal clothing," says VTT Senior Scientist Tero Kiuru. "This means that it can be worn discreetly under a coat, for example." That also means it's compatible with other common aids, such as using a cane, dog, or reflective vest.

While the radar technology does not work indoors, it is reliable through most environmental conditions. According to the company, Guidesense's short-range radar is not subject to interference from environmental problems like fog, rain, smoke or darkness.

An "Uber" Just For Children

Getting children where they need to go is a huge

"why didn't I think of that?" ideas. Take the concept of the earplug – block out noise – but add active-noise-cancelling technology to better flush out and cancel low-frequency sounds.

These ear-plugs will be best for the types of situations where you're most likely to need earplugs. If you're trying to sleep in an apartment building, the walls will already block out most high frequencies from noisy neighbors, nearby parties or barking dogs; leaving only the lower ones that seep through for the earplugs to better tackle. Ditto for airplanes, where the engine's hum is a low pitch. But snoring is where they're most needed.

Now in crowdfunding. Mine are ordered.

Human Wrinkles Set To Be Banished By Regenerated Fat Cells

Wrinkles could be a thing of the past as scientists find a way to regenerate fatty cells which keep the skin looking youthful.

Scientists claim the ground-breaking new discovery could not only lead to spectacular anti-ageing treatments, it may also pave the way to scar-free healing of wounds.

hassle and expense, especially in homes where both parents work. Hailing rides through firms like Uber and Lyft has made life more convenient for adults. But drivers are not supposed to pick up unaccompanied minors (although some are known to bend the rules).

Youngsters represent a fresh-faced opportunity. Ride-hailing for kids could be a market worth at least $50bn in America, hopes Ritu Narayan, the founder of Zum, one of the startups pursuing the prize.

These services are similar to Uber's, except they allow parents to schedule rides for their children in advance. Children are given a code word to ensure they find the right driver, and parents receive alerts about the pick-up and ride, including the car's speed. These services promise more rigorous background checks, fingerprinting and training than typical ride-hailing companies.

Your Fingerprints Are No Longer Secure From Hacking

Peace signs flashed on social media can give hackers access to bank accounts, warn Japanese scientists who have used a digital camera to steal

Fat cells called adipocytes are normally found in skin but are lost when scars form and as a result of ageing.

Lack of adipocytes is one of the main reasons why permanent wrinkles become etched on the faces of older people.

Laboratory studies showed how hair follicles held the key to keeping healing skin scar-free and smooth by releasing a vital signalling molecule, called Bone Morphogenetic Protein (BMP).

Although the research focused on scarring, the discovery reported in the journal Science has much wider implications. Adipocyte loss is a common complication of certain medical conditions such as HIV infection and a natural part of ageing.

Lead scientist Professor Cotsarelis said: "Our findings can potentially move us toward a new strategy to regenerate adipocytes in wrinkled skin, which could lead us to brand new anti-ageing treatments."

fingerprint data.

With off-the-shelf equipment, researchers at the National Institute of Informatics in Tokyo photographed fingertips at ranges of up to three metres, and used the resulting pictures to fool a fingerprint recognition system.

The research threatens a future where nothing — not even your body itself — is safe from identity theft, imperiling the booming industry of biometric security.

"As camera resolution gets higher, it's becoming possible to image smaller things like a fingerprint or an iris," said Isao Echizen, professor at the National Institute of Informatics in Tokyo. "Once you share them on social media then they're gone. Unlike a password you can't change your fingers, so it's information you have to protect."

CCTV System Can Spot Suspicious Behaviour Autonomously

For the first time, smart software will help CCTV operators spot any abnormal behaviour. If the trial in two London Underground stations is a

We May Soon Be Able To Re-Grow Our Own Teeth

Fillings could be consigned to history after scientists discovered that a drug already trialled in Alzheimer's patients can encourage tooth regrowth and repair cavities.

Researchers at King's College London found that the drug Tideglusib stimulates the stem cells contained in the pulp of teeth so that they generate new dentine – the mineralised material under the enamel.

Teeth already have the capability of regenerating dentine if the pulp inside the tooth becomes exposed through a trauma or infection, but can only naturally make a very thin layer, and not enough to fill the deep cavities caused by tooth decay.

"Sustainable" Tuna Fishing May Be Bad For The Planet

What's good for the ocean might be bad for the planet. Fishing boats that target specific species, leaving others free to swim away, use more fuel than vessels intent on simply scooping up all the fish in their vicinity.

Eco-label initiatives and programmes like Monterey Bay Aquarium's Seafood Watch, meant to help hungry diners quickly select sustainably caught seafood, have been gathering public support in recent years, says Brandi McKuin at the University of California Merced.

success, it could accelerate the adoption of the technology around the world.

The software, which analyses CCTV footage, could help spot suicide attempts, overcrowding, suspect packages and trespassers. The hope is that by automating the prediction or detection of such events security staff, who often have as many as 60 cameras to monitor simultaneously, can reach the scene in time to prevent a potential tragedy.

If the technology takes off it could put an end to a long-standing problem that has dogged CCTV almost from the beginning. It is simple: there are too many cameras and too few pairs of eyes to keep track of them. With more than a million CCTV cameras in the UK alone, they are becoming increasingly difficult to manage. And besides being a tedious task, watching TV monitors also demands a higher level of concentration than many people can manage.

The new software, called the Intelligent Pedestrian Surveillance system (IPS), could change all that, says London Underground's Peter Tollington, who is overseeing the installation at the stations. "CCTV itself is fantastic, but this puts

While those guides are helpful, their standards focus mainly on fishing-based factors, like leaving enough fish in the ocean to avoid exterminating the population, and reducing the number of accidently caught fish, or bycatch, McKuin says. Other impacts, including the greenhouse gas emissions generated by using different types of fishing gear, are often overlooked.

Nowhere Is Safe From "Graffiti Drone"

New York-based drone graffiti artist KATSU recently launched a new iteration of his [graffiti drone](#) – the Icarus Two. To demonstrate its capabilities, KATSU showed the custom-modded DJI quadcopter articulating a political statement ... and there's no prizes for guessing the target.

In 2015 KATSU ushered in what was then dubbed [the new age of drone vandalism](#), when his Icarus One drone defaced a giant billboard in New York. The first design was a reasonably primitive contraption involving a DJI Phantom 2. There was very little control over how the spray paint could be deployed resulting in the drone randomly spitting paint over the billboard but the proof of concept was dramatic. Drones could help graffiti

it on another plane. It means that you don't have to look at a screen all of the time," he says. Indeed, it seems likely this is just the beginning. Other companies are working on similar technologies.

Tesla Electric Car Boasts 335 Mile Range

[Tesla Motors](#) Inc. has extended the battery range for a new version of the Model S sedan to 335 miles on a charge, furthering the Silicon Valley auto maker's lead in the all-electric car race.

On its website last week, the company revealed the new version of the Model S, called the 100D, with a 100 kilowatt-hour battery that can hold a charge for 20 miles longer than the previous best.

In August, Tesla began selling the high-performance version of the sedan called the P100D with a 100 kwh [battery that could go up to 315 miles](#), then a new benchmark for auto makers. [General Motors](#) Co. 's [new all-electric Chevrolet Bolt has a range of 238 miles](#), while the [BMW](#) i3 can go up to 114 miles.

artists get to previously inaccessible areas.

With his anti-Trump demonstration New York artist KATSU has at least partially solved the problem of accuracy by creating a spray paint mechanism that operates independently to the drone. The paint-jet is controlled through a PC and can individually paint any letter programmed while the drone maintains a momentary stability by pressing itself up against the wall.

Ray Hammond – futurist keynote speaker

@hammondfuturist

www.rayhammond.com

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