

# Technology Watch at CES 2018

## « IoT »



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# Abstract

CES is the world's leading trade show in consumer technologies by the number of exhibitors, visitors and professionals; for its 51st edition, more than 180,000 visitors and some 3,900 exhibitors were identified, moreover it has the largest number of announcements and innovations, as well as speakers from all the digital value chain; It allows us to observe the major changes in various industries.

CES is above all, one of the most beautiful concentrations of inventors from all over the world, from the most serious to the craziest, where they present their novelties, including nearly a thousand startups.

Visiting this show is a landmark experience. It is immense and everybody is drowned under a flood of products of all kinds and forms. Some are truly innovative, many are simply clever and others are only copies of established products.

CES arguably remains unmatched as a way to get a bird's-eye view of how tech trends are developing.

This report provides an overview of the entire universe of IoT<sup>1</sup>, which was in the spotlight this year.

Indeed, the CES is still the largest connected objects fair in the world. They are found in particular on Eureka Park, and cuts across various fields: sleep-tech, beauty-tech, pet-techs...

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<sup>1</sup> IoT, an appellation that actually refers to connected objects that can be networked, and that can usually be controlled through a smartphone application.

The Las Vegas annual meeting was an opportunity for the Internet of Things to take the lead and showcase its evolution.

The ecosystem has reached a stage where it's impossible to consider the Internet of Things as a marginal scientific project. Businesses across all industries and around the world are now using this system to improve their products and services.

A survey published by Verizon revealed that 73% of business executives are interested in, or are deploying the Internet of Things. This technology has become so ubiquitous in everyday life that people sometimes pay no attention. And it is understandable, between smart thermostats that can be controlled from a smartphone; On-board equipment in vehicles allowing insurance companies to distinguish dangerous drivers from others; or location-based advertising, which locates consumers by collecting data from their mobile devices, and then posts relevant ads directly to their smartphones, people no longer realize it.

However, a number of products presented at CES 2018 show how the IoT is changing the capabilities of companies, as well as its benefits for consumers.

Connected objects by category:

## 1. Wearable devices

### Connected Watches :

No smartwatch presented has really innovative functionality. The different manufacturers seem to be content to go around the bush, tweak the technology in place for several years, or improve the design. Thus, **Misfit Path** is presented as the smallest hybrid watch ever created. Likewise, the **Kate Spade Scallop** and the **Skagen Falster** are all about aesthetics, to try to seduce a clientele looking for appearances and not wanting to embrace technology if they can stay in fashion.



The most innovative connected watch of the CES 2018 seems to be the **Blocks**, a modular watch allowing for example to add a GPS, an external battery or an LED lamp. However, this watch was originally launched on Kickstarter two years ago. In addition, here again, innovation is essentially about design. No company really seems to be trying to innovate in terms of functionality. Connected watches still always seem to help the users in their sports training, or to act as an extension of their smartphone.

**Casio** also launched a new **G-Force** watch for hikers. It includes a GPS and recharges with solar energy. It also measures temperature and altitude.



**Blocks Watch**



**Casio G-Force Watch**

### Connected Headphones :

The advantage of connected listeners is that they offer more interesting features, such as instant oral translation or audio tuning. At CES 2018, connected headphones were on the rise. Several models have been unveiled: the **Bragi Project Ears** aim to improve the user's hearing, the **Nuheara IQbuds Boost** offer a customizable audio experience, and the **Jabra Elite** board the voice assistant Alexa. Undoubtedly, it is now the hearables that bring a breath of fresh air in the connected objects industry. We can hope, however, that the smartwatches market will be renewed in the near future, whether through existing players or new startups.



## 2. Clothing :

In this section, I present some connected objects related to clothing, starting from what we put on ourself to how we carry it and clean it.

**StyleScript** is an imaging solution that interprets people's photos and then advises them a look that best suits them. It is a solution for online commerce in fashion that is provided in form API in the cloud.

Nowdays, it is not unusual to find original suitcases, especially those that fit in the cabin luggage box.

The **Barracuda** folding suitcase from San Francisco is smart with its airport-based tablet/laptop tray, built-in USB charger and location tracking function. Its rounded halo handle system is also ergonomic and adjustable, 6 different positions are available, which avoid users to tire their arms joints. It cost 350\$ each. In terms of connectivity, a battery charger is sufficient . Elegant, useful and simple to handle.



The **CX-1** from

a self-driving luggage, made in China, as well as **Cowarobot**, it features a combinaison of facial recognition, auto-follow capabilities and object avoidance, which help the traveller to keep his hand free while his walking through the terminal. No need to worry about someone taking his luggage, the CX-1 comes with a small anti-theft wristband that receive an alarm signal in case it gets out of range. With a maximum speed of up to 7 miles per hour, this smart suitcase offers up to four hours of battery life on a charge, and it can also juice his gadgets using a built-in mobile charger. It's cute and little bit creepy, but easy to use for business travellers.

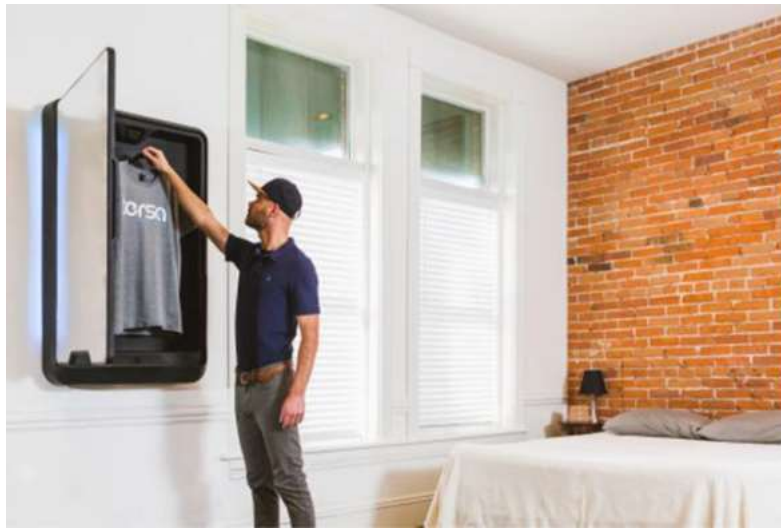
**ForwardX Robotics** is



The **CabinR** is an anti-theft travel bag that incorporates a sound alarm in case of theft. It contains an NFC sensor and an authentication card that allow to open the bag. Remains not to lose the card or to be stolen.



Laundry sucks. Ironing sucks. Now you can do them both less with **Tersa Steam**. The Tersa steam is a machine hidden behind a mirror, that was designed to eliminate the hassle of traditional textile care, by steam cleaning your shirts in ten minutes without using any detergent and infusing scents into the device to perfume them.



### 3. Household Appliances:

The annual classics of CES are Samsung's new fridges and LG Electronics, it's impossible to avoid talking about them, even if there are many other novelties more or less new in the field of household appliances, including unconnected solutions.

Samsung presented at CES 2018 its new generation of connected **Family Hub refrigerators**. Like every year, they offer repeated use scenarios that are not always easy to implement in practice. The main news? In addition to a large touch screen, Family hub is now more intuitive and intelligent with the addition of Bixby voice control and its integration with Samsung's SmartThings IoT ecosystem, that allow users to control and monitor their connected home from its screen. To do what? To play the role of a meal planner who takes food management to a more personalized level by providing recipes for the family based on food preferences, dietary restrictions and food expirations date. Without omitting to underline that the fridge recognize the individual voices of the different members of the family and provide personalized information, a read out of the news, weather and calendar updates. The fridge is also connected to Samsung Smart TVs, thus, we can see the inside of the fridge from its TV, thanks to the cameras integrated into the doors.





**LG Electronics** also introduced its new smart **InstaView ThinQ refrigerators** with a 29-inch touch screen that run a full version of Windows 10. Functionlities ? Management of expiry dates (manually entered before), tasks and note taking. He's too equipped with a wide-angle panoramic camera on the inside, to inspect its content remotely, while we're out and about to check if we're missing something. The recipe manager is also connected to the brand's connected ovens to transmit cooking times. We can talk to it , via Amazon's friend Alexa, who is really everywhere.



**GE Appliance** released a connected cake pan, with a thermometer that allow to track the baking process, who send the user notifications when the food is ready.



The French Startup **Aveine** was introduced **InVino** connected wine aerator at CES 2018 .It is a small system that controls the aeration of the wine before serving it. It is connected to mobile application of the user that will tell him how to aerate the wine.





#### 4. Security:

Connected locks have become commodities at CES for the last couple of years. But there are some interesting variants such as:

The connected lock associated with a keyboard and RFID badge reader, of the French company **Somfy**.

It prevents for instance, an AirBnB host from moving to give his keys or give access to delivery men, housewives ... live or at specific times. The keyboard allows access to his home without the need for keys, smartphones, or badges through a code sent by SMS for example. Somfy also presented a connected outdoor camera, resulting from the purchase of Myfox. By associating images with its heat sensor, it identifies whether humans are approaching the house while avoiding false alarms and can then automatically trigger the siren unlike other cameras that require manual intervention.



**Angee Home Protection** : an autonomous home protection device, is all about privacy for the homeowner, The smart device switches between security modes to analyze dangerous situations in the house, but also respects the homeowner's privacy. The camera, which features a built-in battery, can alert on home intrusion – but at the same time recognizes homeowners who might get up at night for a glass or water, or pets. The camera also automatically swivels away from homeowners if they want extra privacy.



**Prodigy Smartlocks** : The lock empowers homeowners to lock and unlock their entryway door from anywhere in the world via smartphone over encrypted and secure Wifi Link using the Gateway, and also receive timestamp notifications of authorized entries from family members and friends. Featuring a durable design, the system has one-of-a-kind hardware that ensures both a locking deadbolt *and* a locking deadlatch. These rugged mechanisms have been tested to 650,000 cycles—five times as many as a standard residential lock is designed to withstand.



## 5. Smart Companion/ Virtual Assistant:

### For domestic animals

CES 2018 has an IoT device for everything -- and that includes pets. This section is little bit funny and playful with its original objects that may have a bright future ahead of them. So pet owners can see their emotions manipulated by startups!

Many products for cats and dogs at the CES this year:

The French start-up **CamToy** presented Laika, the only mobile companion that combines interactive gaming, kibble distributor, microphones/loudspeaker and a video camera (to trigger a kind of asymmetrical Skype), all in one place. With Laika, during your break at work you can interact, record and even reward your furry friend no matter where you are via your smartphone. Each dog is different and have different behaviors. This is why Laika analyzes the behavior of your dog and adapts to him as much as possible. To do this, Laika uses machine learning and algorithms to refine and optimize its behavior. What does it really mean? Just like you, Laika will analyze his flaws and his qualities to continue to stimulate your dog as he needs it. That's why Laika will have updates to become more and more intelligent without ever annoying your dog.



Dog owners who also want to go that extra mile for their furry friends can check out **Petric's smart pet bed**, an Internet of Things connected bed and companion collar that the company said "extends the lives of pets." This device tracks pets' weight, rest periods and activities, while the bed also offers thermostatic climate controls to keep the dogs in optimal comfort.



On the side of cats, **Catpads** is the smart assistant that monitors cats daily and help them stay healthy. This water and food dispenser helps cats owner to manage them as well as their food and water intake from their smartphone. In addition, its water dispenser provides fresh, filtered, running water to encourage them to drink more.



## For elderly people:

In this section, I present some virtual home care assistants for seniors.

Naturally our aging loved ones do not want to give up their independence and will choose to stay in their own homes if they can obviously.

With **Sofi hub** assistance, we can feel more confident and secure, that we will know if something unusual happens to our loved one's home. Sofi uses sensors to learn and observe activity inside the home, receiving sensor data and building a profile of normal behavior.

Once Sofi understands what is normal, she can identify when there is an abnormality and raise an alert. Our loved one can go about their daily activities without worrying about Sofi, there are no controls that our loved one needs to manage or learn.



What if robots allowed older people to feel less alone at home?

This perspective is not necessarily nightmarish. The proof with **ELLI • Q of Intuition Robotics**, a small assistant robot for the elderly, with endearing design, whose goal is to keep them connected to the outside world. ELLI • Q speaks to remind the person of her appointments, whether to play a tablet game, listen to music, or make a Skype call with someone of her family members. ElliQ could be one of the answers to the aging of the population. This natural evolution is a real opportunity for technology companies who are therefore increasingly looking to target this segment of the population. What's particularly fascinating about this is how the robot's head and torso are designed to move with almost human mobility, using gestures to make it more friendly. In short, this little robot seems very promising but remains to know if the finished product will live up to the concept. For the moment, no information has been available concerning the robot's availability date or even its price.



## 6. Health and Wellbeing :

The CES is as usual full of connected objects for health and well-being. Connected objects of health slowly contribute to the radical transformation of medicine by allowing everyone to follow their physical activity, their basic biometric parameters and in the longer term, to follow their biological parameters. Everything is associated with notions of predictive and preventive medicine. But this trend gives rise to some illusions, as if what the sensors captured corresponded to all the health data of a person! This is far from being the case, especially if we just measure heart rate and temperature. Basic connected objects are just one of the bricks of these solutions.

ID Vitae is a health card and a piece of identification to carry around so that we can identify a person, warn her relatives and have access to her vital information (allergies, pathologies, medical treatment ...) in case of discomfort or accident. There is a range of four products (bracelets, stickers, card and keychains). Each product has a QR code that can be flashed by a Smartphone to see all the data listed above.



## Sleep

The area of the Sleep Techs at this CES 2018 was even bigger and with an incredible variety of solutions, compared to the previous ones . It is also very difficult to navigate and compare them, and especially to sort out the methods that rely on a few valid scientific foundations and those that fall under the black magic! Basically, we have brain wave analysis techniques in EEG and rhythm of respiration, heartbeat, that can lead to sleep with sound or light waves, pillows or cooling mattresses or also broadcasting audio and various rings .

The French **Dreem** exhibited again at CES 2018, his Rhythm headset which includes all the imaginable sensors to sleep better with enough to capture heart rate, breathing and brain activity via an EEG. To put the person to sleep, the headset gives her sounds by bone conduction. According to many people who have tested it, the process works very well to find correct nights.



**Philips** announced at CES 2018 its SmartSleep, a wearable device that improves the quality of deep sleep. It's a kind of gray headband that incorporates EEG sensors and headphones. It uses progressive white noise sounds to improve the quality of deep sleep. The principle is to facilitate the "cleansing" of synapses during this phase of sleep. Citing studies, Philips says this type of sleep can help boost alertness and the ability to maintain focus.





**HOMNI Smart Sleep Solution** : Terrailon's HOMNI a lamp that acts as a smart sleep solution for consumers. The small lamp, which can change colors and play music, connects to a sensor, called "Dot." Dot sticks on a pillow and tracks the sleeper's movement, sending that data to a free app so that users can see how well they slept. The lamp itself also follows external conditions like humidity and temperature so users can see that information and how it impacted their sleep.



## 7. Beauty:

Connected beauty is a fairly flourishing sector, at least on the supply side. In particular, it benefits from advances in interactive makeup systems based on AI.

**HiMirror**, the first mirror connected to the beauty service of women, takes a picture of the user , and gives him all the information about his skin (dignosis). Equipped with a camera, he will be able to analyze the face of the person in front of him. The mirror will then be able to recognize small skin imperfections, often related to age, such as brown spots, bags under the eyes, wrinkles and others. By knowing precisely the location of these areas on her/his faces, women/men will be able to use makeup and proper care to mitigate these different spots.





The startup lululab launched at CES 2018 its AI Skincare Assistant Lumini, a connected object that captures the face of the user, like the HiMirror, analysis on the associated smartphone software and provides skin care via a dedicated chatbot. The object obviously includes a camera that captures more information than in visible light, probably at least in the infrared. This allows him to detect wrinkles, sebum, acne, redness and blemishes. It's actually a spin-off of Samsung.



L'Oréal USA also presented at CES 2018, its UV Sense under the La Roche-Posay brand. It is an ultra-miniaturized UV exposure sensor, smaller than the size of a fingernail, which can be installed on glasses or on a fingernail to prevent tanning marks. It works without battery and also measures the quality of the air. In fact, its energy is stored in a capacity that seems rechargeable through the NFC which also serves to recover its data on his smartphone.



# Conclusion:

The billions of "objects" that make up IoT produce and process huge volumes of data that, in most cases, must be collected and analyzed in real time for products and services that use this technology to function properly. All of this requires instant, low latency interconnection between devices, sensors, clouds, users, and so on.

Businesses must be able to connect effectively and securely to key markets, partners, clouds, and networks around the world and at the digital frontier. In short, they must benefit from a meeting point between businesses, urban centers and digital ecosystems.

The innovations presented at CES this year, which intend to reinvent interactions, are primarily in a "consumer" perspective, which remains the focus of the show. Also, whether they use the fingerprint, the voice control, the bone transmission, or the look, these innovations nourish above all an "experiential" objective made of fluidity, simplicity and comfort of use. Because in reality, it is this last notion of uses that remains the heart of their reflection and their realization: indeed, they are, at this stage, more thought in term of test, of experimentation, of validation of the human behavior, only security.

However, if for the time being, they have been conceived in a closed universe, with little external orientation and professional uses, security will undoubtedly be at the heart of their next evolution.