

PYMNTS.com

AUGUST 2018

# IoT

## Intelligence of Things Tracker™



## FOOD IN FLIGHT: DELIVERING MOBILE ORDERS BY DRONE

**Flytrex and North Carolina's DOT**  
on piloting drones for deliveries  
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# Intelligence of Things Tracker™

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When residents of Holly Springs, NC, open an app to order a burrito, they may soon have it delivered via drone. Basil Yap, NCDOT's head of Unmanned Aircraft Systems; James Pearce, NCDOT's public relations officer; and Yariv Bash, CEO of Flytrex, discuss the town's drone delivery pilot program, why residents and businesses need the service and potential future applications.

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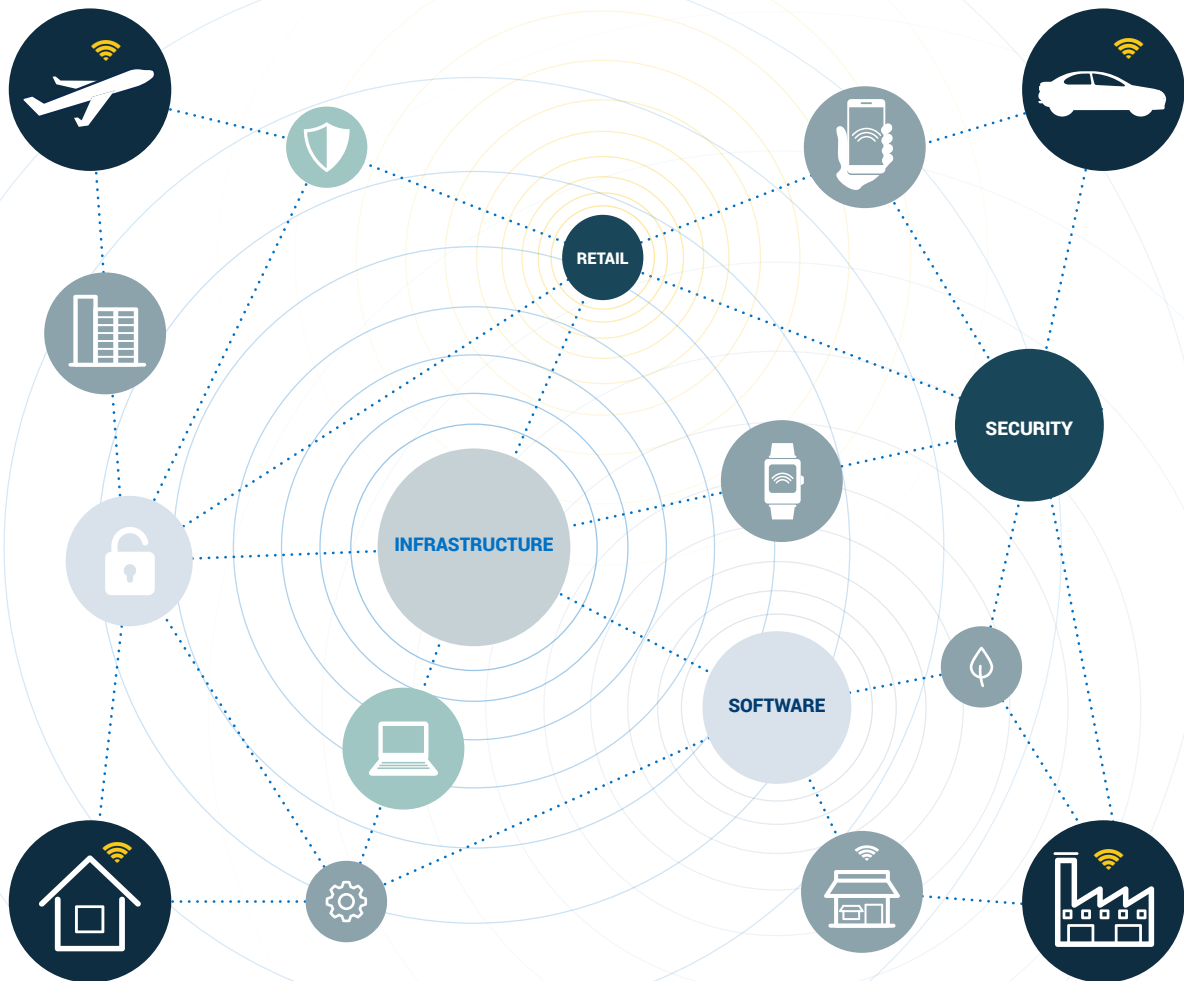
## Making The World 'Smart' – One IoT Connection At A Time

### AIRPLANES

Two cargo carriers plan to use an IoT solution to track the condition of sensitive pharmaceutical packages inflight in real-time.

### ROADS

The Insurance Institute for Highway Safety claims that safe autonomous cars are a long way off.



### HOMES

An in-fridge smart camera solution aims to reduce food waste by helping consumers buy the groceries they need and use the food they have before it goes bad.

### INDUSTRY

GE and Microsoft deepen their partnership in an effort to bring more industrial IoT solutions to market.

When companies and consumers begin using a new technology, they may not understand its ins and outs. This can make it harder to keep the tech secure and poses a big problem — one that bad actors are happy to exploit.

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A recent report [found](#) that, at many businesses, there's disagreement over what an IoT endpoint even is. That can result in confusion over IoT security efforts and ultimately create risks. More than half of report respondents said endpoints are the most vulnerable parts of their industrial IoT infrastructure.

It's not just businesses that are at risk, either. Researchers at Cisco Talos recently [discovered](#) vulnerabilities in a Samsung smart home hub that, among other acts, allowed attackers to disarm smart locks and watch consumers through their connected devices' cameras.

These problems may be the bread and butter of bad actors, but they could also become useful to those

who hack on the side of good. Israel-based Toka aims to help governments [exploit](#) IoT vulnerabilities in devices used by those who are deemed national security threats.

As IoT implementation continues to expand, governments, businesses and consumers will need to shore up their defenses to prevent cybersecurity attacks from impacting systems. Though companies may struggle with security, and vigilance may be necessary, one thing is clear — IoT is not going away. By 2020, as excitement continues to grow, it's [expected](#) that 20 billion devices will be connected to the internet.

### **Around the IoT world**

Researchers at Perdue University and the University of Virginia are [advancing](#) IoT technology by making it easier to connect devices. They recently announced a new way to produce electronic circuits, enabling them to be peeled off a sheet and stuck onto an object. The circuits can be used to sense the surrounding environment and will eventually support wireless communication.





While researchers develop hardware to ready devices for connectivity, T-Mobile is expanding its network to connect them. The carrier recently [launched](#) a narrowband IoT (NB-IoT) network across the U.S. The network will support new IoT applications through low-power connectivity.

Though IoT is rapidly expanding, there is one area where it may need to move cautiously. New [testing](#) from the Insurance Institute for Highway Safety found that many automated driving systems are not ready to drive on their own. These systems struggle to keep vehicles in their lane, and some follow other cars off route.

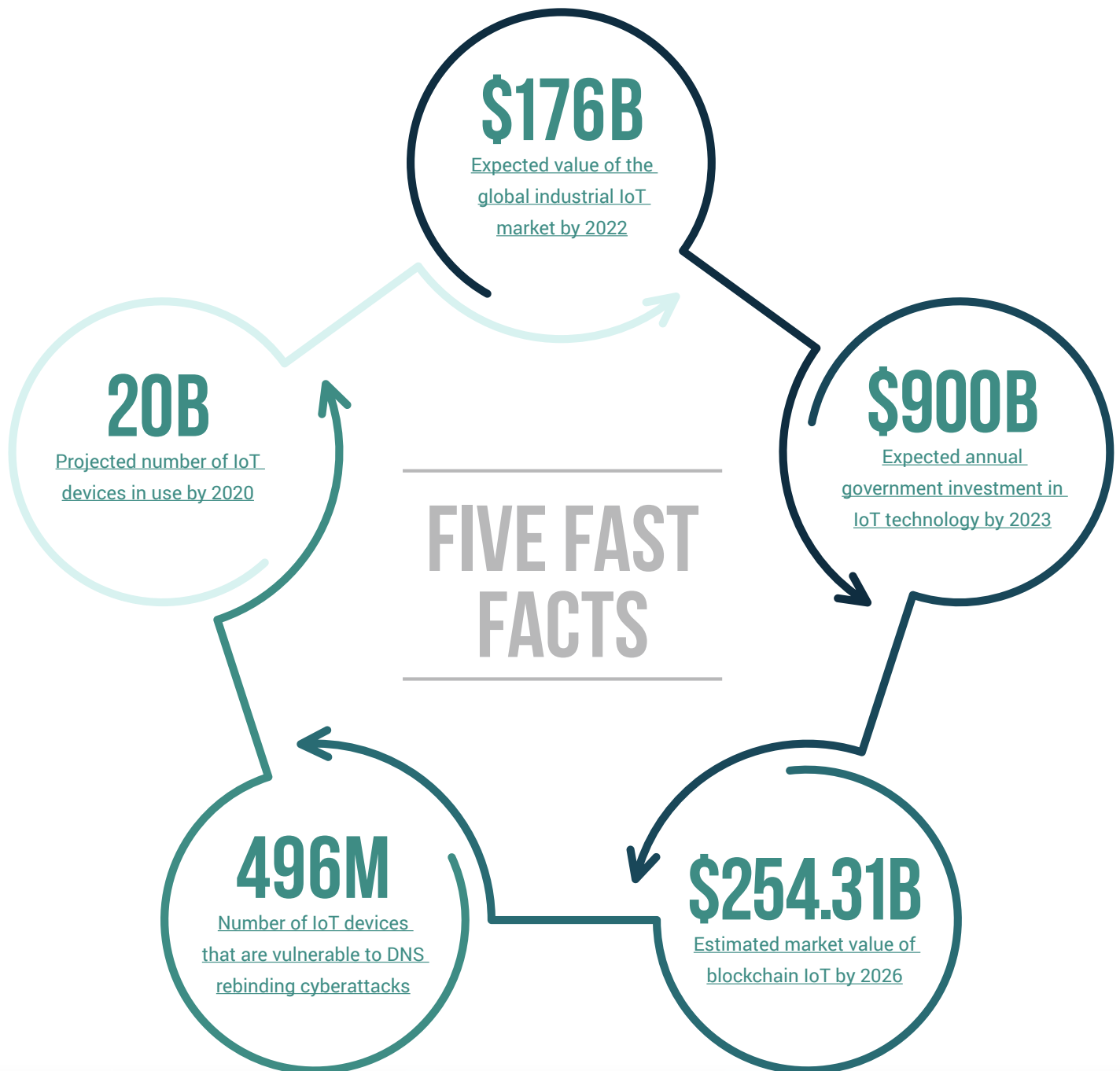
### **Drone deliveries**

IoT may not be ready for the road, but some are seeing use for it in the sky. Drone delivery company [Flytrex](#), in partnership with the North Carolina

Department of Transportation and the town of Holly Springs, is testing food delivery by drone. For consumers, this service means faster delivery, due to lack of traffic or delivery zones, [NCDOT](#) officials told PYMNTS. Meanwhile, restaurants get a cheaper, speedier and safer way to send their deliveries, said Yariv Bash, CEO of Flytrex. Additionally, Basil Yap, head of Unmanned Aircraft Systems for NCDOT said drone delivery could be used to transport emergency blood supplies to health clinics or medicine to people's homes.

### **August Tracker Updates**

The August Intelligence of Things Tracker™ profiles 285 providers.

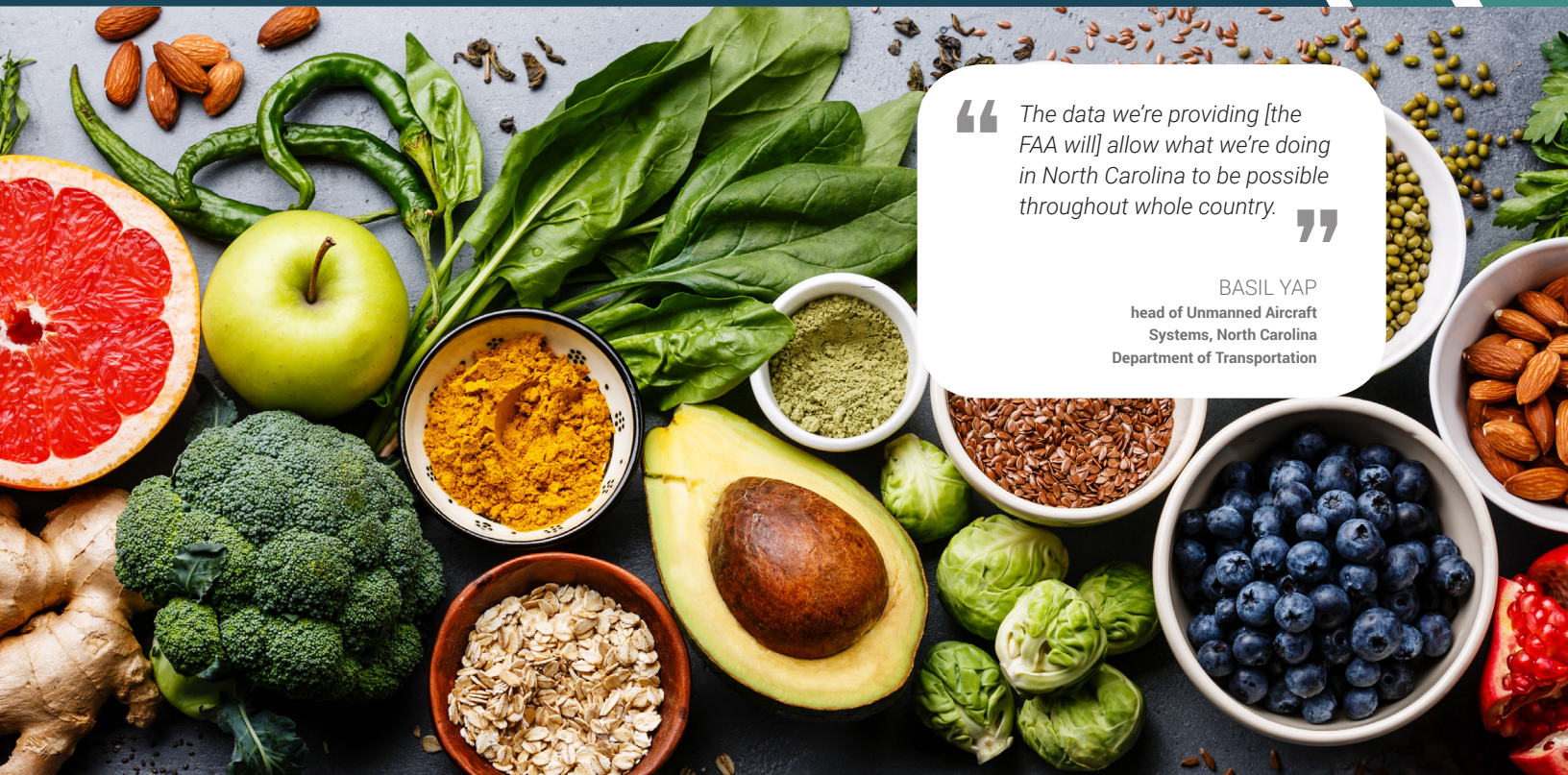




FEATURE STORY

FOOD IN FLIGHT:  
DELIVERING MOBILE  
**ORDERS BY  
DRONE**





“The data we’re providing [the FAA will] allow what we’re doing in North Carolina to be possible throughout whole country.”

BASIL YAP  
head of Unmanned Aircraft  
Systems, North Carolina  
Department of Transportation

**F**ood delivery is a [\\$13 billion](#) business in the U.S., one seeing growing interest from players from delivery service companies like Deliveroo to ride-hailing giants like Uber. But while innovation is largely focused on making ordering and paying seamless, delivery times remain high, leaving customers frustrated and restaurants from missing out on opportunities to fill more orders.

That’s a problem, which drone delivery company [Flytrex](#) is aiming to solve in partnership with North Carolina’s Department of Transportation (NCDOT). The pair is slated to test commercial deliveries using unmanned aerial vehicles in Holly Springs, NC. And while the tests may only be taking place in Holly Springs, their results could impact restaurants and businesses around the country.

Basil Yap, head of [Unmanned Aircraft Systems](#) (UAS) for the North Carolina Department of Transportation (NCDOT) and James Pearce, the Department’s public relations officer, told PYMNTS that NCDOT has seen proof-of-concept demonstrations for the delivery potential of drones before, but this program will run for three years and require consistent, reliable service — something they have yet to see in the field.

When all is said and done, the results will help the Federal Aviation Administration (FAA) develop new rules around low-altitude UAS.

“The data we’re providing [the FAA will] allow what we’re doing in North Carolina to be possible throughout whole country,” Yap said. “We’re at the leading edge.”

### More customers served faster

Under the drone delivery model, customers order food through a restaurant's app, and runners take the meal to a central drone launch location. From there, the drone will fly to the customer's home, and can be tracked via an app. Flytrex's drones can carry a six-pound package for three miles, and arrive in five to ten minutes, Yariv Bash, CEO of Flytrex told PYMNTS.

Once the drone has arrived, the customer will receive a notification and, using a feature integrated with the restaurant's app or a link provided by Flytrex, direct it to lower the package via a wire. An operator can control up to five drones at a time using a control center dashboard, which means managing more trips with less effort and faster transport for restaurants.

"A human courier can make roughly two and a half deliveries per hour, and getting your sushi or hamburger usually takes an hour if not more," Bash said. "A drone can make five deliveries per hour and bring you your food within five to ten minutes from the moment it is ready."

The service doesn't just ease operational burdens — it also brings benefits to customers. It will provide food to customers who have trouble driving due to age or mobility issues, as well as to those who may live in an area with limited transportation access, or that is outside of a traditional service area.

## UNDER THE HOOD

### *What potential do you see for drone delivery in the medical industry?*

"In a rural area, you have your central hospital location and outlying clinics. ... In North Carolina, we could be sending high-value or high-cost pharmaceuticals that you want centrally located, because you may have a hospital that's, for 90 or 70 percent of time, going to be using that medicine, but there may be unique cases in rural clinics where you need to get the medicine out there quickly. In addition to flying blood, [we could fly] antivenom and other medical products, whether that's devices or specific tools that need to [get to] the outlying clinics quickly.

In an urban area, if you were to get your blood drawn or [have] any other kind of specimen taken, [drones] would fly from that clinic to the lab, so you get results back quicker. The result you see is quicker responses to lab turnaround time. What could take anywhere between three to four hours, or even days, because of the schedule of the courier picking it up, now could take anywhere from 30 minutes to a couple hours to get response back, so a doctor gets [results] quicker and can make better decisions."

**Basil Yap**, head of Unmanned Aircraft Systems, [North Carolina Department of Transportation](#)



## Beyond food

Holly Springs may be focused on food, but the potentials of drone delivery don't end there. The speed and convenience that makes the service appealing could make it useful for any "high-value, small items, that need to be moved quickly and immediately," Yap said.

A separate pilot program in North Carolina is exploring drone delivery for medical materials. Blood and high-cost pharmaceuticals are stored at a central hospital, and drones run the materials on-demand to rural clinics as needs arise.

Drones could also be used to enable wider participation in clinical trials by transporting medicine to participants who would not be able to travel to clinics. Additionally, drones can quickly transport samples — such as drawn blood — to a lab, enabling faster results.

"[Lab tests that] could take anywhere between three to four hours, or even days, because of the schedule of the courier picking it up, now could take anywhere from 30 minutes to a couple hours," Yap said. "The doctor gets [a result] quicker and can make better decisions."

Bash, meanwhile, predicted that drone delivery technology could be applied to deliver a wide range of consumer goods to homes within 15 minutes.

"Next-day delivery will be obsolete," he said.



## Ensuring safety

Of course, no drone-delivery program will get off the ground if there aren't any safety assurances. For Yap, that means ensuring secure communication between each drone and its operator, with extra attention paid to the encryption and type of spectrum used. Operators must have redundant methods for determining a drone's location in order to ensure it is where its technology claims it is.

Flytrex drones are equipped with redundant systems that ensure they continue to operate as intended, should something fail. This includes three GPS receivers, as well as more batteries and motors than necessary — if one fails, the drone will still be able to return to the launch location.

Other safety measures include routing drone paths so they avoid flying over people, and the exclusion of camera due to privacy concerns. Yap also suggested

other restrictions, such as preventing drones from flying over schools, stadiums and other populated areas.

Although the pilot program is still readying for take off, the question of commercial drone deliveries seems to be more a matter of “when” than “if.” Officials and businesses alike are pointing to applications ranging from getting meals to hungry hands, to speeding medicines to rural clinics, and as officials continue to gather data and adjust policies and regulations, transporting a pie through the sky may not seem so pie-in-the-sky.





## Exploitable weaknesses

### **Weaknesses found in Samsung's SmartThings Hub**

It's every consumer's fear, and science fiction turned reality: the helpful new device they've brought into their home turns against them. That's the scenario painted by researchers at Cisco Talos, who found a number of vulnerabilities in Samsung's SmartThings Hub. The hub helps consumers manage and monitor smart devices, such as connected lights, cameras, thermostats, plugs and more.

According to Cisco Talos, if an attacker [exploited](#) the weaknesses, it could result in "a significant attack." Attackers could disarm smart locks or alarms, turn off plugs and spy through cameras. Cisco Talos

claims it worked with Samsung to resolve the vulnerabilities via a firmware update.

### **Toka raises seed money for cyber defense**

Exploiting weaknesses is business as usual for one Israeli startup. Tel Aviv-based Toka, which was founded by former Prime Minister of Israel Ehud Barak and Israeli military experts, recently announced that it had raised \$12.5 million in seed [funding](#). The funding round included participation from Entrée Capital, Launch Capital and RedSeal.

Toka identifies IoT vulnerabilities as "defense and intelligence" work for governments seeking to improve their digital security. Toka's president and former chief of the Israel Defense Forces Cyber



Staff, Brigadier General Yaron Rosen, told [Forbes](#) this work could include helping a SWAT team hack into terrorists' devices to gain audio or visuals on their operations.

Some have described the company as an "offensive security" business, while others have disputed Toka's policy against informing vendors when it discovers flaws in their products.

## Industrial IoT

### Industrial IoT anticipated to grow business revenue

A new [study](#) from mobile satellite communications company Inmarsat finds that, within the next five years, industrial IoT (IIoT) will increase businesses' annual revenues by about 10 percent and decrease operating costs by about 16 percent. Those changes will be due to the growing use of machine-to-machine communication and real-time data, which will support greater automation and efficiency.

The study surveyed 750 businesses in the energy, agriculture, mining, maritime and transport industries. Roughly 34 percent of respondents said they do not have the connectivity needed for large-scale IIoT deployments, while 56 percent said they need to boost cybersecurity, citing the challenge of finding the right talent.

### GE, Microsoft expand partnership

According to a recent [announcement](#), GE and Microsoft will expand their partnership to smooth the digital transformations of industrial companies, while also integrating some of their technologies, such as GE's Predix and Microsoft's Azure cloud services. Predix is an application development

platform that [supports](#) building, implementation, running and scaling of IIoT solutions, and provides capabilities like machine learning, analytics, big data processing, edge technologies and asset connectivity.

GE will standardize Predix solutions and integrate its solutions portfolio with Azure's native cloud capabilities, such as Azure IoT and Azure Data and Analytics. The two companies will also collaboratively sell industrial IoT solutions.



## Edge networks

### Google announces IoT edge solutions

Microsoft may be getting some competition, however, as Google is [increasing](#) its presence in the IoT space. The internet and technology giant announced the debut of a new chip, as well as additional Cloud IoT software features designed to enhance its edge computing services by applying machine learning (ML) and analytics to edge networks and individual connected devices.

The new chip, Edge TPU, enables endpoint devices to process data, without having to transmit it to

a cloud storage system. The chips run Google's TensorFlow Lite ML models, which support machine vision and predictive maintenance, among other uses. Google is also applying its Cloud IoT software to edge networking. Edge computing helps avoid latency in data transmission and appeals to users who are uncomfortable having important data sent to a private or public cloud.

### New report highlights edge point security

Despite the appeals of edge computing, SANS Institute's 2018 Industrial IoT Security Survey [found](#) that, for many organizations, endpoints are the most vulnerable areas of their IoT infrastructure, because there is disagreement on what counts as an endpoint.

"The discrepancy in defining IIoT endpoints is the basis for some of the confusion surrounding responsibility for IIoT security," said Doug Wylie, director of the Industrials and Infrastructure business portfolio at SANS. "Many practitioners are not adequately identifying and managing the numerous assets that, in some way, connect to networks — and present a danger to their organizations."

The report surveyed more than 200 businesses and found that 32 percent of IIoT devices connect to the internet directly, avoiding traditional IT security layers. What's more, only 40 percent of respondents maintain updates to protect their IIoT devices and said that identifying, tracking and managing devices is a major security challenge — 56 percent said patching is a top security challenge.



## Tackling waste

### Connexin, Hull partner on smart city efforts

Hull, a town in England, is turning to IoT to help improve trash pickup. In partnership with smart city technology company Connexin, Hull is [installing](#) waste-monitoring sensors in public trashcans. The sensors will notify the city when bins are full, preventing overflow. They will also help the city avoid save time and reduce unnecessary traffic and carbon emissions caused by driving to pick up empty bins

The sensors will also be able detect sudden shaking or motion, indicating potential vandalism attempts, and rapid rises in temperature, which will trigger fire warnings. Connexin is [delivering](#) long-range wide area network (LoRaWAN) gateways to Hull to support sensor connectivity.

### Smarter in-fridge IoT solutions take aim at food waste

While Connexin focuses on waste in cities, others in the space have their attention on reducing waste inside refrigerators. London-based Smarter recently



[launched](#) its wireless camera [solution](#) in the U.K. The in-fridge solution helps people buy only what they need to combat food waste. Each time the door is closed, the camera photographs the refrigerator's contents, and users can view the images from an app.

Consumers can also use the app to assess which items they need, or ask Amazon's Alexa to report the fridge's contents. Users can also log their foods' best-by dates and receive notifications reminding them to use items before the date approaches. Additionally, a partnership with Tesco connects the app to Tesco's online grocery platform.

### **Ovie raises funding for food freshness tracking**

Smarter isn't the only company that's made moves against food waste. Chicago-based Ovie drew in \$64,000 during a [crowdfunding](#) campaign for a smart tag that attaches to food containers and displays different colors to indicate freshness. Users tell their home assistant what's in the container, and the information is sent to the company's [cloud](#), which estimates the length of time until the food spoils directs the smart tag's indicators. An app alerts users when the food is at risk of going bad.

## Extending connections

### **T-Mobile launches nationwide NB-IoT**

T-Mobile recently announced it launched the first nationwide narrowband IoT (NB-IoT) network in the U.S., and the first of its kind in the world to launch with guard bands, which are sections of the spectrum left unused to prevent signal. T-Mobile's NB-IoT network covers about 320 million people.



Senior Vice President and 5G and IoT Business Chief David Mayo told [PC Magazine](#) the solution will help developers apply IoT to new areas. The network will also offer connectivity without draining a device's battery, the company said.

### **Researchers create electronic circuit stickers**

Researchers at Purdue University and the University of Virginia are also taking on the mission of expanding device connectivity, not by producing a new network, but by tackling the devices themselves. The researchers [developed](#) electronic circuits that can be peeled off a sheet and applied to any object, enabling it to sense its environment, become controllable, and eventually support wireless communication; researchers could affix a circuit to a flowerpot and enable it to sense temperature changes relevant to the plant's growth.

Chi Hwan Lee, an assistant professor of biomedical engineering and mechanical engineering at Purdue, said, "We could customize a sensor, stick it onto a drone, and send the drone to dangerous areas to detect gas leaks." Researchers intend to make it

easier and less wasteful to manufacture electronic circuits, enabling them to be peeled off a silicon wafer, so the wafer can be reused.



## Smarter transportation

### Monitoring sensitive cargo, in flight

SITAONAIR, a connectivity solutions provider for the air transport industry, recently [announced](#) a partnership with supply chain tracking solution provider OnAsset Intelligence. The solution will provide real-time monitoring of temperature-sensitive pharmaceutical cargo for AirBridgeCargo and CargoLogicAir.

OnAsset will collect IoT data, which will be sent to SITAONAIR's onboard IoT edge gateway and SITAONAIR's ground data management and dispatch platform. The solution's information will enable airplane staff to take action during flight to protect shipments.

### A long road to self-driving cars, IIHS reports

Meanwhile, on the ground, attention surrounds the promise of self-driving cars. But, according to recent [tests](#), automated driving technology has a long way to go. The Insurance Institute for Highway Safety (IIHS) tested systems registered as "level 2" by SAE International, meaning that they can assist a human driver with steering, speed and following distance.

The BMW 5 with Driving Assistant Plus, the Mercedes-Benz E-Class with Drive Pilot, the 2018 Tesla Model 3, the 2016 Tesla Model S and the Volvo S90 with Pilot Assist were assessed on their adaptive cruise control capabilities and their abilities to stay within their lanes when faced with curves and hills.

Engineers found that inclines were especially difficult for systems that center the vehicle's position based on road markings, as the lane markers dropped out of view. Meanwhile, systems that track by following the vehicle in front of them would, during slow moving traffic, sometimes follow that car into an exit lane that took them off route.

"It's important to note that none of these vehicles are capable of driving safely on their own," IIHS chief research officer David Zuby commented.

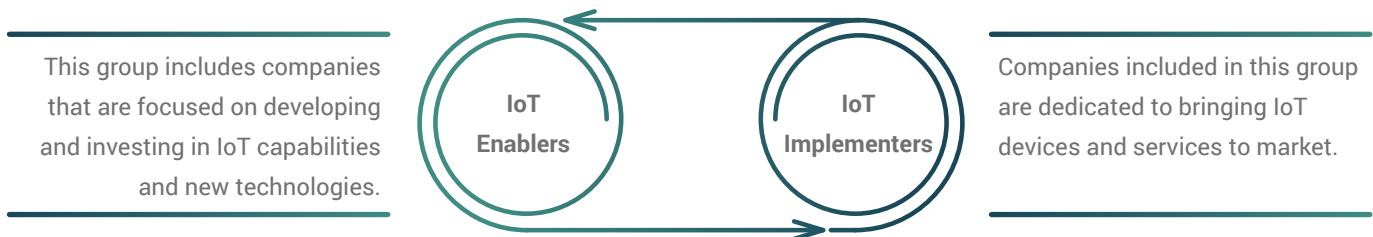


# METHODOLOGY

Every month, we identify active suppliers in the IoT ecosystem by combing through leading industry forums, analyzing research reports and assessing news coverage from around the globe.

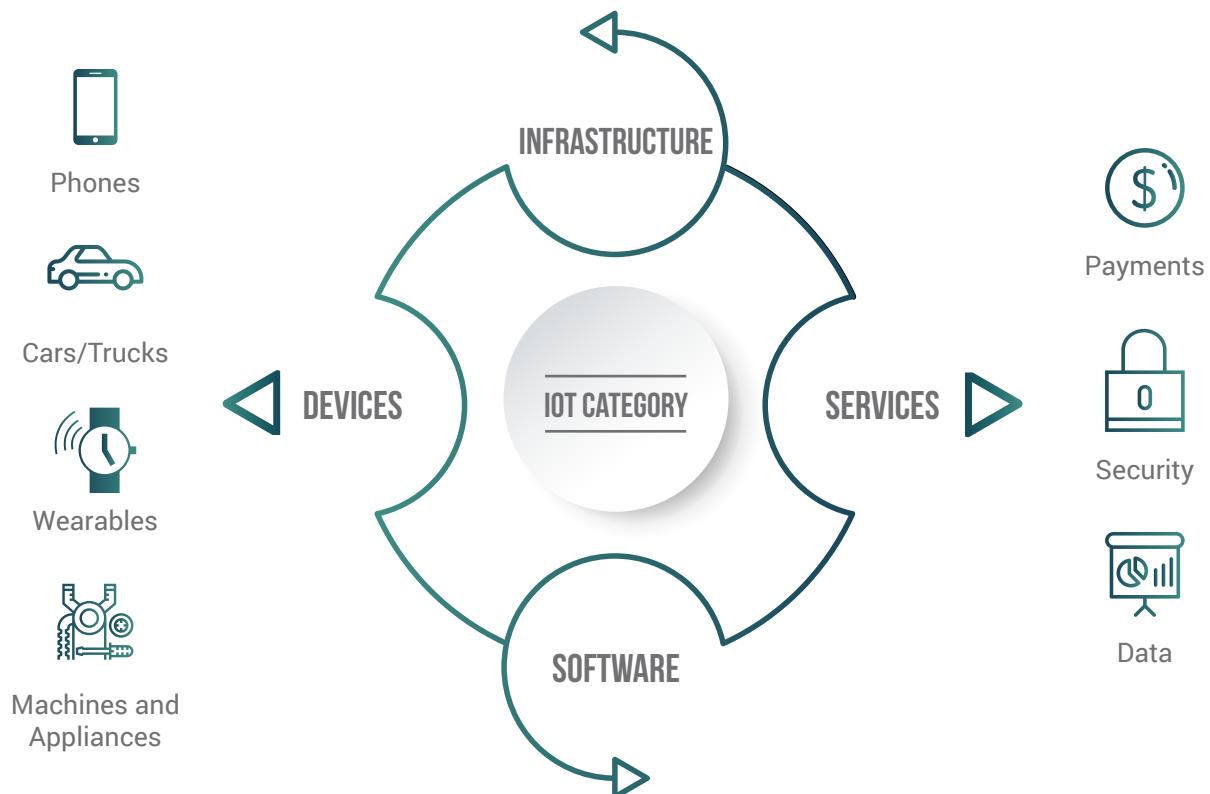
To provide an objective assessment, we group these suppliers under four categories: Devices, Software, Services and Infrastructure.

The Tracker's Supplier Scorecard has been further divided into two groups:



Each of the enablers and implementers in the directory are ranked on the services they extend in the four IoT categories. For a conclusive measure, we quantified their recent activity and public innovation profile in the space through LinkedIn and Google, and marked them as market and company indicators.

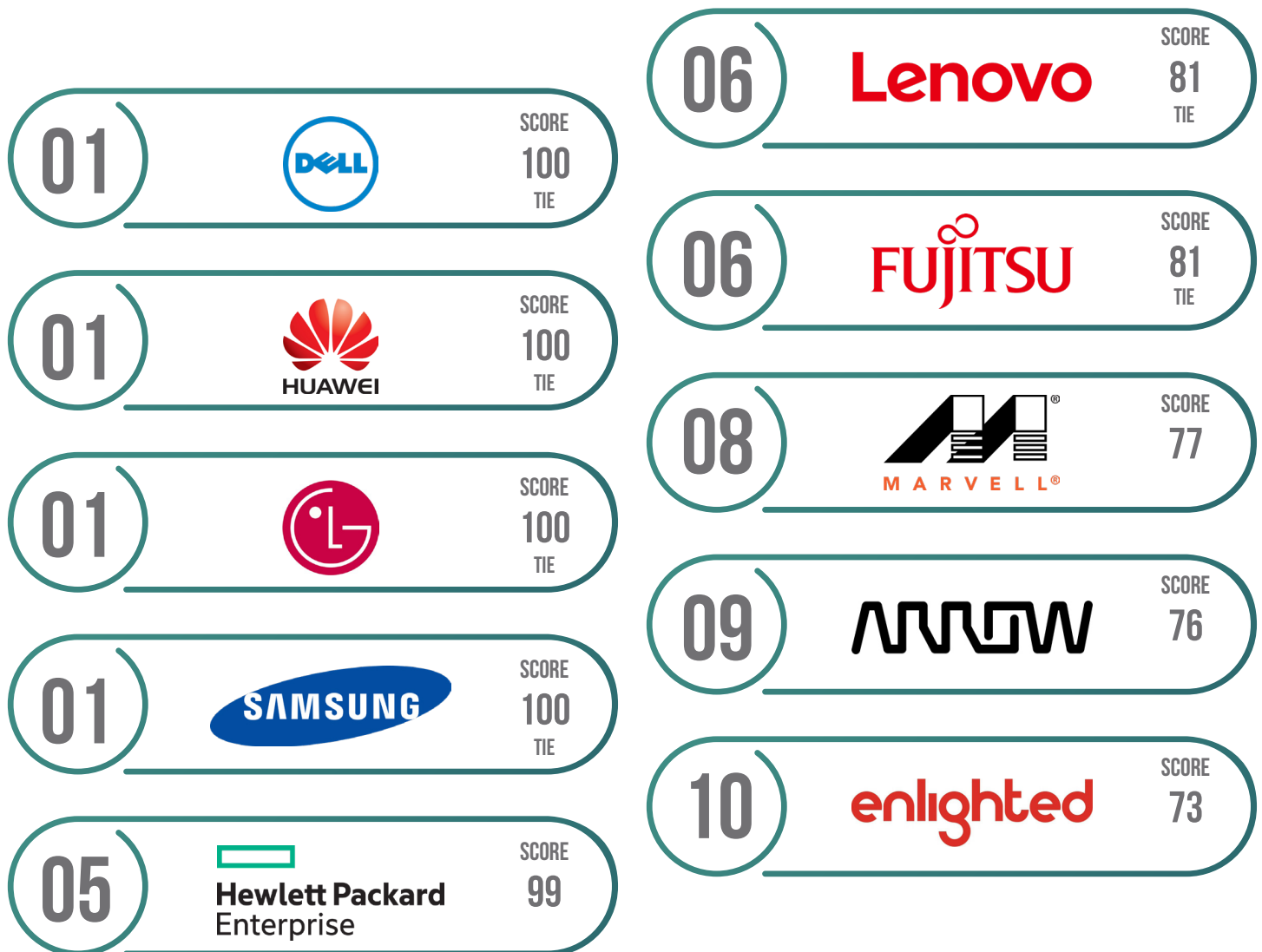
The narrowed list of suppliers selected to be a part of the Tracker are those that appear most often in our research. Information on the selected companies included in our Supplier Scorecard is sourced from their respective websites.



IoT Category	IoT Service	Description
Devices	Wearables	Wearable devices that extend tools such as health and fitness tracking
	Phones	Handsets that come with embedded chips for IoT capability
	Machines and Appliances	Manufactured products containing sensors that transmit data
	Cars/Trucks	Cars and trucks with integrated circuitry for IoT
Software		Software developments with IoT applications
Infrastructure		Architecture necessary for connecting devices, including sensors, chips, gateways and platforms
Services	Data	Data infrastructure, collection, storage, processing, modeling, analysis and visualization
	Payments	Gateways, infrastructure and software associated with payments in the IoT ecosystem
	Security	Security solutions for the IoT environment, including data and devices

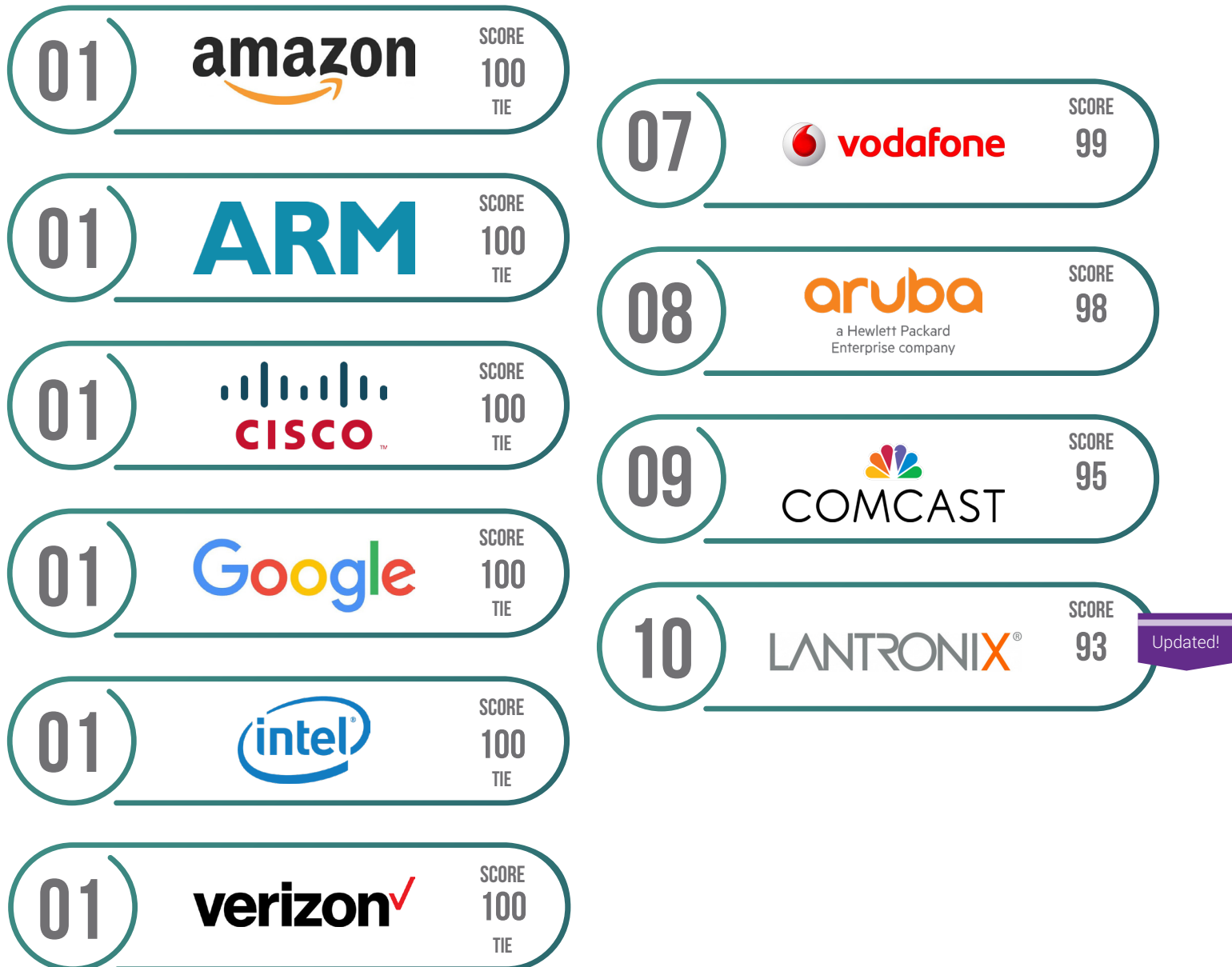
PYMNTS will periodically update scores based on new developments. If you would like your company to be considered for inclusion in the Tracker's Supplier Scorecard, or if you wish to have an existing listing reconsidered for an update, please head over to our [profile submission/update page](#).

## IoT IMPLEMENTERS TOP 10





## IoT ENABLERS TOP 10





**ACER**

Launch date: 1976

Acer makes information and communication technology products including PCs, displays, projectors, servers, wearables, tablets and smartphones. The firm also offers a cloud-based ecosystem intended to enable customers and businesses to connect their devices and manage data.

**AdhereTech**



**ADHERETECH**

Launch date: 2011

AdhereTech is a healthcare firm which manufactures smart wireless pill bottles that are currently being used by patients in pharmaceutical and research engagements. This innovative device tracks and improves adherence, collecting and sending all data in real-time. If doses are missed, patients can easily receive customizable alerts such as automated phone calls, text messages, lights and more.



**ADIDAS**

Launch date: 1924

Adidas, the German manufacturer and designer of sportswear, is also playing in the IoT world. The company's miCoach is a service that covers hardware and software developments for fitness tracking. Adidas commercializes wearables like smartwatches, shoe sensors and smart soccer balls and provides users with activity tracking apps that allow for real-time coaching and training scheduling.



**ADT**  
Launch date: N/A

ADT provides security and automation solutions for homes and businesses in the U.S. and Canada. Its solutions can control access, react to movement, sense environmental conditions such as flooding or carbon monoxide and respond to personal emergencies like injuries or incapacitation. Users can also remotely access their security videos and control lights or other elements of their homes or businesses.



**ALARM.COM**<sup>®</sup>



**ALARM.COM**  
Launch date: 2000

Alarm.com is an IoT company that works in the development of security and smart home services. Their software and devices offer services like interactive security, video monitoring, access and energy management. The company also provides home automation services that integrate different home devices and let users operate them via their smartphones.



**Ambarella**<sup>™</sup>



**AMBARELLA**  
Launch date: 2004

Ambarella develops low-power, HD and ultra-HD video compression and image processing solutions. Its products are used in a variety of professional and consumer applications including security IP cameras, sports cameras, wearable cameras, flying cameras and automotive video processing solutions. Ambarella compression chips are also used in broadcasting TV programs worldwide.



**APPLE**

Launch date: 1976

Apple works on the design and development of products ranging from electronics and software to Internet services. Their consumer electronics include smartphones, wearables, computers and smart TVs. Their software developing includes web browsers and operating systems.

Updated!



**ARROW**

Launch date: 1935

Arrow Electronics is a leading global provider of Internet of Things (IoT) connectivity products and services. The company distributes electronic components and computer products to industrial and commercial customers. The Company offers a variety of products including computer systems, peripherals, software, and mass storage products to original equipment manufacturers and commercial customers worldwide.



**ARXAN**

Launch date: 2001

Arxan Technologies offers security services for the IoT, mobile and desktop devices. Its products aim to offer customers protection against financial loss, brand damage, fraud, IP theft, stolen credentials, fraudulent transactions, unauthorized access and non-compliance with regulatory and industry standards.





Updated!

**ASUS**

Launch date: 1989

ASUS engages in manufacturing and wholesaling computing, communications, and consumer electronics solutions. The company is pioneering new mobile trends with the ASUS ZenFone™ series, and it is rapidly developing virtual and augmented reality products as well as IOT devices and robotics technologies. Most recently, ASUS introduced Zenbo, a smart home robot designed to provide assistance, entertainment, and companionship to families.



**ATHOS**

Launch date: N/A

Athos provides Internet of Things (IoT)-enabled fitness clothing paired with an app offering muscle activity tracking and insights into more effective athletic training.



**ATLAS WEARABLES**

Launch date: 2015

Atlas Wristband is a connected device that tracks fitness data, like the amount of repetitions or burned calories and presents the data in a mobile app. The system is updated over time and includes new exercises or metrics and allows for two different modes: Coach and Freestyle. The Coach mode gives the user a tracked routine to follow, while Freestyle mode just records the data from the user's personalized exercise routine.



**AUGUST**

Launch date: N/A

August Home develops smart home access products that use encrypted locking technology. It enables users to use smartphones or computers to create virtual keys for their homes to grant access to house cleaners, dog walkers, delivery services and guests – and control how long that access lasts.



**Automile**



**AUTOMILE**

Launch date: N/A

Automile develops an online platform that connects vehicle drivers and fleet managers with vehicle data. Its web app provides mileage and compliance logging, driver identification, messaging, real-time tracking and other features, and the company also offers asset tracking solutions.



**Babolat**



**BABOLAT**

Launch date: 1875

Babolat is a sporting goods manufacturer with a connected solution called Babolat PLAY. By using a connected racquet and a smartphone app, users can check their stats, power and technique and compare their performance with friends. The company also offers Babolat POP, a connected wristband which can be paired with smartphones and tennis racquets to collect performance data.



**BAYSHORE NETWORKS**

Launch date: 2012

Bayshore Networks provides cybersecurity solutions for the industrial IoT. Its products aim help companies deliver safe and secure integration of IT and OT networks, systems, data, and infrastructure. Its IT/OT gateway offers security solutions for operational assets from internal and external cyberthreats while enabling operational data to be shared with business systems for monitoring, controlling and analysis. The company also offers security and protection for smart cities.



**BLOSSOM**

Launch date: 2013

Blossom offers a smart watering device which builds watering schedules according to local weather forecasts, historical data and vegetable types. Users can also input and customize their own schedules.



**BOSCH**



**BOSCH**

Launch date: 1986

The Bosch Group provides an IoT development platform that allows for the design, development and deployment of big data/Internet of Things applications that leverage telemetry, elastic cloud computing, analytics and machine learning for the usage of predictive analytics. The company also offers IoT applications like supply chain.



**BRAGI**



**BRAGI**

Launch date: 2013

Bragi develops virtual audio assistants to enable productivity, enhance awareness and entertain users. The Bragi Dash Pro is a pair of wireless intelligent earphones featuring Bluetooth connection to other devices. The earphones also enable users to listen to music, or can be used as real-time translators or fitness trackers.



**BRITISH GAS**

Launch date: 1986

British Gas is an energy and home services provider offering its customers Smart Meters for gas and electricity that are intended help them to be in control of how much energy they are using. The company also offers a smart thermostat that enables users control their heating and hot water from their smartphone, tablet or laptop.



**BSQUARE CORPORATION**

Launch date: 1994

Bsquare offers DataV, a software solution designed to enable businesses and industries to use data from their connected devices to improve their outcomes. DataV provides users with several tools, including device-side logic, cloud analytics, predictive reasoning, predictive analytics and business process optimization.





**C3 IOT**  
Launch date: 2009

C3 IoT provides an IoT development platform that allows for the design, development and deployment of big data/Internet of Things applications that leverage telemetry, elastic cloud computing, analytics and machine learning for the usage of predictive analytics. The company also offers IoT applications like supply chain optimization, predictive maintenance and customer engagement.

**CAEDEN**



**CAEDEN**  
Launch date: 2014

Caeden develops design-focused earphones and wearable devices that can sense and manage stress via tracking of variables such as pulse and physical activity.



**CEL**  
Launch date: 1959

California Eastern Laboratories (CEL) sells and markets compound semiconductor devices from Renesas Electronics Corporation. The company's products include RF components, solid state relays and photo detectors. It also develops Cortet, a connectivity management suite that includes radio services like modules and gateways, software libraries compatible with multiple ecosystems, and the Cortet App, which allows for devices control and cloud solutions.



**CLEAR CHANNEL  
OUTDOOR**

Launch date: 1901

Clear Channel Outdoor entered the Internet of Things market with Clear Channel Outdoor RADAR, which uses aggregated mobile data to gain information about who is exposed to their advertising displays and how they interact with brands afterward.



**CONTROL4**

Launch date: 2003

Control4 manufactures wireless home automation products and enables users to virtually control any device in a home or business. The company has developed hardware and software solutions to remotely monitor and automate home theater and television, video, multiroom music, lighting, energy, temperature and security.



**CUBICAL LABORATORIES**

Launch date: 2013

Cubical Laboratories offers solutions to monitor the electrical appliances remotely at households, hotels and office environments. The company produces smart homes controllers and switches, wireless cameras as well as the software and applications necessary to control electronic devices, lightening, fan and curtains from a smartphone or laptop. Users can also get real-time insights, graphs and analytics regarding energy usage data and consumption.



**DELL**  
Launch date: 1984

Dell's participation in the Internet of Things industry covers areas from infrastructure solutions to analytics capabilities, as well as security services.



**DENSITY**  
Launch date: 2014

Density has developed a small sensor that measures how busy a location is in real-time. The firm uses depth sensing technology, computer vision, and an onboard quad-core processor to anonymously measure and manage entrances and exits through a door. Density system is designed to protect privacy and can be deployed into places a video camera cannot go such as stadium bathrooms, churches, secure corporate offices, elementary schools, and dressing rooms.



**DIGICERT**  
Launch date: 2003

DigiCert provides identity, authentication and encryption solutions for the web and IoT. Its SSL tools and PKI certificates ensure correct authentication of devices as it connects, and protects communication between devices.



Displio  
Launch date: N/A

Latvia-based Displio produces a self-standing WiFi-connected digital display. The product shows sections from a range of information options, including email alerts, weather and shipment tracking information.



EATON  
Launch date: N/A

Eaton Corporation is a power management company that develops products and systems to manage electrical, hydraulic and mechanical power. These include vehicle automation, aerospace actuators, connectivity and more.



DYSON  
Launch date: 1993

Founded by James Dyson, this company produces vacuums, air treatment devices, lighting solutions and hand dryers. Dyson Pure Cool Link is an air purifier embedded with connectivity technology that can be controlled from the user's phone, send information to the user's mobile about the quality of the air and report on its own functioning. It also gives insight on data like times the device has been working and levels of pollution throughout the day.



Ecobee is a smart thermostat enabling users to control their homes' temperature using smartphones, computers, tablets or via voice recognition. The Ecobee device also comes with sensors that recognize the rooms' hot and cold spots and can detect occupancy.



Eggplant Technologies is the developer behind "Move It," a smart, mobile-connected personal gym. The solution is composed of a smart handle that is interchangeable with four types of training equipment and is capable of detecting 16 different types of exercise. The company provides a mobile app that synchronizes with the equipment and allows users to interact with other people to find workout buddies or challenge friends.



Enlighted manufactures light control platforms for smart buildings. The firm provides sensor technology and data analytics system for energy savings, space utilization, security and more. Its smart sensor can monitor real time occupancy, light levels, temperatures and energy usage, among other things. The solution has been designed for commercial office, education and health care spaces.



# EPSON®



**EPSON**

Launch date: 1942

Epson is a manufacturer of printers, projectors, scanners, professional imaging, system devices and factory automation products. Besides, the company offers wearable devices such as smart glasses or fitness trackers, point-of-sale products, cameras, home entertainment devices, among others.



# fitbit®



**FITBIT**

Launch date: 2007

Fitbit develops a range of different wearable bracelets that can track activity. The Fitbit app can track daily activity and quality of sleep, record exercise routine stats, and help users organize workouts. The app also adds different features of social engagement and helps with nutrition care by allowing for food logging or weight tracking with a Fitbit-connected scale, Aria. The information is displayed on the user's phone, as well as the bracelets themselves, which can also receive and display phone data such as calendar entries or calls.



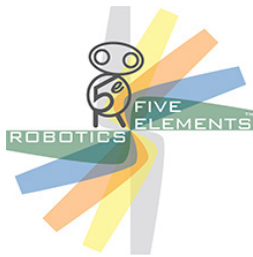
# fitpay



**FITPAY**

Launch date: N/A

FitPay is a proprietary technology platform. It provides contactless payment capabilities for wearables and Internet of Things (IoT) devices.



**FIVE ELEMENTS  
ROBOTICS**  
Launch date: N/A

Five Elements Robotics is a technology company focused on the development of personal and consumer robots. The company is the developer behind DASH, a retail robotic shopping cart. DASH allows users to import their shopping lists from their phones and gathers data from user usage to offer targeted marketing.



**FLEET SPACE TECHNOLOGIES**  
Launch date: N/A

Fleet Space Technologies designs, builds and launches a network of nanosatellites to provide global satellite connectivity to the Internet of Things (IoT). It serves the mining, oil and gas resources, precision agriculture, transport and logistics sectors.



**FOOBOT**  
Launch date: 2013

Foobot is an air quality monitoring system enabling users to control indoor air pollution. The company's app offers indoor air metrics, outdoor pollution levels at the user's location and home automation features.



**FORESCOUT**  
Launch date: 2000

ForeScout Technologies, Inc., is an IoT security technology developer. Their solutions can see which devices are connected to the network without requiring endpoint agents, allowing it also to detect nontraditional IoT devices. The company's solutions integrate with more than 70 network, mobility, IT and security products, allowing for information sharing and operation synchronization.



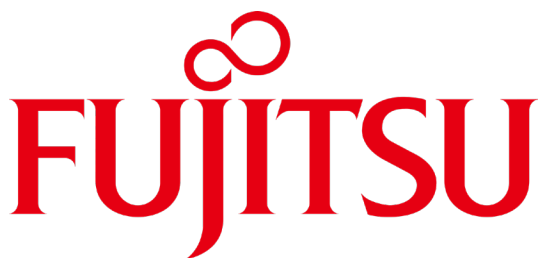
**FRIENDLY  
TECHNOLOGIES**  
Launch date: 1997

Friendly Technologies is a platform provider offering solutions for smart home, IoT, TR-069, LWM2M, MQTT and OMA-DM device management. The company's software is designed for service providers and those participating in IoT utilities, transportation and smart cities markets.



**FRONTPOINT**  
Launch date: N/A

Frontpoint Security Solutions installs, monitors and maintains security technology offerings, including home security systems that can be controlled remotely with an app.



**FUJITSU**

Launch date: 1935

Fujitsu is an information and communication technology company offering IoT platforms ranging from enterprise wearable devices and middleware applications to standardized business solutions for customer verticals. Its IoT platforms provide data aggregation and management as well as application development services and device management capabilities. The firm also builds electronic devices and hardware products such as laptops, smartphones and tablets.



**GARMIN**

Launch date: 1989

Garmin manufactures and designs products for the automotive, aviation, marine, outdoor and fitness markets that are capable of running a GPS. Other products sold by the company include smartwatches, cameras and sensors. The company has developed applications that enable users to manage and control their devices.



**GEMALTO**

Launch date: 1979

Gemalto designs and manufactures digital security solutions. The company's IoT solutions are mostly aimed to provide reliable connectivity, reliable security and agile monetization frameworks. Gemalto's M2M portfolio is enabling solutions in industries ranging from health care, retail services, smart energy, transportation, logistics and automotive. Besides, their consumer electronics portfolio includes solutions for smartphones, tablets, PC and wearables.



**IoT WoRKS**  
by HCL Technologies

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**HCL TECHNOLOGIES**

Launch date: 1991

IoT WoRKS TM by HCL works to enable organizations to develop IoT ecosystems in order to enhance their connections of things, data and processes. The company's solutions are designed to help businesses to enhance communications between devices and cloud. The company also offers a data analytics platform which allows secure data ingestion, management, and syndication.



**helium**

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**HELIUM**

Launch date: 2013

Helium Smart Sensors are deployable in minutes and built for companies that need to monitor and analyze conditions of interest and importance. The company offers two main wireless smart sensors: the Helium Blue, that measures internal refrigerator temperature and door state and the Helium Green, which measures multiple environmental parameters. In addition, Helium also offers a cloud, which is the control and storage center for the entire distributed smart sensing system.



**Hewlett Packard  
Enterprise**

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**HEWLETT PACKARD  
ENTERPRISE**

Launch date: 1939

Hewlett Packard Enterprise offers a group of different solutions that go from cloud, security and big data to mobility infrastructure and the Internet of Things. The company's Universal IoT Platform offers an architecture for businesses to manage and connect heterogeneous IoT devices as well as collect, analyze and monetize data. The solution comes with attributes like application design, API monetization and policy enforcement.



# hiku



**HIKU**

Launch date: 2012

Hiku is a kitchen device to scan barcodes and recognize voices to add products to shopping lists. Consumers can use it for shopping in-store and online, add planned updates to receive price comparisons and share shopping lists with others.

# HITACHI



**HITACHI**

Launch date: 1910

Hitachi Insight Group is the arm of the Japanese technology firm that focuses on the Internet of Things. The company provides its own IoT platform called “Lumada,” and also develops IoT solutions for smart cities and energy efficiency, as well as industries like health care, automotive and construction.

# HONDA

The Power of Dreams



**HONDA**

Launch date: 1946

Honda is primarily known as a manufacturer of automobiles, motorcycles and power equipment. The company is also focused on connecting its cars with solutions like HondaLink, a display audio system that's powered by a user's phone, to access online content.

# Honeywell

69

**HONEYWELL**

Launch date: 1985

Honeywell manufactures wireless and scanning technologies used in building, home and industrial applications. The company's solutions are designed to deliver energy efficiency, security and safety. The company also offers software and applications to stay connected and control its devices.



# HotSchedules®

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**HOTSCHEDULES**

Launch date: 1999

HotSchedules develops employee scheduling and labor management solutions for the restaurant industry. In 2015, the company introduced its IoT platform, which allows users to capture data, transform it into insights and deploy their own apps. With the platform, a restaurant can connect things like kitchen appliances, payment devices and drive-thru displays into the same platform, gathering data in a single place and allowing for more complete information.



# HUAWEI

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**HUAWEI**

Launch date: 1987

Huawei Technologies is a telecom solutions provider that offers infrastructure application software, telecommunications networks and devices with wireline, wireless and IP technologies. The company has developed a wide range of IoT devices including phones, PC, tablets, wearables, audio devices and Wi-Fi routers for smart homes.

# huami



**HUAMI**

Launch date: N/A

Huami is a Chinese wearable device manufacturer that produces fitness trackers and smartwatches. Its products include the Amazfit and Xiaomi wearables.



**HUMAVOX**

Launch date: 2010

Humavox has developed ETERNA, a wireless charging technology that enables users to recharge their electronic devices from nearly any containing object where they instinctively drop their devices. The company offers solutions for charging headphones, fitness trackers, smart rings, watches and clothing.



# HYUNDAI



**HYUNDAI**

Launch date: 1967

The Korean automobile manufacturer Hyundai has its own player in the automobile IoT market: BlueLink. The service allows drivers to access a group of different features, from safety tools like automatic collision notification and monthly vehicle health reports to external control features like remote start and stolen car location. BlueLink also provides a destination search solution powered by Google and can connect with Apple Watch and Android Wear.



**IHT SPIRIT SYSTEM**

Launch date: 2011

IHT Spirit System developed an assessment platform focused on physical education. The company's IoT software solutions allow teachers to access the data of every student and test their performance.



**INFISWIFT**

Launch date: 2015

infiswift is an IoT-enabled platform designed to connect and manage devices and cloud services. The platform offers multi-layer security for enterprises, real-time device monitoring and data processing and analysis.



**INVENSENSE**

Launch date: 2003

InvenSense provides MEMS inertial sensors, microphones, software algorithms, sensor development tools and platforms needed for the product creation and sensor integration of IoT-connected devices. InvenSense technology is designed for multiple products including smartphones and tablets, automotive, wearables, drones, and smart remotes for smart TVs.



**JOHNSON CONTROLS**

Launch date: 1885

Johnson Controls International develops smart buildings, energy solutions, infrastructure and transportation systems. The firm offers products including energy efficiency, building management and automation solutions. In addition, Johnson Controls Smart Equipment offer embedded controls and secure connectivity to help companies improve serviceability.



**Karamba  
Security**



**KARAMBA**

Launch date: 2015

Karamba develops security solutions for connected cars. The company offers endpoint security for the externally connected electronic control units of connected cars that allows only explicitly permitted code to run through them. Karamba also offers early detection of droppers and malware protection services.



**KEEN™**  
home



**KEEN HOME**

Launch date: 2013

Keen Home develops home automation hardware and software products. The company's Smart Vent System enables users to control heating and cooling airflows room-by-room. Smart Vents also connects to the internet and to its other components, giving users the ability to manage all functionalities from the Keen Home app.





kepware®

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KEPWARE

Launch date: N/A

Kepware is PTC's software development business. It works to provide a portfolio of software solutions designed to help businesses connect automation devices and software applications and enable industrial IoT.



KONUX

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KONUX

Launch date: 2014

Konux provides the industrial IoT market with smart sensor systems designed to measure all kinds of mechanical and geometric parameters such as torque, pressure, force and angle. Konux sensing technologies are combined with a cloud solution that provides customers with real-time data visualization and intelligent data analysis, enabling them to understand their machine problems and make maintenance predictable.

Lenovo

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LENOVO

Launch date: 1984

Updated!

Lenovo develops, manufactures, and markets technology products and services. It offers commercial and consumer personal computers, as well as servers and workstations; mobile Internet devices, including tablets and smart phones; storage and networking products; memory and processors; rack and power infrastructure; and laptops, desktops, and accessories, as well as operating systems, security, and systems management software.



**LG**  
Launch date: 1947

LG Corporation delivers connected products that go from smartphones, tablets and smartwatches to TVs and home audio devices. The company also works with affiliated companies in telecommunication services such as: LG N-sys, LG CNS and LG U.



**LIFX**



**LIFX**  
Launch date: 2012

LIFX is a WiFi-enabled LED light providing users the ability to control their home or office lights with any enabled device, such as a smartphone, wearable or a smart home device. The multi-colored smart light comes with an app offering features like a music visualizer, themes, scenes and schedules.



**LIMEBIKE**  
Launch date: N/A

LimeBike is a dock-less bicycle sharing company. Its app enables users to locate bikes and scan to unlock them.



**LOCAL MOTORS**  
Launch date: 2007

Local Motors is a technology company that works on the development of vehicles. The company's products include a 3D printed car and Olli, an autonomous electric shuttle. Olli uses sensors and data to understand its environment and can help in corporate or municipal transportation needs. The shuttle can also work like a taxi with the user determining a pickup location through the app for later traveling and paying within said app.



**LOFELT**  
Launch date: 2016

Lofelt develops "The Basslet," a wearable watch-size subwoofer. The device delivers beats and basslines directly into the user's body. The Basslet works next to a sender that can be connected into devices like smartphones, gaming consoles or VR headsets.



**LOGITECH**  
Launch date: 1981

Digital products provider Logitech has developed a range of IoT solutions mainly focused on smart homes. The company's portfolio includes several products that allow users to remotely control their connected devices and manage their home's lighting, music, locks, thermostats and more. The company's products include smart remotes, connected security cameras and smart buttons.



LogMeIn provides software as a service and cloud-based remote connectivity services for collaboration, IT management and customer engagement.



Lumo develops body tracking technology, including clips that attach to running shorts or capris to measure cadence and speed, giving the runner instant feedback through earphones. Lumo also offers clip-on devices that monitor posture.



Lutron offers a family of IoT devices including lights, shades and temperature controls for a room or a whole house. The tools can also adjust automatically to prevent excessive energy consumption.



**MARVELL**  
Launch date: 1995

Marvell is a fabless semiconductor company with experience in microprocessor architecture and digital signal processing. The company develops platforms for storage solutions as well as wireless and networking products between others.



**MASTERCARD**  
Launch date: 1966

Mastercard is a technology company developing solutions for the payments industry, with payment processing as its core business. The company develops different payment products, including the use of NFC technology, eCommerce applications and security products. Mastercard is also engaged in the development of Internet of Things technology usage into payment applications.



**MATTERNET**



**MATTERNET**  
Launch date: 2011

Matternet is an autonomous drone logistics platform developer with its own drone, cloud and usage stations. The company provides aerial delivery transport for healthcare, eCommerce and logistics organizations, along with serving individual customers. The platform is designed to be used in densely populated urban areas which often present delivery challenges.



Microsoft develops a broad range of software products, from Windows to Skype and from Bing to Office. The company also develops devices like Lumia and Xbox, as well as the Azure IoT Suite, a platform that allows the user to connect and scale projects, as well as analyze the data generated by it.



Misfit manufactures wearable and smart home devices. The company offers smartwatches, fitness trackers and smart accessories. Misfit also offers IoT-based applications such as the Misfit Link App, Home App and Cycling app, which help users better manage wearables from their smartphones.



Mocana's IoT security platform helps companies secure and monitor their devices and gateways in a complex, multi-vendor environment. The device-to-cloud platform functions as a real-time operating system (RTOS) for wired and wireless networking settings.





**MOEN®**



**MOEN**  
Launch date: N/A

Moen has developed a customizable shower with personal device integration enabling users to control time and temperature. Once the U by Moen shower is connected to WiFi and the cloud, users can control their showers using their smartphones, Alexa or the shower controller.



**moov**



**MOOV**  
Launch date: 2013

Moov is a water and dust-proof connected wristband designed for sports, including cycling, swimming and boxing. The wearable device can also be used in coach mode, allowing for a voice-guided workout and different metrics, such as amount of repetitions or landing impact. The device can also track 3-D movements, allowing it to teach the user more effective exercise techniques, and permits for social engagement and competition with connected friends.



**NESPRESSO®**



**NESTLÉ NESPRESSO**  
Launch date: 1986

Coffee machines and capsules provider Nespresso has developed a connected coffee machine. The Nespresso Prodigio is a Bluetooth connected coffee machine which enables users to manage capsules stock, program coffee times and receive alerts for machine maintenance and care, everything done from their smartphones through the Nespresso app.



**NEST**

Launch date: 2010

Nest is a technology company focused on smart home tools. Nest products include a thermostat that learns from user preferences, a smart smoke-CO2 alarm and a camera that tracks the user's phone location to know when to turn on. The company's devices can communicate with the user's device through the Nest app in order to either provide information or be externally controlled.



**NETATMO**

Launch date: 2011

Netatmo is a smart home company, developing connected consumer electronics. Netatmo designs the mechanics, electronics and embedded software of all its products and also creates the mobile and web applications.



**NEURIO**

Launch date: 2005

Neurio is a home intelligence technology company that gives homeowners the ability to monitor their homes. The company's Home Energy Monitor allows homeowners to track their power use in real time, see bill forecasts, set up budgets, get energy saving tips and more.

**NFC | RING.**



**NFC RING**

Launch date: 2015

NFC Ring provides a wearable ring that can be used to make payments, lock or unlock doors and devices or share and transfer information.



**NISSAN**

Launch date: 1933

Nissan, the Japanese automobile manufacturer, offers embedded IoT technologies in their cars through a service called NissanConnect. The solution allows drivers to access a group of different features that includes access to different apps such as Google and Facebook as well as security tools like stolen vehicle locating and roadside assistance. The solution can also control external features of the car, such as locking doors, triggering horns and controlling the air conditioning.

**notion**



**NOTION**

Launch date: 2013

Notion develops sensors that allow homeowners to monitor their homes remotely. Notion's device can track a group of variables, such as when a door is open, the temperature goes too low or too high, and there is a water leak. Users can also monitor their homes from their phones and receive notifications.



**nucleus**



**NUCLEUS**

Launch date: 2013

Nucleus is a smart home wireless intercom system designed to allow users to make calls from room-to-room or home-to-home. Each Nucleus account has a unique Home and Remote code enabling them to establish secure connections between devices. The Nucleus device connects to the internet via Wi-Fi or Ethernet and is Amazon Alexa-enabled.



**Numerex™**



**NUMEREX**

Launch date: 1992

Numerex provides a portfolio of managed end-to-end Internet of Things solutions including smart devices, network connectivity and service applications enabled to address the needs of a wide spectrum of vertical markets including Waste Management, Manufacturing & Distribution, Public and Personal Safety, Oil & Gas, Transportation, Emergency Management and Commercial & Residential Security.

**NUZZLE**



**NUZZLE**

Launch date: 2014

Nuzzle has developed a GPS collar that enables owners track their dogs. The GPS collar features 24/7 connectivity via dual-band 3G cell, embedded SIM card and Bluetooth. In addition, the GPS collar offers impact detection, temperature monitoring and activity monitor. Owners can also use a mobile app to track their pets.



**OMNITRACS**  
Launch date: N/A

Omnitracs, LLC, is a trucking solutions provider. It offers transportation technology and insights, with solutions designed to assist with compliance, safety and security, productivity, telematics and tracking, transportation management, planning and delivery, data and analytics and professional services.



**ONEPLUS**  
Launch date: 1989

OnePlus is a manufacturer of waste container fullness and control systems. The company also produces technology that can regulate who can access the system and provide users with a cloud-based software from where they can access information.



**OPTIMAL+**  
Launch date: 2005

Optimal+ is a data analytics company offering end-to-end solutions designed to improve quality, yield, and productivity for semiconductor and electronics manufacturing.

# OSRAM



**OSRAM**

Launch date: 1919

Osram implements high-tech devices and smart solutions for lighting technology in the automotive, entertainment and health sector as well as private consumers. The company also offers smart home products and is developing smart city solutions.

# OSSIA



**OSSIA**

Launch date: 2008

Ossia is the developer of Cota, a wireless power charger that can power equipped devices. The solution takes energy from a single source and transmits it through a net of antennas to a power receiver within a 30- foot radius. The solution also allows for energy saving, as the system turns off once the devices are off the range or hibernating.

# Petnet<sup>io</sup>



**PETNET**

Launch date: 2012

Petnet offers the SmartFeeder, an automatic feeder for cats and dogs that enables users to manage feeding times, portion sizes and food supply. The SmartFeeder uses sensors to measure portions based on a pet's age, weight and level of activity. Users can control their pets' feeding from their smartphones.





**PETPACE**  
Launch date: 2012

PetPace offers remote pet monitoring services through a wireless smart collar, which collects a pet's vital signs and behavior patterns. PetPace comes with an integrated Health Monitoring Service to continually analyze the collected health data and send notifications to the pet owner's smartphone in case of emergencies.



**PHILIPS**  
Launch date: 1891

Philips' IoT-enabled lighting product, Hue Personal Wireless Lighting, is a connected lighting solution designed to enable users to manage their lighting system from their smart devices. Hue uses a system called The Bridge that connects the smartphone to the Philips Hue lights via Wi-Fi. The Bridge offers different types of smart lights and gives users the ability to create timers, control brightness, play with colors and synchronize lights to music, TV and games.



**POLAR**  
Launch date: 1977

Polar is a manufacturer of sports training technologies. Among other products, Polar has deployed GPS-enabled bike computers, fitness and running watches, as well as heart rate monitors and performance trackers. Their devices are designed for any activity ranging from swimming, cross-training and yoga to tracking user's daily activity and calorie consumption.



**rachio™**



**RACHIO**  
Launch date: 2012

Rachio develops a smart sprinkler device that uses weather prediction to ensure more efficient usage of water. Rachio devices can adjust their functioning to the characteristics of the yard where it's working or the changing seasons. It is connected to a mobile app that not only allows for external control of the sprinklers, but also delivers information about precipitation, watering and the yard's health.



**RAY ENTERPRISES**  
Launch date: 2012

Ray has developed a smart touch-screen remote that enables users to control all their devices. The remote supports a wide range of entertainment devices including TVs, cable and satellite providers, streaming devices, sound bars, and DVD players.



**redhat®**



**RED HAT**  
Launch date: N/A

Red Hat has a portfolio of secure products and services such as cloud storage and operating system platforms along with middleware, applications and management solutions. It also provides customer support, training, implementation and consulting services.

# Rockwell Automation



**ROCKWELL AUTOMATION**  
Launch date: 1903

Rockwell Automation develops industrial automation and information technology products. Its Connected Enterprise capability enables industries to connect, monitor and optimize devices and processes. The company's Industrial IoT solution integrates networks and creates an integrated production platform that can enable smart manufacturing.



## SageGlass®



**SAGEGLASS**  
Launch date: N/A

SageGlass offers electronically tintable glass — known as dynamic or electrochromic glass — for windows, skylights and curtain walls. The glass tints automatically or on demand to control sunlight levels, without need for shades or blinds.



## samsara



**SAMSARA**  
Launch date: 2015

Samsara offers internet connected sensor systems designed for diverse environments from energy monitoring to asset utilization to vehicle tracking. Its traditional sensor model is combined with an integrated, software-centric solution enabled to capture hundreds of metrics, bringing visibility and insight into any operation.



**SAMSUNG**  
Launch date: 1938

Samsung's business expands through many industries, from heavy industry to chemical to its more well-known face: Samsung Electronics. The company develops wearable devices, smart TVs and some of the most classic connected devices: smartphones. Samsung has also begun developing smart home applications, from sensors and hubs to connected appliances.



**SATO GLOBAL  
SOLUTIONS**  
Launch date: 1940

SATO Global Solutions (SGS) develops IoT solutions, including data-based advice for business operations and customer experience improvements. The company co-founded the Acuitas Digital Alliance which develops cloud-based IoT solutions to help retailers use Big Data and IoT.



**SEAT**  
Launch date: 1950

SEAT (or Sociedad Española de Automóviles de Turismo) is an automobile manufacturer headquartered in Martorell, Spain. The company was founded in 1950 and is currently an owned subsidiary of the Volkswagen Group. SEAT has been researching connected car developments with companies such as SAP and Samsung for solutions like parking reservations and payments as well as digital key sharing.

**SECTORQUBE**

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**SECTORQUBE**

Launch date: 2011

SectorQube has developed Maid, a smart oven that sets the time and temperature according to number of servings and a user's personal preferences. Maid comes with an intelligent personalization engine that learns user preferences and is connected to an online recipe store. The oven can be controlled and managed by using its touchscreen or through voice and gestures.

**seebo**

44

**SEEBO**

Launch date: 2012

Seebo offers an integrated platform intended to help manufacturers create, develop, analyze, integrate and build IoT products.

**sensoria**

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**SENSORIA**

Launch date: 1987

Sensoria develops wearables that track and communicate data like body weight, eversion and in-footwear pressure. The data is analyzed and displayed in the user's mobile device.



**SENTRI**

Launch date: 2014

Sentri is an all-in-one home controlling solution helping users make their homes safer and smarter. The device comes with a 120-degree wide-angle camera and sensors that track environmental health including temperature, humidity, air quality and weather. Users can connect and control other smart devices and get mobile notifications whether any unusual activity or change in the home environment is detected.



**SKYHOOK**

Launch date: 2003

Skyhook is a global location network that, by georeferencing mobile users, allows companies to deliver more personalized content. The company's location engine is based on Wi-Fi data that is combined with information from GPS, cell towers, IP addresses and device sensors, and its services are suitable for different industries, including app development, advertising, device manufacturing and wearable design.



**SMARTDRIVE**

Launch date: N/A

SmartDrive offers solutions for corporate fleets. Its offerings include security programs, an open analytics platform, and transportation intelligence intended to improve safety and identify opportunities for greater operational efficiency.





Software AG is a software developer whose solutions apply to a range of different industries, including IoT, banking, energy, government and retail. The company's IoT solutions include Terracota, a data management platform, location-based marketing capabilities, location analytics and manufacturing products such as equipment predictive maintenance energy theft detection.



Somfy offers outdoor home products like smart gates, doors, window shutters and alarm systems that can be managed from a mobile app.



Sony Corporation products range from categories such as television and audio/video solutions to semiconductors, medical equipment and digital imaging developments. The Japanese company has introduced IoT technology in different equipment they develop, starting with their mobile and tablet devices and now including smart TVs and wearable products like watches or wristbands.



**SOPHOS**  
Launch date: 1985

Sophos provides IoT security services that work to protect devices, data and key processes from malicious malware code and dangerous cyber activity. Among other services, the company offers endpoint, encryption, email, web, mobile, network security and UTM products, as well as a range of tools for home users.



**STATSports®**  
Launch date: 2007

STATSports provides sports science and performance analytics. Its performance tracking systems can calculate more than 50 metrics in real time and store all data into a cloud infrastructure. The STATSports Apex tracking device connects via Bluetooth LE to multiple devices, including heart rate sensors, EMG shorts, smart watches and tablet devices.



**striim**  
Launch date: 2012

Striim is a real-time data integration and streaming analytics software platform. The company integrates IoT data to provide data analytics and protect users against cybersecurity threats. Striim for IoT combines real-time sensor data with other enterprise data from databases, log files, message queues and cloud environments.



**SWATCH**  
Launch date: 1983

Swatch produces smart watches and other wearables. The company's Touch Zero One smartwatch was specially designed for beach volleyball players and gives users the ability to calculate steps, track calories burned, set goals and check progress. Users can also connect Swatch devices to their smartphones and use an application to check performance insights.



**SYMANTEC CORPORATION**  
Launch date: 1982

Symantec Corporation provides cybersecurity services through its anti-virus software Norton. It also offers integrated solutions to defend against attacks across endpoints, cloud and infrastructure. Symantec Corporation has also developed a router to which IoT-enabled devices can securely connect in a single action.



**TAG HEUER**  
Launch date: 1860

Tag Heuer's smartwatch collection has been manufactured in collaboration with Google and Intel. The TAG Heuer Connected Modular 45 collection offers customized designs, GPS, time management tools and water resistance. The device is also connected to a mobile app.



**TELETRAC NAVMAN**  
Launch date: N/A

Teletrac Navman offers GPS-based fleet management and optimization products and services. Its products include real-time vehicle tracking, electronic logging, communications and analytics designed to enable companies to monitor, measure and improve operational costs and efficiencies.



**TERADATA**  
Launch date: 1979

Teradata develops a range of solutions that apply to the Internet of Things industry, with options like Teradata Unified Data Architecture, which allows businesses to organize and leverage data, or Teradata Aster Analytics, which allows for data visualization and analytics.



**TILE**  
Launch date: N/A

Tile provides devices, a network and mobile app that use Bluetooth technology to assist users in locating keys, wallets, phones and other items.



Token offers a biometric-based wearable ring designed to make payments and provide authentication in place of ID credentials, internet passwords or at physical locations. Its product also can be used with specialized company-made locks to unlock home or compatible car doors.



TomTom designs and develops navigation and mapping products for cars, motorcycles, scooters and trucks and provides fleet management solutions. The company also offers GPS smartwatches and accessories for running, fitness, golf and other activities.



Tovala has designed a Smart Oven that can steam, bake, broil and heat prepackaged meals that the device, after scanning the code they come with, will know how to cook. The oven can also connect to the user's phone using its own app, which allows for tracking of the cooking time.



**TOYOTA**  
Launch date: 1987

Toyota, the Japanese car manufacturer, has integrated IoT technology into their automobiles. Entune, the service the company developed for connecting mobile devices with cars, allows drivers to access their playlists or use voice recognition commands. Toyota also delivers security-connected solutions that can assist in cases of collisions, needing emergency assistance or locating stolen vehicles.



**TRACKX**  
Launch date: 2013

TrackX is a software solutions provider. Its products focus on asset tracking, inventory management and supply chain solutions, all using a cloud-based asset tracking platform, GPS, RFID and sensors.



**TRITONWEAR**  
Launch date: N/A

TritonWear develops wearables that allow coaches and their athletes to track performance through their mobile devices in real time.



TRUSTONIC



**TRUSTONIC**

Launch date: N/A

Trustonic is a device security company that provides security for connected devices, associated services and applications.



**UBIGREEN**

Launch date: N/A

Ubigreen is a technology company that develops turnkey solutions. Its offerings include web apps to monitor and control energy use or other operations in a building or other site.

 **UNDER ARMOUR.**



**UNDER ARMOUR**

Launch date: 1996

Under Armour products include apparel developed for controlling body heat and intelligent items concentrated on tracking the user's performance. The company's interest in IoT applications pushed the acquisitions of fitness apps such as MapMyFitness and MyFitnessPal.

view™



**VIEW**

Launch date: 2007

View Dynamic Glass' window tint tech helps to control the temperature inside a room, saving energy and improving comfort. The device can adjust automatically to the time of the day, the angle of the sun and weather conditions, taking into account the geolocation of the building and its architectural design. The solution also provides data for the user to track energy efficiency.

VIMOC  
Technologies



**VIMOC**

Launch date: 2012

VIMOC Technologies is a platform provider for Landscape-Computing, enabling the deployment of solutions for the Internet of Things and smart city implementations. The platform is provided through a scalable API that facilitates sensory data access with built-in statistical analysis and a workloads distribution framework.

 vinli™



**VINLI**

Launch date: 2014

Vinli is a small device that can be connected to a car to provide services including connectivity and apps. Using a 4G LTE network, Vinli can also be used as a Wi-Fi hotspot to allow passengers to stream movies or download games. The company also offers apps covering security, social engagement and other utilities, such as sending notifications if a collision occurs.

# VISA



**VISA**

Launch date: 1958

Visa is an American multinational financial services company focused on the transfer of electronic funds. The company's portfolio includes Visa-branded credit, debit, commercial, prepaid, mobile and money transfer. VisaNet is the technology behind the company's payment processing solution, which provides its services at a worldwide level.

# vivint. SmartHome™



**VIVINT**

Launch date: 1999

Vivint is a smart home services provider focused on connected home automation and home security cameras and devices, all controllable by an app.

# WEBROOT®



**WEBROOT**

Launch date: 1997

Webroot works on endpoint security and threat intelligence services, providing solutions for businesses and individuals. Webroot developed its own IoT cybersecurity tool, and also produces its BrightCloud Threat Intelligence for IoT Gateways.



**Western  
Digital®**



**WESTERN DIGITAL**  
Launch date: 1970

Western Digital is a data storage company using both the cloud and data center storage. It provides clients with software as well as hardware like hard drives and storage devices.



**Whistle**



**WHISTLE LABS**  
Launch date: 2012

Whistle Labs is an intelligent device manufacturer offering pet owners a smart GPS tracker to monitor pets' locations, activity and rest cycles. The Whistle app helps prevent lost pets by sending users notifications when a pet leaves a designated "safe space."

**WIS@key**



**WISEKEY**  
Launch date: 1999

WIS@Key is an information security and identity management company that works on data protection and identification, and authentication of people and objects over physical infrastructures, networks and the internet. The company focuses on the IoT industry and developed a security platform covering identity management, transaction assurance and process integration.



**XIAOMI**

Launch date: 2011

Xiaomi manufactures and develops hardware, software, and internet services. Xiaomi offers a range of internet connected devices that includes smartphones, TVs, notebooks, wearables, drones, earphones and more. In addition, the firm develops mobile applications such as MiTalk and an operating system called MIUI.

**spend.**



**X LAB**

Launch date: 2016

X Lab is the company behind Spendwallet, an electronic wallet that can store the user's credit, debit and gift cards. The device can also be synchronized with users' phones.

**xped**



**XPED LIMITED**

Launch date: 2008

Xped Limited is an IoT technology business. Among others services, the company has developed the Auto Discovery Remote Control (ADRC) platform, which is designed to enable users to connect, control, monitor and manage their devices and appliances from a single app.



**YOKOGAWA**  
Launch date: 1915

Yokogawa's portfolio of solutions includes cloud-based data sharing services for data collaboration for supply-chain collaborations and optimization. It also offers cybersecurity solutions.



**ZEBRA TECHNOLOGIES**  
Launch date: 1969

Zebra Technologies develops tracking technology and solutions that allow companies to know where and in what conditions things are. Zebra products cover a wide range of devices and software, from mobile computers and printers to location solutions and RFID bands. Zebra's technology can also be used in different industries like health care, manufacturing and retail.



**ACLARA**  
Launch date: N/A

Aclara Technologies LLC provides smart infrastructure solutions (SIS) for water, gas and electric utilities worldwide, including meters and various communications networks.



**Activity**  
Connecting with intelligence



**ACTIVITY**  
Launch date: 2010

Activity's ThingPark is an IoT-enabler platform for the deployment and management of LPWA networks. The software solution is aimed at allowing communication service providers, device manufacturers and application suppliers to develop IoT applications in vertical markets such as smart cities, energy and utilities or industries.



**ADVANTECH**  
Launch date: 1983

Advantech provides embedded M2M/IoT module integration services and wireless solutions for M2M communication including Bluetooth, WiFi, 3G/LTE and GPS modules.





**AERIS**

Launch date: 1992

Aeris Communications is a technology provider and a cellular network operator delivering comprehensive IoT / M2M services to the automotive, energy, transportation, retail, and healthcare industries. Aeris offers a complete stack of technology from an online management portal to an application enablement platform and cellular connectivity networks.



**AEROHIVE NETWORKS**

Launch date: N/A

AeroHive Networks, together with its subsidiaries, designs and develops cloud networking and enterprise Wi-Fi solutions. These include hardware, software-as-a-service (SaaS) subscriptions and tiered maintenance and support services.



**AFERO**

Launch date: 2015

Afero offers an IoT Platform as a Service solution that allows for the development and deployment of connected devices. The system is powered by Afero Cloud, which provides services for the development and operation of connected things. The company also helps developers with processes like monitoring, management and prototyping.



**AGILITYIO**  
Launch date: 2011

AgilityIO offers software solutions to translate ideas and products into digital and Internet of Things (IoT) products. The company handles software development, UX/UI design and product management through the process of idea conception to retail.



**ALTOROS**  
Launch date: 2001

Altoros is a software and open-source development company providing hardware, software and guidance to clients. It uses Java/.NET/Ruby architecture to create cloud-native IoT applications for companies, and offers Smart Baggage Tracking software for private customers.



**AMAZON**  
Launch date: 1994

Amazon Web Services has developed a cloud computing platform providing services such as application hosting, databases and content delivery. The company's IoT consists of a cloud platform that allows businesses to connect devices to Amazon services as well as to other devices, secure and process data, and enable applications to interact with those devices.



**AMDOCS**

Launch date: 1982

Amdocs provides software and services to communications and media companies. Its solutions are designed to enable digital and network transformation. The company offers a suit of IoT solutions, including Amdocs Connected Home, a cloud-based solution delivering monitored smart home security services. In addition, Amdocs IoT Services Enablement Platform enables IoT ecosystem players to offer integrated and easy-to-activate global consumer and industrial IoT services.



**ARM**

Launch date: 1990

ARM designs energy-efficient processors and related technologies for digital electronic products ranging from sensors to servers. The company has developed the ARM mbed IoT Device Platform, a solution that provides open standards based on a common platform and an ecosystem for IoT development and connectivity to make IoT work at scale, from device to cloud.



**armis**



**ARMIS**

Launch date: N/A

Armis Security is an agentless IoT security solution that allows enterprises to see and control any device or network.



**ARRAYENT**  
Launch date: 2002

Arrayent offers an IoT platform that enables manufacturers to transform traditional products into connected devices. It also offers an end-to-end solution that offers secure access to customer and product data.



**ARUBA**  
Launch date: N/A

Aruba Networks develops operating systems for both wired and wireless network infrastructure, provides remote access services and offers data security solutions.



**ARVIEM**  
Launch date: N/A

Arviem is an independent global cargo tracking and monitoring service provider. Its IoT monitoring device mounts on cargo containers and communicates over phone or satellite networks.



**at&t**



**AT&T**

Launch date: 1976

AT&T provides a wide range of IoT solutions, including connectivity of devices and development platforms that can be applied to industries from vehicles and smart cities to health care and machinery.



**AUTODESK®**



**AUTODESK**

Launch date: 1982

Software developer Autodesk offers Fusion Connect, an IoT Cloud Service, to connect, analyze and manage remote products. The software provides its customers analytics and insight automatically extracted from their IoT devices, enabling them to identify products performance and failures.

**AVNET®**



**AVNET**

Launch date: 1921

Avnet provides organizations with component and services solutions for IoT. It helps companies in deploying IoT and adding new functionalities, such as security and connectivity. Avnet offers components for industries such as automotive, home automation, energy, industrial and wearables, among others.



**AYLA NETWORKS**  
Launch date: 2010

Ayla Networks is an IoT platform provider. Its platform is comprised of three elements: Ayla Embedded Agents, Ayla Cloud Services and Ayla Applications Libraries, which together allow devices to connect to the cloud and applications while providing tools to manage, provision and analyze IoT deployments.



**BASTILLE**  
Launch date: N/A

Bastille offers an enterprise security solution designed to include full-spectrum scanning of corporate airspace. Its solution works to detect wireless risks and use machine learning and behavioral analytics to offer companies a more informed view of wireless environments, complementing Wi-Fi and traditional security architectures.



**BELDEN**  
Launch date: 1902

Belden manufactures and sells a comprehensive portfolio of cable, connectivity and networking products for the transmission of signals for data, sound and video applications. Its products are designed for a variety of markets including industrial, enterprise, broadcast, transportation, energy and consumer electronics.



Belkin offers internet networking products including Ethernet and wireless adapters and wireless routers. Besides developing connectivity solutions, the company has created WeMo, a Wi-Fi-based home automation network that includes smart lighting systems, Wi-Fi-connected cameras, smart plugs and light switches.



Bitreactive offers a visual programming tool enabling Java developers to program embedded software for IoT devices. The firm serves clients in logistics, telematics, automotive, oil and gas, home automation, smart energy, smart cities and building control industries.



Broadcom is a provider of semiconductor technology. The company is primarily focused on wired infrastructure, wireless communications, enterprise storage and industrial markets.





**CA TECHNOLOGIES**

Launch date: 1976

CA Technologies supports companies' transitions to use smart technology, and monitors, manages and secures clients' information technology (IT) infrastructure and applications.



**CALAMP**

Launch date: 1981

CalAmp provides communications devices, cloud platforms and software applications. Its IoT cloud enables companies to collect, monitor and report data and intelligence from remote assets.



**Cambium Networks**



**CAMBIUM NETWORKS**

Launch date: 2011

Cambium Networks is a provider of wireless broadband point-to-point and point-to-multipoint platforms. It offers sustainable communication networks for companies, enterprises, governmental and military agencies, and the firm's services also include network monitoring, measurements and analytics.



**CENTRI**

Launch date: N/A

CENTRI focuses on IoT security. Its technology is designed to integrate into organizations' exiting applications and services in the cloud, data centers, connected devices and products to secure the organizations' data. Its solution offers tools including encryption and the establishment of trusted devices.



**CHRONICLED**

Launch date: N/A

Chronicled is a technology company using blockchain and the Internet of Things (IoT) for supply chain solutions. It offers a decentralized protocol and network, and serves the pharmaceutical, commodities and precious metal and mineral verticals.



**CISCO**

Launch date: 1984

Cisco develops internet protocol-based networking technologies. Their products include routing and switching devices, home networking technology, IP telephony, optical networking, security, storage area networking, and wireless technology. Cisco also provides technologies covering connectivity, security, software and data management.



**CLEARBLADE**

Launch date: 2007

Clearblade is a platform for the industrial Internet of Things that enables developers to engineer and run real-time, scalable IoT applications. Deployable in any vendor cloud, on-premise or in hybrid environments, ClearBlade allows companies to build Enterprise IoT solutions that make streaming data actionable by combining business rules and machine learning with visualizations and integrations to existing business systems.



**CLOUDERA**

Launch date: 2008

Cloudera provides end-to-end data management services including a data storage and analysis platform. It provides and supports Apache Hadoop-based software to businesses.



**COMCAST**

Launch date: 1963

Comcast is a media and technology company. The company provides customers with video, high-speed Internet and phone services under the name of XFINITY. The company also offers XFINITY Home, a platform that integrates the user's smart home devices into one personalized platform.



**COMFY**

Launch date: 2012

Building Robotics is the developer of Comfy, a service that allows office workers to change the ambiance of their workplace. Workers can personalize temperature, lighting, window tint and more. Changes can also be applied in specific areas, allowing each worker to adjust conditions of their workplace without bothering others.



**COMMSCOPE**

Launch date: 1976

Commscope designs, builds and manages wired and wireless networks. Their services include incrementing bandwidth and existing capacity, improving network performance, increasing energy efficiency and the simplification of technology migration.



**COVISINT**

Launch date: 2000

Covisint is a cloud platform for the development of identity and IoT applications that enables customers to identify, authenticate and connect networks of people, processes, systems and things.



**CROWDOPTIC**  
Launch date: 2010

CrowdOptic provides middleware for wearables that allows enterprises to manage wearable computing devices in the field from a single platform.



**CYPRESS**  
Launch date: 1982

Cypress manufactures semiconductors and electronic products for the automotive, industrial and consumer markets. Among other products, the company develops PSoC-programmable, system-on-chip solutions, capacitive touch-sensing controllers, Bluetooth Low Energy (BLE) and USB connectivity solutions.



**DATASTAX**  
Launch date: N/A

DataStax, Inc. provides database software and data management. Its solutions include a distributed cloud database built on Apache Cassandra architecture and designed for hybrid cloud. DataStax's offerings aim to support management and analysis of large amounts of time- and sensor-based information.



**DAVRA**

Launch date: 2011

Davra provides organizations with an AEP platform for the development of IoT applications. The platform has been designed to control all elements of the IoT Edge Gateway.



**DeviceHive**



**DEVICEHIVE**

Launch date: 2012

DeviceHive is an IoT data platform. The company's platform enables device integration and offers services to connect smart devices to public and private clouds. The platform collects and analyzes data from devices such as sensor networks, smart meters, security systems, telemetry, industrial or smart home devices.

**DEVICE  
INSIGHT**



**DEVICE INSIGHT**

Launch date: 2003

Device Insight has developed a IoT platform solution called CENTERSIGHT® that offers tools to monitor IoT and M2M devices. The platform provides operating data insights and analytics, error reports, machine configuration features, alarming and more. The CENTERSIGHT® platform can be used in the following markets: industry & automation, connected products, telematics & fleet management and energy & smart city.



**DeviceSolutions®**  
*Imagination. Realized.*



**DEVICE SOLUTIONS**  
Launch date: 2003

Device Solutions provides solutions for three main areas: engineering consultancy, testing and certifications of products for network providers and its own service, Cellio. Cellio is an end-to-end solution that connects, computes and communicates information from the IoT. It is made from sensors, a cellular communication gateway and cloud-based software.



**DIGI™**



**DIGI INTERNATIONAL**  
Launch date: 1985

Digi International develops M2M and IoT connectivity products such as embedded modules, gateways, routers and USB and serial connectivity devices. The firm offers remote device managing solutions and wireless design services. Digi International's products are designed for energy, smart cities, medical, industrial, retail and transportation markets, among other industries.



**D-Link®**



**D-LINK**  
Launch date: 1986

D-Link offers networking solutions as well as Smart Home ecosystems. Their products include surveillance cameras and recording devices, networking tools including routers and extenders as well as automation solutions.





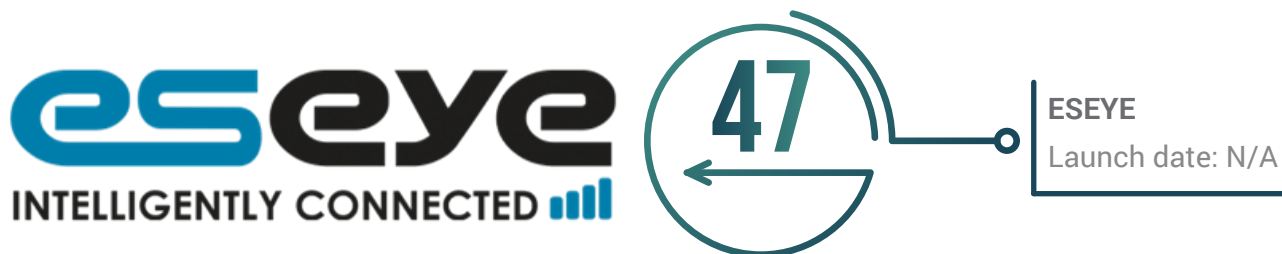
**ELECTRIC IMP**  
Launch date: 2011

Electric Imp offers an Internet of Things platform that securely connects devices with cloud computing services. The platform helps manufacturers to manage and quickly scale their connected products and services to millions of users. In addition, the solution enables users to monitor and update products in the field at any time and have access to real-time manufacturing insights.



**ERICSSON**  
Launch date: 1876

Ericsson's Internet of Things solutions cover a wide range of capabilities and functions including service enablement, data analytics and billing, data connectivity, and standardized APIs. Ericsson's products include its Smart Metering as a Service, an end-to-end automatic meter and data management solution.



**ESEYE**  
Launch date: N/A

Eseye is a global provider of machine to machine (M2M) cellular connectivity for the Internet of Things (IoT). It aims to simplify enterprises' global device deployments.



**ETISALAT**  
Launch date: 1976

Etisalat is a telecommunications company offering coverage of 3G and 4G mobile technologies, and is currently working with 5G services. The firm offers machine-to-machine (M2M) solutions and controlling and monitoring services for both government and enterprises.



**EUROTECH**  
Launch date: 1992

Eurotech researches and develops connected hardware. It supplies products such as computer boards, modules, computer devices and systems, and offers software to create machine-to-machine (M2M) and IoT applications.



**FILAMENT**  
Launch date: N/A

Filament provides blockchain hardware and software solutions for enterprise and industrial Internet of Things (IoT). The solutions enable secure connections, allowing devices and machines to safely interact and transact value.



Flexera Software develops software licensing, compliance, cybersecurity and installation solutions designed to help application producers and enterprises manage application usage and increase security. The company's FlexNet Producer Suite for intelligent device manufacturers is a part of a strategic solution for application usage management.



Flex designs, manufactures and distributes IoT products and offers a range of aftermarket services. Flex services include prototyping, design, manufacture and logistic distribution, as well as its retirement of the market. The company also offers its expertise in a range of products from sensors and connectivity to security and software.



FogHorn Systems is a multi-tier Internet of Things (IoT) application deployment platform that bridges information technology.



**GENERAL ELECTRIC**

Launch date: 1892

General Electric is rolling out IoT tools for a range of industries that includes automotive, aviation, chemical, food and beverage, healthcare, oil and gas. Predix, one of the company's main IoT solutions, is an operating system and platform for building applications that connect to industrial assets, collect and analyze data, and deliver real-time insights.

**Globetouch**



**GLOBETOUGH**

Launch date: 2010

Globetouch provides connectivity, management and deployment services for M2M and IoT solutions. The company offers GConnect, a platform enabling IoT connectivity through CloudSIM technology. The company's GControl platform provides IoT connectivity management tools to launch and manage IoT services.



**GOOEE**

Launch date: 2014

Designed for residential, commercial, retail, hospitality and industrial applications, Gooee has developed an enterprise scale IoT lighting ecosystem which provides sensing, control and communication components enabled to integrate with an enterprise scale cloud platform for lighting manufacturers to 'connect' to the IoT.



Google Inc. develops a family of technology products that go from the known search system, desktop tools and operating systems to communication hardware, payment solutions and wearable devices.



Hologram is a platform for building IoT products with a focus on cellular. The cloud-friendly Hologram Cellular Platform enables users to connect devices to the internet. The company also offers software that allows users to talk to their devices, route incoming and outgoing messages, and open up secure PPP sessions via secure API.



IBM develops an array of solutions among industries such as analytics, commerce, security, cloud and mobile. IBM's Watson IoT platform extends the power of cognitive computing to the Internet of Things. The platform enables the connection of devices and the application of cloud- based services like device management, predictive and real-time data analytics or information management.



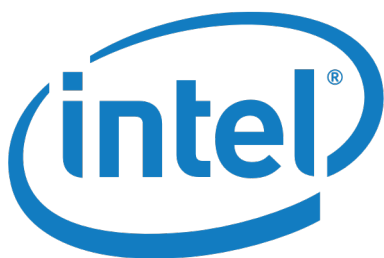
iBot Control Systems is a research and development company. It provides a platform and other software intended to help manufacturers and other businesses use the IoT.



Impinj has developed a platform comprised of hardware and software using AIN RFID to wirelessly connect IoT. The platform provides businesses with real-time insights about their connected devices, and the company also offers gateways and reader chips.



Ingenu enables long-range, low-power connectivity for IoT and machine-to-machine communication. Its wireless network serves a wide range of industries including smart cities, fleet management, smart agriculture, usage-based insurance and connected cars.



**INTEL**

Launch date: 1968

Intel allows companies to improve real-time decision-making, boost revenues, and lower costs by using its end-to-end platform of IoT solutions. The company's platform provides reference models and a portfolio of products based on foundational technologies that let companies connect, secure, and manage valuable data from existing business assets that were previously unconnected from new smart and connected things.

**INTERDIGITAL**



**INTERDIGITAL**

Launch date: 1972

InterDigital provides wireless technologies for mobile devices, networks and services. The company has developed solutions used in digital cellular and wireless products and networks, including 2G, 3G, 4G and IEEE 802-related products and networks.



**IRIDIUM**

Launch date: 2000

Iridium is a mobile satellite service company offering global coverage. The Iridium cross-linked satellites provide voice and data services for areas not served by terrestrial communication networks. The company's solutions are intended for industries such as maritime, aviation, government/military, emergency/humanitarian services, mining, forestry, oil and gas, heavy equipment, transportation, and utilities.



**ITRON**

Launch date: N/A

Itron provides end-to-end solutions to measure, manage and analyze worldwide energy and water usage. These include smart electricity, gas and water meters, smart network technologies and meter data management software.



**KII**

Launch date: 2010

Kii develops platform which allows the building and running of IoT programs. The platform helps connect devices to the cloud and allows users to monitor and manage them. The service also provides analytic insights and app development tools and support features such as geolocation, user and data management and A/B testing.



**KORE**

Launch date: 2011

KORE is an IoT/M2M service provider and developer of machine-to-machine network connectivity solutions, offering global coverage through GSM, CDMA and satellite data services. The company's products portfolio also includes Position Logic, a GPS tracking software, KORE Systems, an M2M connectivity management service, and Global Connect, a GSM-based, cellular IoT and M2M communications services available in 180 countries."





**kpn**



**KPN**

Launch date: 1915

KPN is a telecommunications provider of network services such as IP-VPN, E-Line, E-LAN, corporate internet, managed videoconferencing, international private line, wavelength, IP transit and dark fiber. The company also offers device management and network analysis reporting.



**KYOCERA**



**KYOCERA CORPORATION**

Launch date: 1959

KYOCERA Corporation is an electronic technology provider manufacturing multiple mobile devices. The company offers multiband modules supporting LTE, UMTS and GSM, and are designed for automotive and various M2M applications.

**LANTRONIX®**



**LANTRONIX**

Launch date: 1989

Lantronix is a provider of secure data access, connectivity and management solutions for IoT and IT assets.



Link Labs offers low-power, wide-area network technologies for IoT. Its Symphony Link solution connects enterprise or industrial IoT devices to the cloud. The company also offers an end-device-certified LTE Cat-M1 modem for battery-powered application.



LORIOT AG develops enterprise software for LoRaWAN and end-to-end applications. It serves businesses, cities, municipalities and wireless network operators.



LPRS provides low power radio frequency solutions (LPRS) for original equipment manufacturers (OEMs). It manufactures and supplies radio modules, antennas and sensors for the industrial, scientific and medical markets.



**M2M INTELLIGENCE**

Launch date: 2011

M2M Intelligence offers multi-network SIMs letting users connect their IoT devices. The SIMs are designed to maximize the area from which the devices can get connected, enabling them to reach better, alternative networks. The firm has also deployed the M2M Insight, a management portal allowing users to manage the performance of every device's SIM on a one-page dashboard.



**MNUBO**

Launch date: 2012

Mnubo provides Big Data and analytics to the IoT and machine-to-machine (M2M) space. The company assists with the development of "smart objects" and works with clients in the wearables, home, automotive, industrial and health care spaces.



**MONGODB**

Launch date: N/A

MongoDB offers a document database solution. It is designed to help businesses in a variety of industries leverage data to create new security applications and improvements.



**MOVIDIOUS**  
Launch date: 2005

Movidius develops vision processor chips, software and development tools. Movidius products can be applied in different industries like robotics or smart security.



**MYDEVICES**  
Launch date: 2013

Part of the Avanquest, myDevices develops a white label IoT platform providing a range of services, including device installation, activation, communication and management. The solution allows for data management capabilities, including real-time streaming and analytics/ visualization capabilities. The service also includes features like subscription management and back office tools.



**NETBURNER**  
Launch date: 1998

NetBurner offers development kits for IoT devices, enabling developers to create or modify IoT devices. NetBurner also offers Ethernet servers and core modules for network enabling.



NEURA



**NEURA**

Launch date: 2013

Neura is an IoT data management company designed to protect the user's privacy. Neura establishes a digital identity for the user, which can be managed exclusively by him/her. It then allows the user to connect their account to the technology they use in order to exchange personal data for services that companies can customize.



**NEXCOM**

Launch date: 1982

NEXCOM is an intelligent solutions provider. Its primary focuses include the IoT, intelligent platforms and services, IoT automation solutions, intelligent digital security, mobile computing solutions and network communication solutions.



**NEXENTA**

Launch date: N/A

Nexenta provides open-source, software-based enterprise storage solutions. These include cloud and virtualization-optimized storage management and plugins.



NUTANIX  
Launch date: N/A

Nutanix Inc. develops and provides enterprise cloud operating system software. Its offerings include infrastructure, data protection, big data and other solutions for the education, energy and utilities, financial services, healthcare, retail, service provider, state and local government and the U.S. government.



NXP  
Launch date: 2006

NXP focuses on the development and deployment of automotive semiconductor solutions and general purpose microcontroller products.



OPTION  
Launch date: 1986

Option offers wireless solutions enabling machine-to-machine (M2M) communication. The solutions also provide M2M security, processing and management services. Option's solutions are designed for the retail, transportation, smart-building, smart city, smart energy and smart home markets.



Oracle develops and offers cloud applications, platform services and engineered systems. The company's IoT solutions allow businesses to connect data from devices, perform real-time data, and predictive analytics and allow enterprise and mobile applications to control devices. Oracle IoT cloud services also allow for different features including endpoint management and integration standardization.



Orange is a Spanish telecommunications corporation that offers M2M connectivity solutions. The company has rolled out a range of complementary LPWA (long-range wide area) solutions as well as LTE-M technology across its 4G networks in Europe.



ORBCOMM is a machine-to-machine communications solutions developer which operates a commercial satellite network dedicated to M2M. The company's services include global satellites, cellular and dual-mode network connectivity, hardware, web reporting applications and software. The solutions are focused on the tracking, monitoring and controlling fixed and mobile assets in industries including transportation, oil and gas, heavy equipment, and government.



Particle is an IoT device platform that enables businesses to build, connect and manage their connected solutions in an easy way. Particle securely connects devices to web and mobile apps so that users can securely control and collect data from their devices. Their portfolio of products includes the Particle Cloud, a cellular IoT SIM card and data plan, and cloud-connected microcontrollers.



Plume offers Plume Adaptive Wi-Fi, a self-optimizing network powered by a cloud that adapts to a user's home in real time so that every room and device receives optimized internet connectivity.



Progress Software offers platform and tools for the development of business applications. Its platform enables the deployment of interfaces for different types of devices and offers Big Data connectivity capabilities.



PTC®



PTC  
Launch date: 1985

PTC is an American software company that works on Internet of Things, Augmented Reality and Application Lifecycle Management in addition to other industries. The company's IoT solutions include the ThingWorx Platform, which allows businesses to develop IoT applications, the Axeda Machine Cloud, a cloud-based service for managing connected products and Coldlight, the company's analytics platform.

PubNub®



PUBNUB  
Launch date: 2009

PubNub offers developers the ability to connect, scale and manage real-time applications and IoT devices. The PubNub Data Stream Network enables simultaneous device connections into a single network.

QUALCOMM®



QUALCOMM  
Launch date: 1985

Qualcomm designs and markets wireless telecommunications products and services. The firm has developed a wide portfolio of connectivity-based products, enabling connections and interactions across a variety of networks. Its technologies are designed for most of the IoT markets including automotive, smart homes, smart cities, wearables, health care and education.



**Ruckus**<sup>®</sup>  
Simply Better Wireless.

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**RUCKUS**

Launch date: 2004

Ruckus Wireless provides wireless systems for the internet infrastructure market. The firm has developed a wide range of smart Wi-Fi products for both indoor and outdoor usage. The Ruckus Wireless Wi-Fi platform offers various capabilities, including location analytics and engagement technology.



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**SALESFORCE**

Launch date: 1999

Salesforce is a developer of cloud computing services for sales, service, marketing, community, analytics, apps and the Internet of Things. The Salesforce IoT cloud enables users to connect data from every device, sensor, website, and interactions and take smarter, more personalized actions by getting better insights and real-time customer actions.



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**SAP**

Launch date: 1972

SAP develops a range of products such as a cloud platform that allows users to manage and monitor remote devices, create M2M apps and develop IoT solutions. The company covers many industries, including consumer products and retail, energy and natural resources, and financial and public services.



**SCHNEIDER ELECTRIC**

Launch date: 1836

The global specialist in energy and automation management Schneider Electric has developed a software infrastructure for smart cities which enables devices, systems and people to connect. The company also offers a real-time condition management solution that collects real-time data from sensors to the cloud, analyses and converts it into meaningful analytics.



**SEMTECH CORPORATION**

Launch date: 1960

Semtech Corporation develops analog and mixed-signal semiconductor products, and created the LoRa® RF platform, a two-way wireless solution that works as a complement for M2M cellular or Wi-Fi infrastructure. It provides a way to connect battery-operated and mobile devices to the network infrastructure or endpoint. Semtech products also include power management, video broadcasting and circuit protection between others.



**SEQUANS COMMUNICATIONS**

Launch date: 2003

Sequans Communications is a 4G chipmaker, offering WiMAX and LTE chips designed for IoT devices. The company develops LTE chips for devices such as wearables, smart utility meters, industrial sensors, vehicle telematics, alarm panels and retail kiosks.

# SIEMENS



Updated!

**SIEMENS**

Launch date: 1847

Siemens is a technology company offering electronics and electrical engineering services for the automation industry, energy and health care markets. The company offers applications of IoT technologies focusing on electrification, automation and digitalization. Applications include wind turbines connected with sensors, smart factories and IoT security solutions.



# SIERRA WIRELESS®



**SIERRA WIRELESS**

Launch date: 1993

Sierra Wireless offers wireless solutions and has developed a portfolio of 2G, 3G and 4G embedded and networking solutions (routers and gateways), integrating with their secure cloud and connectivity services and management solutions. Its networking solutions provide connectivity, location-based services and remote monitoring.



# sigfox



**SIGFOX**

Launch date: 2009

Sigfox is wireless network provider with networks designed to connect low-energy devices. Sigfox works to enable low energy consumption, device-to-cloud connectivity and a system to collect data from sensors and devices.



**SILICON LABS**  
Launch date: 1996

Silicon Labs is a provider of silicon, software and tools for the IoT, internet infrastructure, industrial automation, consumer and automotive markets. Among others, the firm offers microcontrollers, wireless system-on-a-chip services and sensors for the IoT as well as advanced timing and power management chips for internet infrastructure and industrial automation.



**SILVERSPRING NETWORKS**  
Launch date: 2002

SilverSpring Networks offers a comprehensive suite of IoT networking solutions for critical infrastructure. The SilverLink Network provides cities and utilities worldwide with solutions for smart electricity, gas, water and city services.



**SKYWORKS**  
Launch date: 1962

Skyworks wirelessly provides analog semiconductors to connect people, places and things across applications within the automotive, broadband, cellular infrastructure, connected home, industrial, medical, military, smartphone, tablet and wearable markets. Its IoT product portfolio includes amplifiers, attenuators, front-end modules, power management and switches.



**SORACOM**

Launch date: 2014

Soracom is a platform enabling data transmission and connectivity for IoT/M2M. The firm offers mobile data transmission using LTE/3G lines as a means of communication. The platform also allows users to manage and monitor the IoT devices.



**SORBA**

Launch date: N/A

SORBA provides platforms and services. The company's offerings are designed to gather and analyze data from sensors, and include industrial data collection, machine learning and predictive analytics.



**SPRINT**

Launch date: 1899

Sprint provides wireless and wireline telecommunication services to consumer, business and government users. Through its various subsidiary companies, Sprint also offers wireless voice, messaging and broadband services.



**STMICROELECTRONICS**  
Launch date: 1987

STMicroelectronics is a semiconductors producer for several industries, including micro- electro- mechanical systems and sensors, power discrete, advanced analog products, and embedded processing solutions. It also has an automotive products portfolio including elements going from powertrain, safety and car body to infotainment.



**STORMAGIC**  
Launch date: 2006

StorMagic provides a digital storage area network. Its offering can be used IoT projects that require small IT footprints.



**SYNAPSE WIRELESS**  
Launch date: 2008

Synapse Wireless provides software, hardware, and networking solutions to develop, deploy and manage connected devices. Its SNAP solution is designed to help businesses develop, connect, control and manage networks of “Things” (devices and gateways), securely. SNAP enables the integration between the Things of IoT with Cloud-based IoT Platforms. Synapse also offers a range of hardware products including modules and wireless lighting controls.



TAOGLAS  
Launch date: 2004

Taoglas is a provider of external, embedded and base station antenna solutions for M2M applications. The firm enables wireless device manufacturers with telematics and automotive, smart-grid, metering and telemetry, home automation, remote monitoring and medical applications.



TELE2  
Launch date: 1986

Tele2 is a telecom operator offering mobile services, fixed broadband and telephony, data network services, cable TV, and content services. The company delivers connectivity and enables management of the IoT connections.



TELEFONICA  
Launch date: 1924

Telefonica is a platform provider enabling an automated communication process between machines. The company offers connectivity services to a range of industries including automotive, utilities, vending machines, e-health and consumer electronics, among others. Telefonica's platforms boast features like smart device control, business and fleet management as well as connected car and tracking intelligent solutions.





telenor



**TELENOR**

Launch date: 1885

Telecommunications company Telenor offers voice, data, Internet, and content services. Telenor Connexion is a Telenor's dedicated IoT company which offers: a global Managed Connectivity solution that automates the delivery and management of mobile services to connected devices; Telenor Cloud Connect, an end-to-end solution allowing users to add digital services to their products and Telenor ARTS, a data analytics solution especially designed for IoT devices that enables customers to collect data and insights.



**TELIT**

Launch date: 1986

Telit's portfolio of IoT products includes cellular communication modules, GNSS, short-to-long range wireless applications and IoT connectivity plans. The firm also offers IoT platform services, a suite of management tools enabling connectivity, device and data control. Telit's solutions are used by the smart transportation, agriculture, retail, health care, automotive, oil and gas, smart manufacturing, smart energy and smart buildings industries.



TELSTRA



**TELSTRA**

Launch date: 1901

Telstra offers telecommunications service and information service technologies. The company provides internet solutions for mobile phones, tablets and smart homes. It has also developed a kit of smart home devices including energy automation (with smart plugs and sensors) and a monitoring system (with cameras and sensors).



**TEMPOIQ**  
Launch date: 2016

TempoIQ is real-time IoT analytics platform which offers storage, analysis and insights of data from connected applications. Besides, the service enables users to create alerts and monitor the stream of IoT data and analytics, warning them of any change or critical condition.



**TEXAS INSTRUMENTS**  
Launch date: 1930

Texas Instruments (TI) develops and commercializes semiconductors, wireless connectivity technologies, microcontrollers, processors and analog solutions. The company offers IoT solutions for multiple industries, including wearables, smart manufacturing, health care, automotive, smart cities and home automation.



**THROUGHTEK**  
Launch date: 2008

ThroughTek is a solution provider for cloud connection platform. Their main product is the Kalay Platform, an end-to-end IoT solution and software service, enabling solution providers and device manufacturers to easily create their own IoT ecosystems.



T-Mobile's 4G LTE network delivers wireless experiences to customers. The company offers the M2M Hub, a solution that provides businesses with an online tool to deliver and manage IoT connectivity. T-Mobile also manufactures modules and chipsets to enable connectivity.



Ubiquiti Networks manufactures wireless data communication products for enterprise and wireless broadband. Ubiquiti products range from connectivity software, wireless radios, routing and switching products to Wi-Fi-connected video cameras and intelligent phones.



UnaBiz is the exclusive operator of Sigfox low-power wide-area networks (LPWAN) in Singapore, Taiwan, designed to support IoT products. The company also provides energy-efficient IoT wireless infrastructure and devices.



Verizon Enterprise offers networking products, security solutions and cloud and IT infrastructure services. The company also offers ThingSpace Develop, an IoT platform that allows the users to develop, simulate and test creations.



Vodafone is a communications company that offers business, mobile, hosting and cloud services. The company also works in the machine-to-machine industry, developing M2M terminals, asset tracking, energy data management and retail solutions between others.



ZTE Enterprise develops connectivity products. Its offering includes smartphones, routers and cloud-based management systems. The company also develops railway communication solutions and provides technical consulting services in the energy sector.

## About the Tracker

The PYMNTS IoT Tracker™ brings you the latest news, developments and insights from the biggest players across the IoT ecosystem. Each month, we look at what companies are doing across the ecosystem and in terms of bringing greater connectivity to everyday items and expanding connected networks.

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