by My Nguyen   May 11, 2016

Wearables Can Save Lives

f 7   in 9

It's been a long way since the first smart watch was made by Patek Philippe & Co of Switzerland in 1868. Today, wearable tech has grown into a diverse industry. We now have many types of devices that can be placed around, in or inside your body. For example fitness trackers, fashion accessories, a health monitoring implants and other lifesaving devices. As an engineer, you are taught to build a solution to someone's daily pains; well below is a list of lifesaving wearable devices.

Fitbit can Help Prevent Breast Cancer Recurrence

According to the American Cancer Society, approximately 20% of women treated for breast cancer today experience a recurrence. Despite many reports supporting a relationship between weight and breast cancer prognosis, there have been no studies examining the effect of weight loss upon the risk of breast cancer recurrence. Dana-Farber Cancer institute is the first institute to study the correlation of breast cancer and weight loss. Fitbit was used s a tool for investigators to closely track activity and weight loss among study participants. How did Fitbit help? Each participant received a Fitbit kit including a Fitbit tracker to track all day activity; a wrist-based heart rate tracking; a Fitbit Aria Smart Scale to track weights, BMI, lean mass and body fat percentage. Lastly, participants had access to FitStar which offers personalized video-based exercise. Through the smartphone, a health coach can help patients increase their exercise and reduce calories. A Fitbit tracker along with Fitbit Aria Smart Scale allow patients to track the progress throughout the study and to motivate them to meet their goals. The study will officially begin in August of 2016.

iTBraTM Empowers Women to be more Aware of their Breast Health

Actually there is no exact way to prevent breast cancer. However, there are things all women can do that might reduce their risk. If cancer happens, it must be found at the early stage for a quick recovery. That's why iTBra– an intelligent wearable that provides monthly breast wellness

screening at home, is here to save womans' lives. With sensor technology embedded in the iTBra, the smart phone enable interface is able to detect circadian patterns within breast cells.
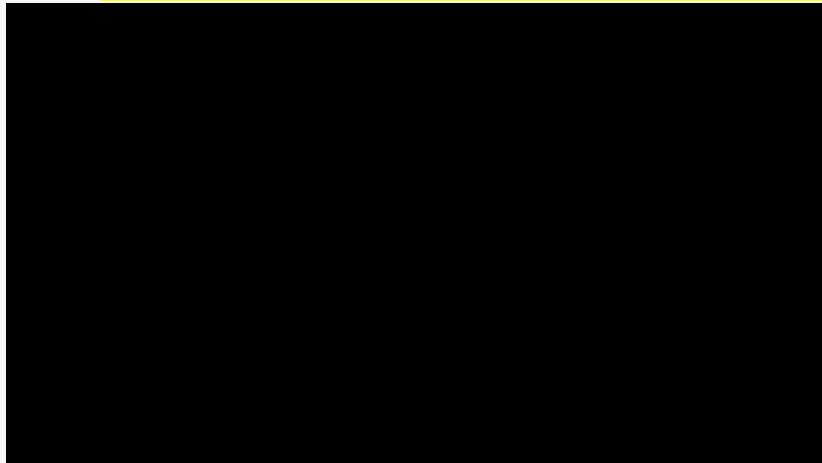
Jawbone discovers Earthquake

It might be possible to know how earthquakes effect sleep with sensors inside an activity tracker. The 6.0 magnitude earthquake that hit Northern California was considered as the strongest to strike in 25 years. During the earthquake, the result collected from Jawbone users reveals that 93 percent of Jawbone wearers within 15 miles of earthquake area suddenly woke up when the quake occurred. The Jawbone is a tracker which can track users' movements during sleep and while they are awake. Additionally, it provides records of the time they spent in bed including deep sleep or slight sleep. As a result, Jawbone scientist discovered the difference in motion in cars, trains from the motion during earthquake as well as the quality during and after earthquake.

Vigo helps avoid an RTA

Vigo is the smart Bluetooth headset that tracks your alertness and stimulates you when you're not your best. This can save you from feeling drousy while driving; which can lead to accidents. This wearable monitors patterns in your blinking, movement of your eyes and alarms you when you lose focus. Moreover, Vigo can help you re-energize by a soft vibration, a discrete pulsing LED, or your favorite song.

Vigo Headset from Vigo Technologies on Vimeo.

SmartWatch – A Watch Can Save Life

SmartWatch which is developed by Smart Monitor – a start up in San Jose, CA, can alert patients and family members about seizure. More than 60 percent of the devices are worn by patients under the age of 21. Many families report that the watch help track nocturnal seizures, which often go undetected.

Increasingly, ==healthcare is being paid more and more attention.== This includes every area – not just fitness. Thus, there are many devices come up to let you keep tabs on your overall well-being and potentially save your life.

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Future | Safety&Prevention | Technology

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by Spela Kosir

October 22, 2015

Detecting Breast Cancer!

Breast cancer is one of those things every woman has in the back of her mind as she grows older; especially if breast cancer runs in the family. We have all heard that an actress Angelina Jolie decided for double mastectomy when finding out she carries the gene which would increase her risk of potentially **[…]**

Healthcare&Wellness | **Safety&Prevention** | **Technology**

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by Zuriñe Dopacio González

April 21, 2017

Breast Cancer : Taking Advantage Of Technology For Its Early Detection

According to the World Health Organization, breast cancer is the most common cancer among women worldwide. In recent years, there has been a gradual reduction in female breast cancer incidence rates among women aged 50 and older. Death rates from breast cancer have been declining since about 1990, in part due to better screening and early detection, **[…]**

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by Johanna Mischke

January 12, 2013

Activity trackers – the next generation

Watch this space for a new wave of wearable gadgets for tracking activity. Flushed with earlier successes, the new generation of activity trackers looks even better! Withings have expanded their product range with a smart activity tracker – an everyday companion to track activity level and monitor heart rate. Jawbone have finally launched their activity **[…]**

Sports&Fitness

by My Nguyen

September 2, 2016

Are Wearables Becoming Luxury Items?

In September 2015, Apple partnered with Hermes to create a luxury version of the Apple Watch with the goal to convince wearers that the watch could be fashionable as well as functional. That is to say wearables could be more on trend rather than geek chic. Is it a hot trend now that wearables become **[…]**

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ABQ marching toward digital revolution

By Kevin Robinson-Avila / Tech Bytes

Monday, January 30th, 2017 at 12:02am

As part of the Albuquerque Rapid Transit project, the city is investing $1 million to lay fiber cable from Louisiana to Coors to offer high-speed broadband access to homes and businesses all along the corridor. (Greg Sorber/Albuquerque Journal)

Tech Bytes
Kevin Robinson-Avila
krobinson-avila@abqjournal.com

New York City chief technology officer Miguel Gamino Jr. envisions a future where data jacks are as common as light bulbs.

The Big Apple's information technology guru compares the laying of broadband and construction of cyber capabilities in cities throughout the U.S. today with the Rural Electrification Act of 1936, which paved the way for electric lights and modern conveniences in all American homes.

Likewise, making high-speed internet and digital technologies "pervasive and ubiquitous" can change civilization the way electrification did in the 1930s, Gamino told public and private IT officers at a New Mexico Technology Council luncheon last week.

"We're talking about a civilization fork in the road," Gamino said. "When we built the electric grid, the light bulb was like the first killer app. Now, instead of putting a light bulb in every house, we're putting a data jack in every home."

That will lay the foundations for a new digital revolution in New York and other cities, including Albuquerque, Gamino said.

Such foundations include the wide-scale installation of broadband fiber to connect homes, businesses and government to a comprehensive network of high-speed internet, placing all government services online for easy public access, building mobile apps for every aspect of city life, and digitizing government operations to improve efficiency and cut costs. It also includes installation of sensors and cameras across urban landscapes to collect real-time data on things such as traffic conditions, crime, air quality and waste management.

Those foundations will pave the way for remote control of everything from home and building temperature, lighting and security functions to automated traffic operations once driverless vehicles start hitting city streets.

To speed that process, municipal governments across the country are reaching out to share information and new technology with one another in a nationwide Smart Cities Initiative.

Albuquerque is playing a leading role in that process, both in building the broadband and digital infrastructure needed for the future, and in collaborating with other cities, Mayor Richard Berry said.

"Collaboration is key," said Berry, who met with Gamino after the Technology Council luncheon. "We need to share best practices to not reinvent the wheel."

The national Center for Digital Government ranked Albuquerque in 6th place last November in its 2016 Digital Cities Survey among municipalities with more than 500,000 people. It's the fourth year in a row that Albuquerque placed among the top 10 most-digital cities in America.

That reflects broad efforts to digitize Albuquerque, said the city's chief information officer, Peter Ambs.

As part of the Albuquerque Rapid Transit project, for example, the city is investing $1 million to lay fiber cable from Louisiana to Coors to offer high-speed broadband access to homes and businesses all along the corridor. Last week, the city also began a $640,000 expansion of Albuquerque's fiber optic network to provide high-speed internet service to 40 city-owned sites, including community and senior centers, and police and fire stations.

Last year, the city launched the initial phase of a project to install LED lighting around Albuquerque, including plans for sensors and cameras in key places for monitoring and data collection. Those sensors will allow automatic dimming or brightening of lights as needed, generating substantial energy savings. The data collection will feed real-time information into city networks on things like traffic conditions or needed street repairs, reducing the time and money spent to dispatch city crews.

The system can also collect information on crime, feeding into the Albuquerque Police Department's Real Time Crime Center.

"All of that data can be collected and synthesized to create efficiency in city services to improve the quality of life for neighborhoods and citizens," Ambs said. "Each street light becomes a node on the network that could be used to monitor environmental conditions or detect gun shots. That capability won't be on every street light initially, but we'll have the capability in place to upgrade all of them with connected systems in the future."

The city is planning "smart mobile pay" for ART to allow users to buy tickets on the go from smartphones and other devices. It will install "smart parking meters" with the same functionality, allowing someone to add time to a meter, for example, while sitting in a restaurant, Ambs said.

Another project will install sensors in dumpsters for smart waste management for crews to only collect garbage when bins are full. More sensors are now being installed in municipal parks and golf courses to track soil and moisture conditions, and sensors are already operating around the city to monitor air quality.

The city itself has converted most services from paper to fully digitized systems. Residents can now process building permits, licensing or business registrations online through computers or mobile devices. A slew of new mobile apps also allow people to report non-emergency crimes to police from smartphones, access bus route information and track where busses are in real time.

A 21st Century smart city is key to building a high-tech economy in Albuquerque, including the efforts to forge a modern innovation district Downtown, Berry said.

"We're putting a great foundation in place that the next mayor will have the opportunity to expand on," Berry said. "We're already one of the most technologically advanced cities in America. That will continue to evolve with new technology as we move forward."

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Leadership / **#NewTech**

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A Simple Explanation Of 'The Internet Of Things'

Jacob Morgan, CONTRIBUTOR

I write about and explore the future of work! FULL BIO ⌄
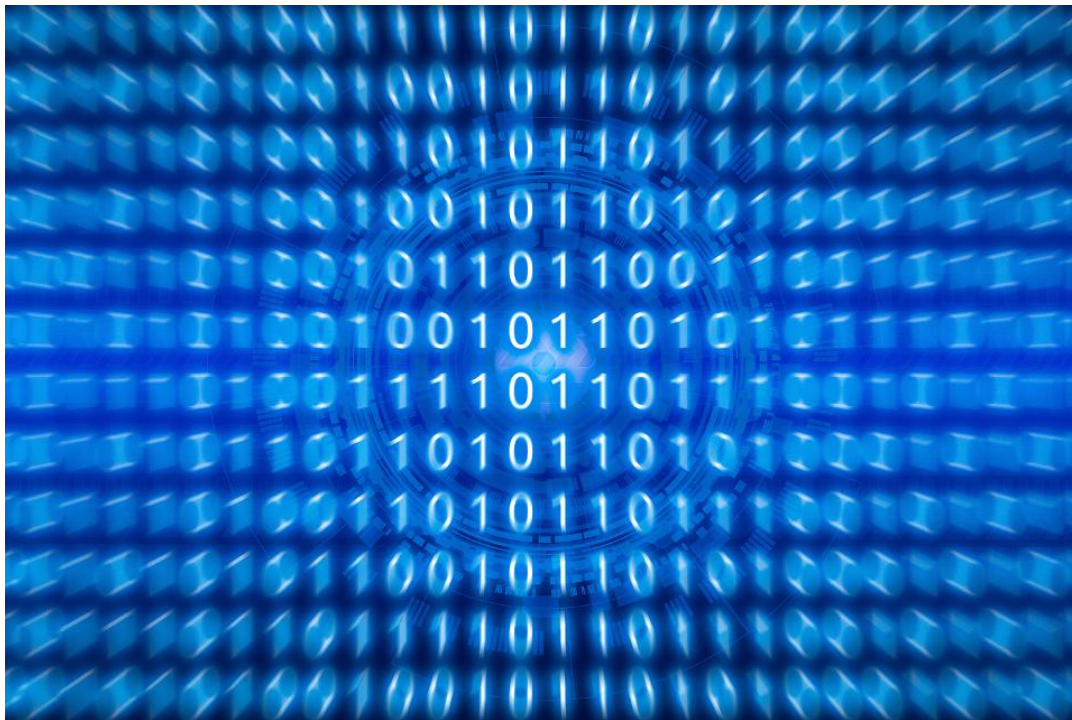
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concept that not only has the potential to impact how we live but also how we work. But what exactly is the "Internet of things" and what impact is it going to have on you, if any? There are a lot of complexities around the "Internet of things" but I want to stick to the basics. Lots of technical and policy-related conversations are being had but many people are still just trying to grasp the foundation of what the heck these conversations are about.

Let's start with understanding a few things.

Broadband Internet is become more widely available, the cost of connecting is decreasing, more devices are being created with Wi-Fi capabilities and sensors built into them, technology costs are going down, and smartphone penetration is sky-rocketing. All of these things are creating a "perfect storm" for the IoT.

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So What Is The Internet Of Things?

Simply put, this is the concept of basically connecting any device with an on and off switch to the Internet (and/or to each other). This includes everything from cellphones, coffee makers, washing machines, headphones, lamps, wearable devices and almost anything else you can think of. This also applies to components of machines, for example a jet engine of an airplane or the drill of an oil rig. As I mentioned, if it has an on and off switch then chances are it can be a part of the IoT. The analyst firm Gartner says that by 2020 there will be over 26 billion connected devices... That's a lot of connections (some even estimate this number to be much higher, over 100 billion). The IoT is a giant network of connected "things" (which also includes people). The relationship will be between people-people, people-things, and things-things.

How Does This Impact You?

The new rule for the future is going to be, "Anything that can be connected, will be connected." But why on earth would you want so many connected devices talking to each other? There are many examples for what this might look like or what the potential value might be. Say for example you are on your way to a meeting; your car could have access to your calendar and already know the best route to take. If the traffic is heavy your car might send a text to the other party notifying them that you will be late. What if your alarm clock wakes up you at 6 a.m. and then notifies your coffee maker to start

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What if the wearable device you used in the workplace could tell you when and where you were most active and productive and shared that information with other devices that you used while working?

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On a broader scale, the IoT can be applied to things like transportation networks: "smart cities" which can help us reduce waste and improve efficiency for things such as energy use; this helping us understand and improve how we work and live. Take a look at the visual below to see what something like that can look like.

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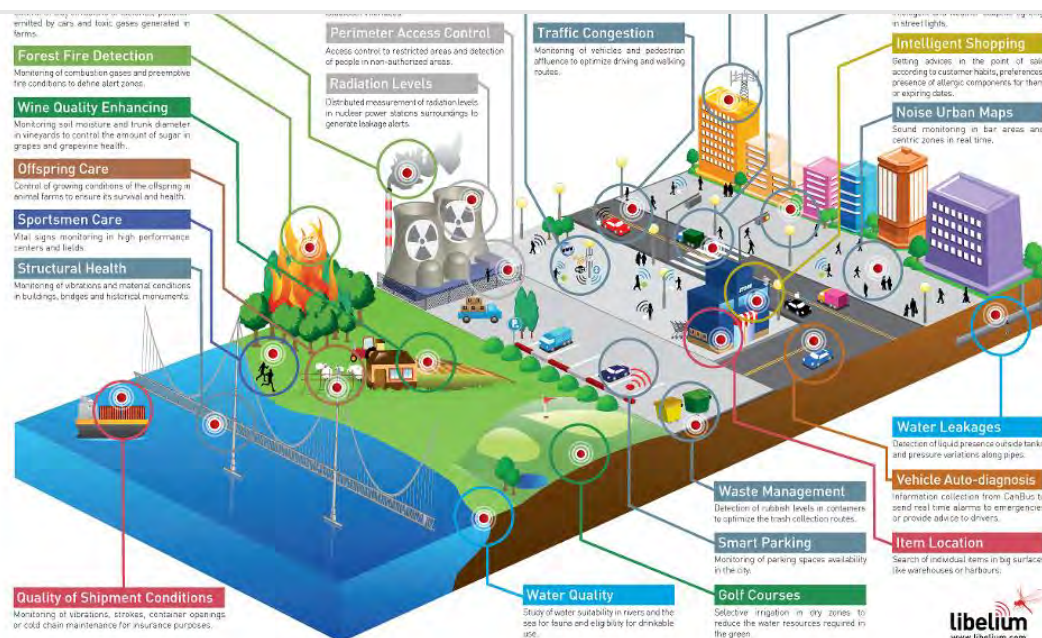
The reality is that the IoT allows for virtually endless opportunities and connections to take place, many of which we can't even think of or fully understand the impact of today. It's not hard to see how and why the IoT is such a hot topic today; it certainly opens the door to a lot of opportunities but also to many challenges. Security is a big issue that is oftentimes brought up. With billions of devices being connected together, what can people do to make sure that their information stays secure? Will someone be able to hack into your toaster and thereby get access to your entire network? The IoT also opens up companies all over the world to more security threats. Then we have the issue of privacy and data sharing. This is a hot-button topic even today, so one can only imagine how the conversation and concerns will escalate when we are talking about many billions of

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of data that all of these devices are going to produce. Companies need to ==figure out a way to store, track, analyze and make sense of the vast amounts of data== that will be generated.

So what now?

Conversations about the IoT are (and have been for several years) taking place all over the world as we seek to understand how this will impact our lives. We are also trying to understand what the many opportunities and challenges are going to be as more and more devices start to join the IoT. For now the best thing that we can do is educate ourselves about what the IoT is and the potential impacts that can be seen on how we work and live.

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Jacob Morgan is a keynote speaker, author (most recently of The Future of Work), and futurist.

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INTERNET

How the Internet of Things Changes Everything

by Stefan Ferber

MAY 07, 2013

Currently in the business world we are witnessing something like the epic collision of two galaxies – a rapid convergence of two very unlike systems that will cause the elements of both to realign. It's all thanks to the Internet of Things.

If you are not familiar with the term, the Internet of Things refers to a dramatic development in the internet's function: the fact that, even more than among people, it now enables communication among physical objects. By 2015, according to my own firm's projections, not only will 75 percent of the world's population have access to the internet. So will some six billion devices. The fact that there will be a global system of interconnected computer networks, sensors, actuators, and devices all using the internet protocol holds so much potential to change our lives that it is often referred to as the internet's next generation.

For managers, this development creates challenges both long-term and urgent. They need to envision the valuable new offerings that become possible when the physical world is merged with the virtual world and potentially every physical object can be both intelligent and networked. And, starting now, they must create the organizations and web-based business models that can turn these ideas into reality.

As consumers, we have all had a glimpse of how the relationship between buyer and seller changes when devices are connected to the internet. Nobody these days carries a Sony Walkman and cassettes; instead we carry Apple iPods – and our major access point for music has become the online iTunes Store, also by Apple. The company sells the devices and the music, profiting handsomely from both. In the same way, industrial product buyers are seeing their relationship to equipment manufacturers changed by smart, connected things. In the field of mechanical and plant engineering, consider the advent of predictive maintenance. When a machine is fitted with sensors, it can know what condition it is in and, whenever necessary, initiate its own maintenance.

Clearly, when things are networked, that has an impact on how actual value is produced. In many cases, it is no longer the industrially manufactured product that is the focus, but rather the web-based service that users access through that device. So, for example, we see the Daimler Group investing in mobility services such as car2go, myTaxi, and moovel; GE using what it prefers to call the "Industrial Internet" for mechanical and plant engineering services; LG paving the way to "smart homes" with IP-enabled televisions and home appliances and related services.

A study undertaken by researchers from the Institute of Technology Management at the University of St. Gallen in Switzerland (*Service Business Development: Strategies for Value Creation in Manufacturing Firms*) concludes that these services are most definitely lucrative for traditional manufacturers. Considering the example of a papermaking machine, they note that the sale of the machine itself generates a margin of around one to three percent, while selling a related service yields five to ten times as much. The ratio is much the same for the sale of rail cars versus related mobility and maintenance services.

For "Old Economy" companies, the mere prospect of remaking traditional products into smart and connected ones is daunting. (My own company, for example, the Bosch Group, produces over half a million things each day across more than 1,500 product categories.) But embedding them into a services-based business model is much more fundamentally challenging. The new models have major impacts on processes at the corporate center such as product management and production and sales planning. And given the dynamism of the net, the innovations will have to come more quickly. In short order at Bosch we have founded Bosch Software Innovations as a new software and systems unit; launched an electromobility service in Singapore; introduced cloud-based

security products; an IP-enabled Bosch security camera , and provided customers with an iPhone app for remote access to heating systems. (We also demonstrated ideas about the near-future of networked living at the Consumer Electronics Show (CES) in Las Vegas.)

In many and diverse sectors of the global economy, new web-based business models being hatched for the Internet of Things are bringing together market players who previously had no business dealings with each other. Through partnerships and acquisitions, Old Economy and New Economy (software based) companies are combining complementary strengths so they can move quickly into vast spaces of "blue ocean." In real time they are having to sort out how they will coordinate their business development efforts with customers and interfaces with other stakeholders.

What we have, then, is a competitive arena full of Old and New Economy companies, all jostling for position and attempting to shape the future. Long-standing producers in traditional industrial fields — whether they make coffee machines, cars, air conditioners, home gym equipment, or shoes — are suddenly not only competing with companies of their own breed; they are also confronting players the likes of which they have never faced before.

Most know that their strategy going forward will have to balance two imperatives. They have to protect the turf they already own — today's product business — while pursuing growth through service offerings that leverage the fact that the product is in place to offer a richer overall value proposition to customers. (What no traditional manufacturer should conclude is that the Internet of Things is a threat that must be fought off in order to preserve the value of the manufactured product and safeguard the capital tied up in production facilities.) Given the reality of limited resources, this lands many traditional product companies at a crossroads. Every new investment they make can go either to strengthening their product-centric facilities, supply chains, human resources, and brands, or to stretching them into the new territory of higher-margin services. The wisest course, most find, is to make investments in both directions, looking to achieve that magic balance that maximizes margins.

As a result, not only in the marketplace but also within firms, completely contrasting business practices, corporate structures, and cultures are crashing into each other. And indeed, for the Internet of Things to fully emerge, they must collide.

As the New Economy and Old Economy galaxies clash, people tend to anticipate that one will destroy the other — and many would observe that the greater momentum is on the New Economy side. Certainly, many differences will need to be overcome before the Old Economy and the New Economy fit together. (Controlled systems on the one hand are opposed by open communities on the other. One keeps a vigilant eye on scant resources, whereas the other in essence gives its services away for free.) But most likely, the two galaxies will morph — as the Milky Way and Andromeda are expected to do: a new system with new dynamics will be created. In the dance around new centers of gravity, new solar systems of partnership will be formed. The question for you is: in this new cyber-physical galaxy, will your company become a new sun, a planet, a minor moon — or be reduced to stardust?

Dr. Stefan Ferber is Director for Business Development of the Internet of Things & Services at Bosch Software Innovations GmbH in Germany, the software and system house of Robert Bosch GmbH.

This article is about INTERNET

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The Raspberry Pi isn't just a great platform for building Internet of Things project: It's a super
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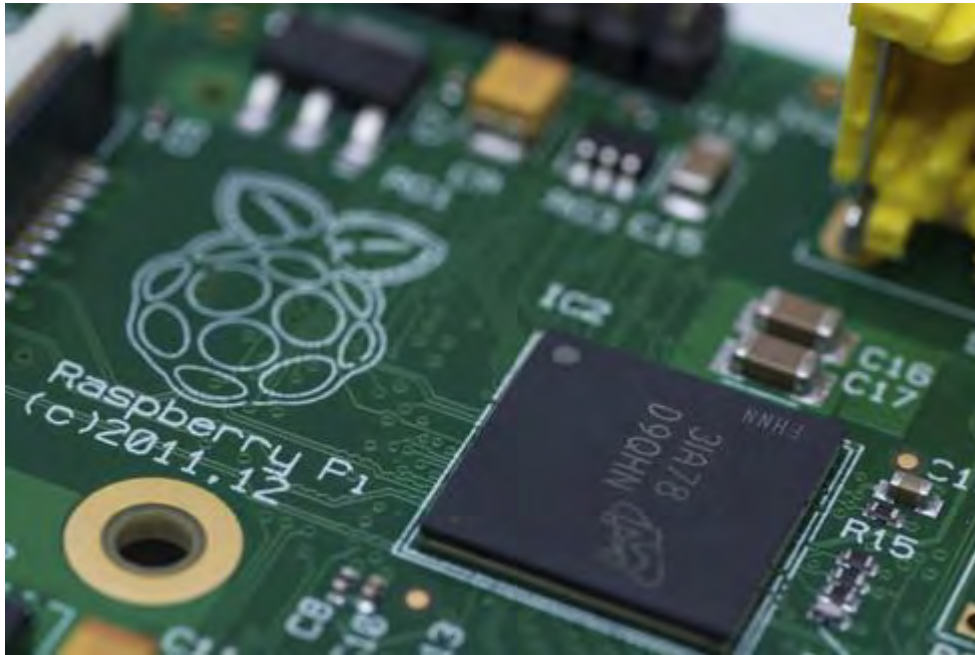
(Image: jeesoen/iStockphoto)

The Internet of Things (IoT) is, arguably, the hottest topic in IT. Every organization wants to participate in the IoT, and many IT professionals want to know how to add IoT skills to their resume. There are lots of options for learning about IoT, but nothing really beats the hands-on experience.

One of the key learning platforms for IoT is the Raspberry Pi. The RasPi is a popular platform because it offers a complete Linux server in a tiny platform for a very low cost. In fact, one of the most difficult parts of using Raspberry Pi for learning about IoT is picking the right projects with which to begin.

If you go out and look on the Web you'll find thousands of projects based on the RasPi. Some are ambitious, many are silly, and some are great for learning about both the Raspberry Pi and common components of the IoT. I went out in search of projects in that last group.

What makes a great IoT learning project? In my opinion it takes a few things. The first is the use of some common sensor or controller types. I like custom-built hardware as much as the next geek, but for an education project you don't really want to go wild with the hardware builds.

[Read about the top programming languages for the Internet of Things.]

Next, the project should have something interesting going on in the control software. While I don't think you need an epic development project for a meaningful learning experience, you should really do more than just call pre-existing scripts and applications.

Finally, the projects should be interesting and, dare I say it, fun. There's nothing worse than training that feels like drudgery. Good training projects should make trainees really want to move forward with their education.

That's what I went looking for, and I found a variety of projects that met my requirements. Here are 10 of the ones that I thought were best. We start with one that takes the RasPi to new heights.

Curtis Franklin Jr. is executive editor for technical content at InformationWeek. In this role he oversees product and technology coverage for the publication. In addition he acts as executive producer for InformationWeek Radio and Interop Radio where he works with ... View Full Bio

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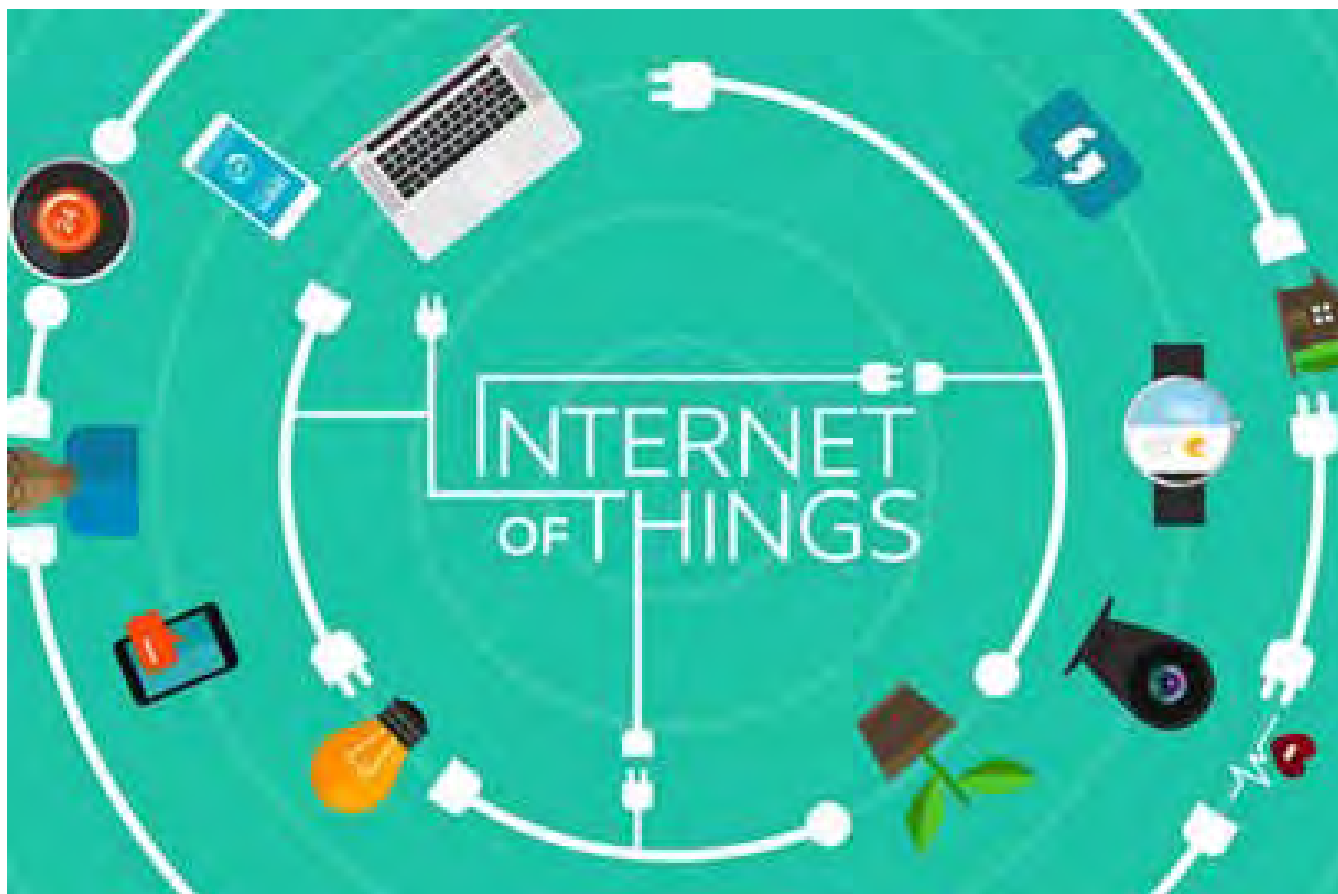
What is the Internet of Things? WIRED explains

From hairbrushes to scales, consumer and industrial devices are having chips inserted into them to collect and communicate data

_By_ **MATT BURGESS**

21 Apr 2017

Credit **Shutterstock**

Smart toasters, connected rectal thermometers and fitness collars for dogs are just some of the everday "dumb items" being connected to the web as part of the so-called Internet of Things (IoT).

Connected machines and objects in factories offer the potential for a 'fourth industrial revolution', and experts predict more than half of new businesses will run on the IoT by 2020.

Here's everything you need to know about the increasingly connected world.

What is the Internet of Things?

In the broadest sense, the term IoT encompasses everything connected to the internet, but it is increasingly being used to define objects that "talk" to each other. "Simply, the Internet of Things is made up of devices – from simple sensors to smartphones and wearables – connected together," Matthew Evans, the IoT programme head at techUK, told WIRED.

By combining these connected devices with automated systems, it is possible to "gather

information, analyse it and create an action" to help someone with a particular task, or learn from a process. In reality, this ranges from smart mirrors to beacons in shops and beyond.

"It's about networks, it's about devices, and it's about data," Caroline Gorski, the head of IoT at Digital Catapult told WIRED. IoT allows devices on closed private internet connections to communicate with others and "the Internet of Things brings those networks together. It gives the opportunity for devices to communicate not only within close silos but across different networking types and creates a much more connected world."

Why do connected devices need to share data?

An argument has been raised that only because something can be connected to the internet doesn't mean it should be, but each device collects data for a specific purpose that may be useful to a buyer and impact the wider economy.

Within industrial applications, sensors on product lines can increase efficiency and cut down on waste. One study estimates 35 per cent of US manufacturers are using data from smart sensors within their set-ups. US firm Concrete Sensors has created a device that can be inserted into concrete to provide data on the material's condition, for instance.

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"IoT offers us opportunity to be more efficient in how we do things, saving us time, money and often emissions in the process," Evans said. It allows companies, governments and public authorities to re-think how they deliver services and produce goods.

"The quality and scope of the data across the Internet of Things generates an opportunity for much more contextualised and responsive interactions with devices to create a potential for change," continued Gorski. IoT "doesn't stop at a screen".

Where does the IoT go next?

Even those who have purchased one of the myriad smart home products – from lightbulbs, switches, to motion sensors – will attest to the fact IoT is in its infancy.

Products don't always easily connect to each other and there are significant security issues that need to be addressed.

A report from Samsung says the need to secure every connected device by 2020 is "critical". The firm's Open Economy document says "there is a very clear danger that technology is running ahead of the game". The firm said more than 7.3 billion devices will need to be made secure by their manufacturers in the next three years.

"We are looking at a future in which companies will indulge in digital Darwinism, using IoT, AI and machine learning to rapidly evolve in a way we've never seen before," Brian Solis, from Altimeter Group, who helped on the research said.

IoT botnets, created using a network of out-of-date devices recently took large websites and services offline. A Chinese firm later recalled 4.3 million unsecured connected cameras.

At the centre of creating a vast, reliable IoT network lies one significant issue: compatible standards. Connected objects need to be able to speak to each other to transfer data and share what they are recording. If they all run on different standards, they struggle to communicate and share. The Institute of Electrical and Electronics Standards Association lists a huge number of standards being developed and worked on for different applications.

"Additional needs are emerging for standardisation," the Internet Society says. If standardisation happens it will let more devices and applications be connected.

To try and tackle this issue on an enterprise scale, Microsoft has introduced its own system for IoT devices. Called IoT Central, *TechCrunch*, reports the system gives businesses a managed central platform for setting up IoT devices. Microsoft claims the system will simply the creation of IoT networks.

Gorski described IoT, even among those with the most experience of the concept, as a "relatively immature market" but said 2016 may have been a turning point. The Hypercat standard is now supported by ARM, Intel, Amey, Bae Systems and Accenture and the firms are currently agreeing on a format for "exposing collections" of URLs, for example.

"In the short term, we know [IoT] will impact on anything where there is a high cost of not intervening," Evans said. "And it'll be for simpler day-to-day issues – like finding a car parking space in busy areas, linking up your home entertainment system and using your fridge webcam to check if you need more milk on the way home.

"Ultimately what makes it exciting is that we don't yet know the exact use cases and just that it has the potential to have a major impact on our lives."
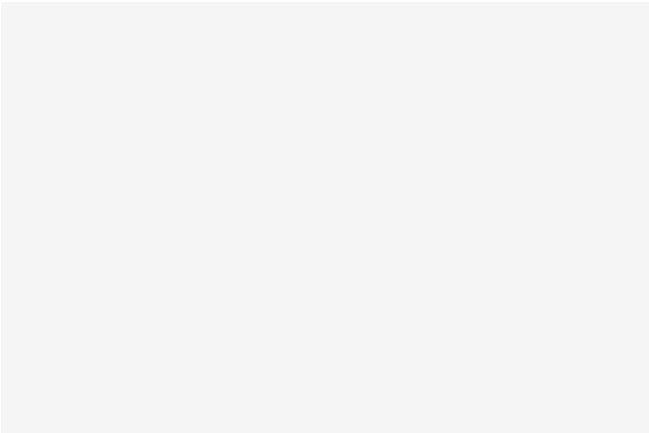
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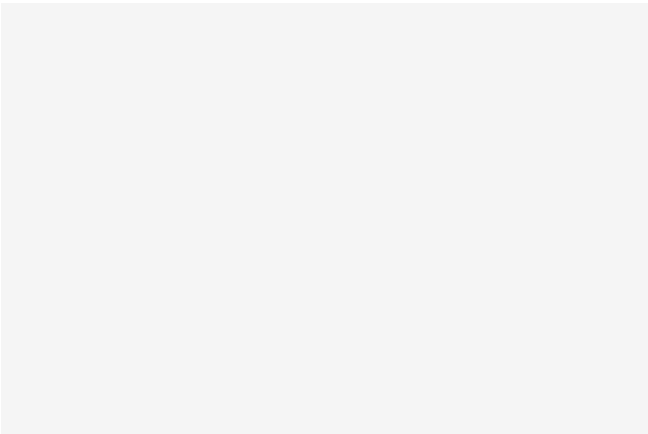## SHARE THIS ARTICLE

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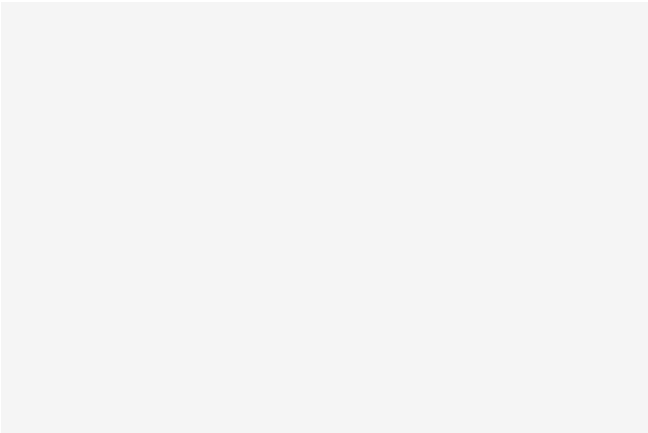
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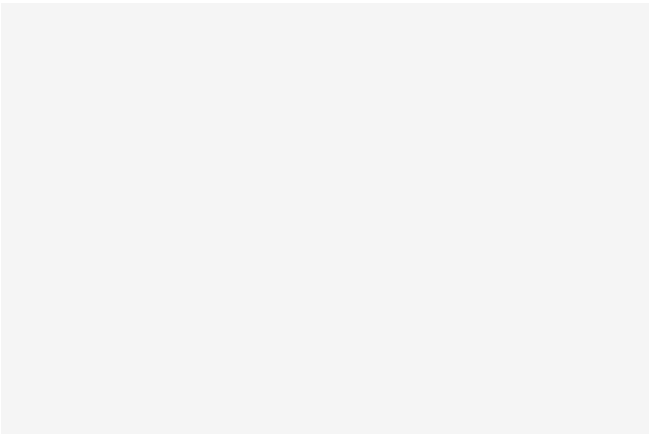
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