



## What is the Internet of Things?

Blog by Jay Giraud on Nov. 30, 2012

We've lived the last 10-20 years in an increasingly connected world of people intertwining their lives with others through computers. But there is a quiet, new revolution emerging, and it will change everything.

The Internet of Things is coming. A world where physical objects are imbued with intelligence and memory and then virtualized seamlessly into an information network. This is where physical objects can become active participants in both personal and professional life.

Jeff Immelt, Chairman and CEO, GE sees what he calls the Industrial Internet as an opportunity to squeeze tiny improvements in design and development to create gains that will add \$15 trillion to global GDP by 2030.

*“Consider that just a one percent improvement in aircraft engine maintenance efficiency can reduce related costs by \$250 million annually. A similar one percent fuel savings in power generation could add more than \$4 billion annually to the global economy.”*

This Industrial Internet is being applied at home, work and even in the car. Consumer services are now available to interact with 'smart objects' over the Internet. These services will be able to query and change the state of a smart object using information associated with them, while taking into account security and privacy concerns programmed into the object's logic. Smart Things ([www.smarthings.com](http://www.smarthings.com)) is a great example of how lights, appliances and security systems can become automated and actively engaged in our home and family life.

Smart phones have enabled an always-connected experience using apps. This near ubiquitous behavior is paving the road for connecting with Things like vehicles in exactly the same manner. Enabling more intelligent, seamless and automated processes can be accomplished not just by connecting people to Things, but by allowing Things to connect and collaborate with other Things in a way that makes business and life better.

Today's information technology is dependent on data. If we had devices that knew everything there was to know about other devices we would be able to automate the tracking and counting of everything, and greatly reduce waste, loss and cost. We would know when things needed replacing, repairing or recalling, and whether they were fresh or past their expiration date. The Internet of Things will fundamentally alter our experience of life.

moj.io is a telematics company delivered on an open platform and is an example of how the internet of things can automate otherwise manual tasks in our daily lives. It aims to enable



people's cars to communicate with other devices and apps using the Internet, intuitively automating actions and behaviors in the driver's present and future surroundings. This is made possible with an internet-connected device that is plugged into the car's computer and is programmed to 'listen' to events happening in the car – essentially the car becomes an Internet hot spot. It then engages in a communication or data exchange between the car and other devices/apps, and automatically predicts, then makes a corresponding action the user wants.

For example, imagine you are getting ready to leave the house for work in the morning. You have a meeting downtown in an hour. The moj.io device in your car senses the proximity of your smart phone over Bluetooth and unlocks your car doors as you approach. When you start your car and pull away from the driveway, it connects by API to the [Lockitron \(www.lockitron.com\)](http://www.lockitron.com) automated door lock on your front door and locks the door, and shuts off all the zigbee-enabled lights in your house. Once on the road, with your authorization it regularly checks your smart phone's calendar against your speed, direction of travel and current location to determine if you are on your way to an appointment, then reserves a parking spot nearest to your next destination. By knowing who your meeting is with in your calendar, it also sends an [AutoText \(www.getmojio.com\)](http://www.getmojio.com) notifying them of your current location and precise time of your arrival. You can even be notified of anything moj.io knows, right on your [Metawatch \(www.metawatch.org\)](http://www.metawatch.org) smart watch.

Sounds like a distant, someday sort of future? Most of this is possible today, using moj.io with any car built after 1995.

There are as many business applications as there are businesses that will benefit from the Internet of Things. The City of Boston recently released an app called Street Bump that uses the accelerometer and GPS of a smart phone in a car to measure the change in road surface conditions without the cost and time expense of surveyors, which normally takes 3-4 months to complete a city's road surveys. The obvious challenge here is how the city can ensure enough smart phone owners will download and run the app often enough and provide access to the data that the app collects. By plugging moj.io into all the city's garbage trucks, they can consistently collect accurate road surface data and cover most if not all the roads in the city in the space of one week, without the expense of costly surveyors.

Kirmac Collision is an automotive repair facility in Vancouver, BC that is preparing a pilot project with moj.io to monitor the use and costs of its courtesy car fleet. Many courtesy cars inevitably incur costs to the company such as toll fees, parking tickets and unnecessary wear and tear. The moj.io pilot being planned will allow Kirmac to govern the areas and speeds in which the car is driven, account for tolls and fees incurred by the customer and track the wear and tear in a much more accurate way, which helps with resale value to automotive wholesalers when the fleet is replaced. In this pilot Kirmac expects to save hundreds of dollars in costs incurred courtesy car use and improving the gross profit per sale.