



UNIVERSIDAD  
**NACIONAL**  
DE COLOMBIA

**Cátedra  
Pedro Nel Gómez:  
Mindset innovador a  
prueba de futuro**

PROYECTO CULTURAL, CIENTÍFICO Y COLECTIVO DE NACIÓN



**Cátedra**  
**Pedro Nel Gómez:**  
**Mindset innovador a**  
**prueba de futuro**

**Docente:**

Ingeniero administrador  
Juan David Correa Toro

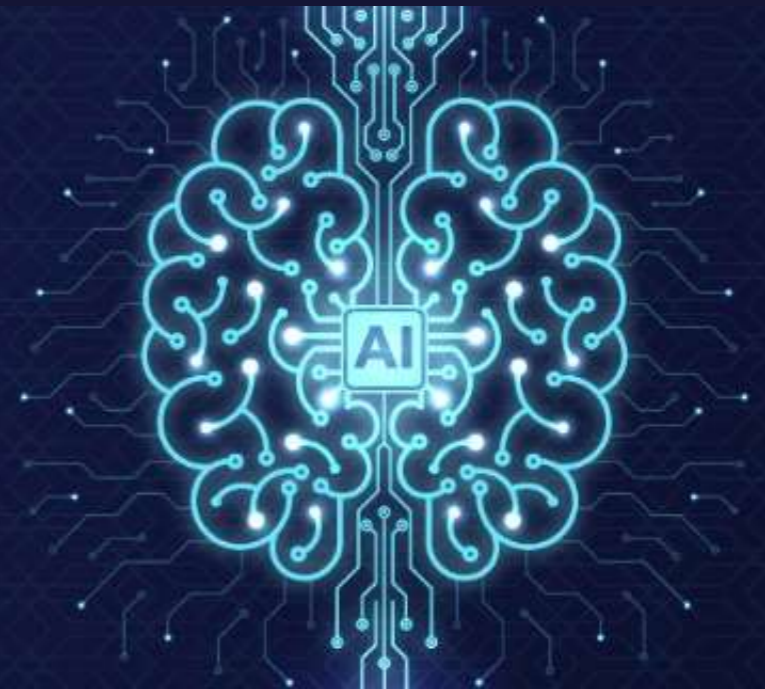


**Código: 3011073** - asignatura de Libre Elección de 3 créditos

Sacándole provecho a las **tecnologías exponenciales** parte 9A:

***Internet de las cosas.***

**Cátedra**  
**Pedro Nel Gómez:**  
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**prueba de futuro**



# Agenda

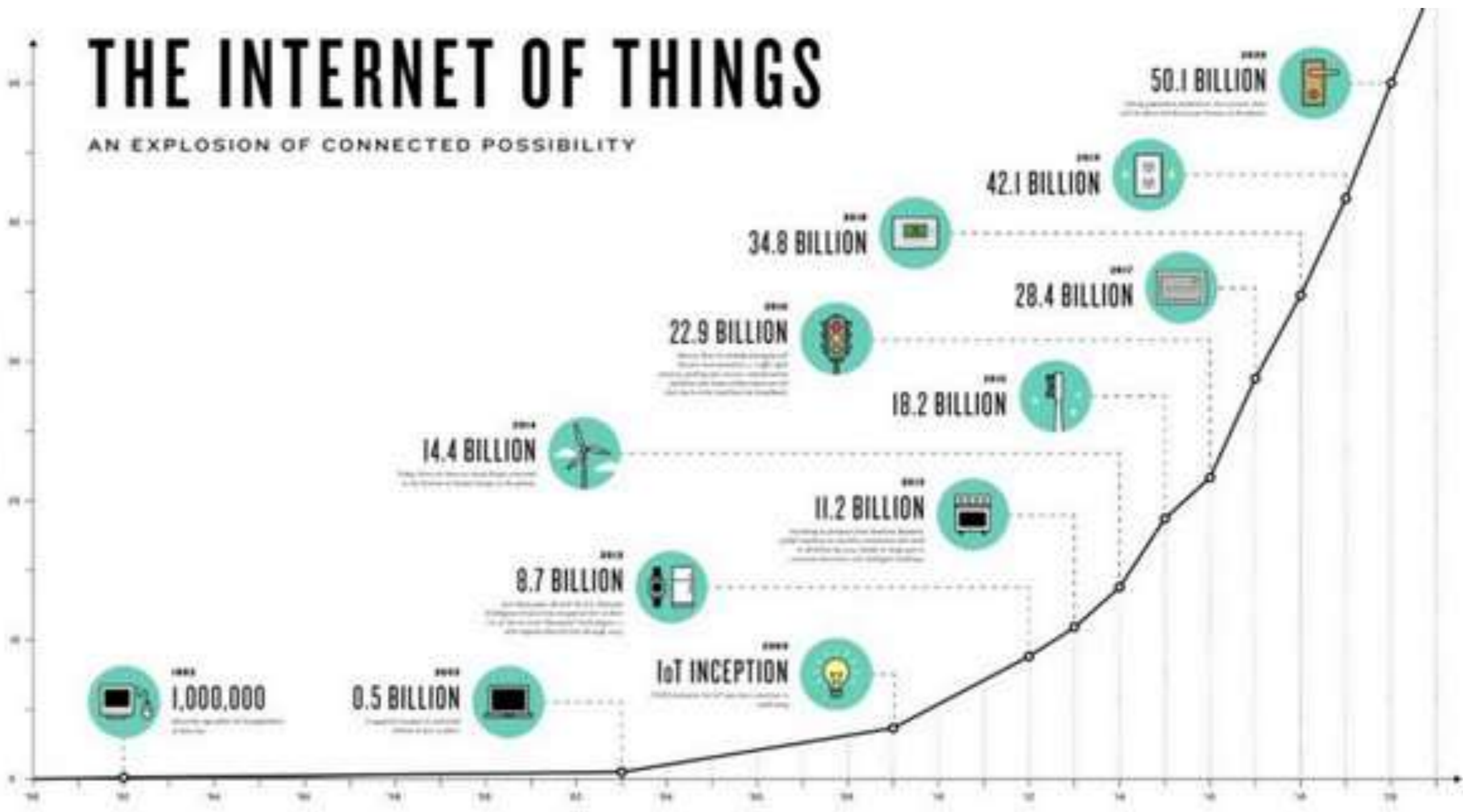
- Realidad soft.
- Casas – edificaciones.
- Automóviles – medios de transporte.
- Ciudades.
- iiot
- Realidad dura.



# THE INTERNET OF THINGS

AN EXPLOSION OF CONNECTED POSSIBILITY

BILLIONS OF DEVICES



11 MIN READ

# METATREND #8: GLOBAL GIGABIT CONNECTIVITY—CONNECTING EVERYONE & EVERYTHING, EVERYWHERE, ALL THE TIME.

Dec 4, 2022

Tweet

Share

Like 51

Share



[https://www.diamandis.com/blog/metatrend\\_8\\_global\\_gigabit\\_connectivity](https://www.diamandis.com/blog/metatrend_8_global_gigabit_connectivity)



10 MIN READ

# METATREND #9: TRILLION- SENSOR ECONOMY: THE ABILITY TO SENSE AND KNOW ANYTHING, ANYTIME, ANYWHERE

Dec 8, 2022

 Tweet  Share  Like 101  Share

[https://www.diamandis.com/blog/metatrend\\_9\\_trillion\\_sensor\\_economy](https://www.diamandis.com/blog/metatrend_9_trillion_sensor_economy)



SOFT

HARD



SOFT



Una **simplificación**

# Conectados - Autónomos - Inteligentes



Conectada - Autónoma - Inteligente





SmartControl



Get ready for Li-Fi, a technology 100 times faster than Wi-Fi

53.8k  
SHARES

Share on Facebook

Share on Twitter

## Li-Fi Turns Every Lightbulb Into an Ultra-Fast Wireless Network

30.7k  
SHARES

Share on Facebook

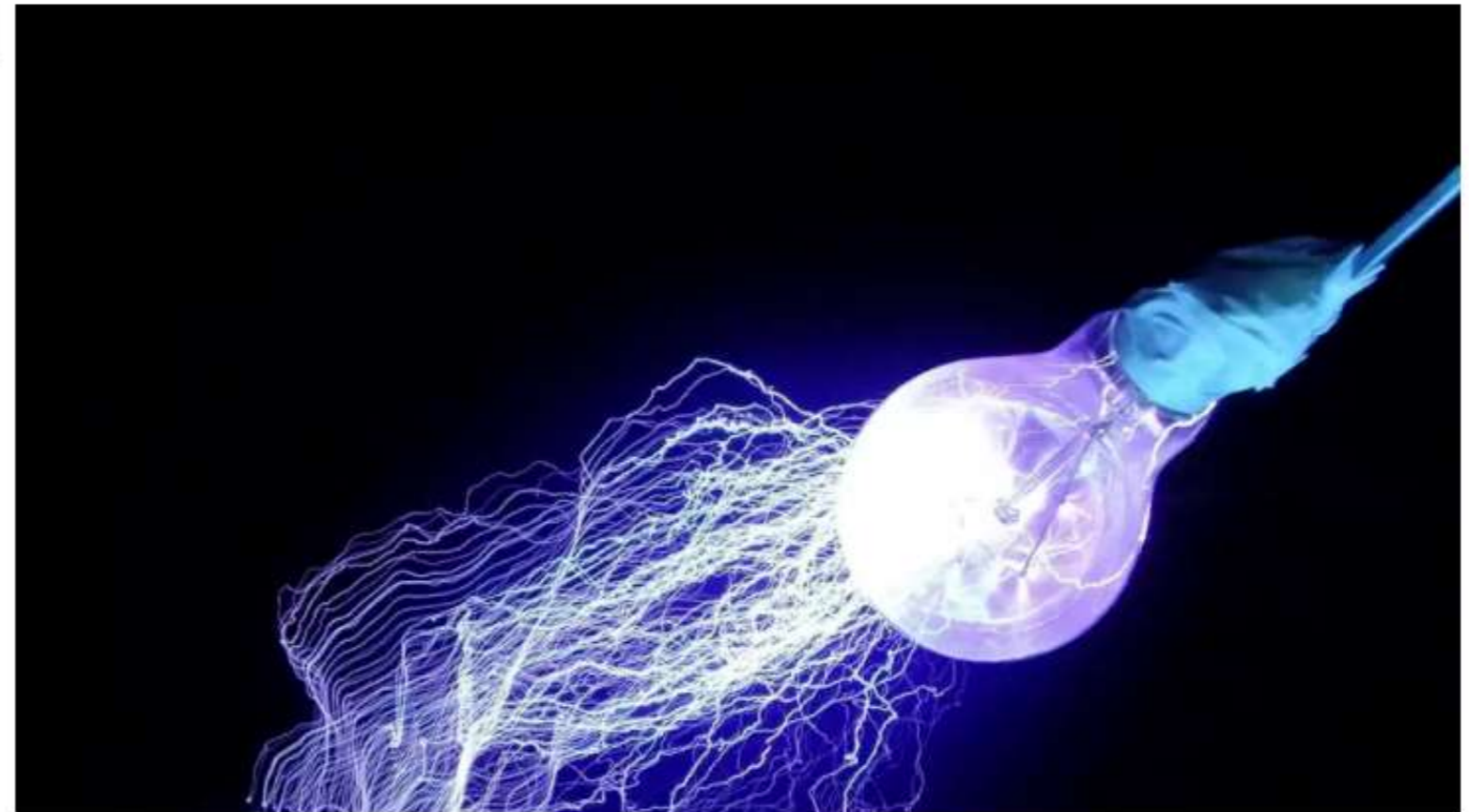
Share on Twitter

+

WHAT'S THIS?



An LED Light could be fitted with a Li-Fi chip, allowing it to communicate.



Robots & Machines

# A Company Has Finally Said They Will Bring "Real" Wireless Charging

Youtube / Yank Tech

## IN BRIEF

- The Indiegogo campaign for the first "real" wireless charger has already far exceeded its goal of \$25,000.
- As more devices are joining the Internet of Things, traditional wires are not going to be enough to power them.

## SHARE



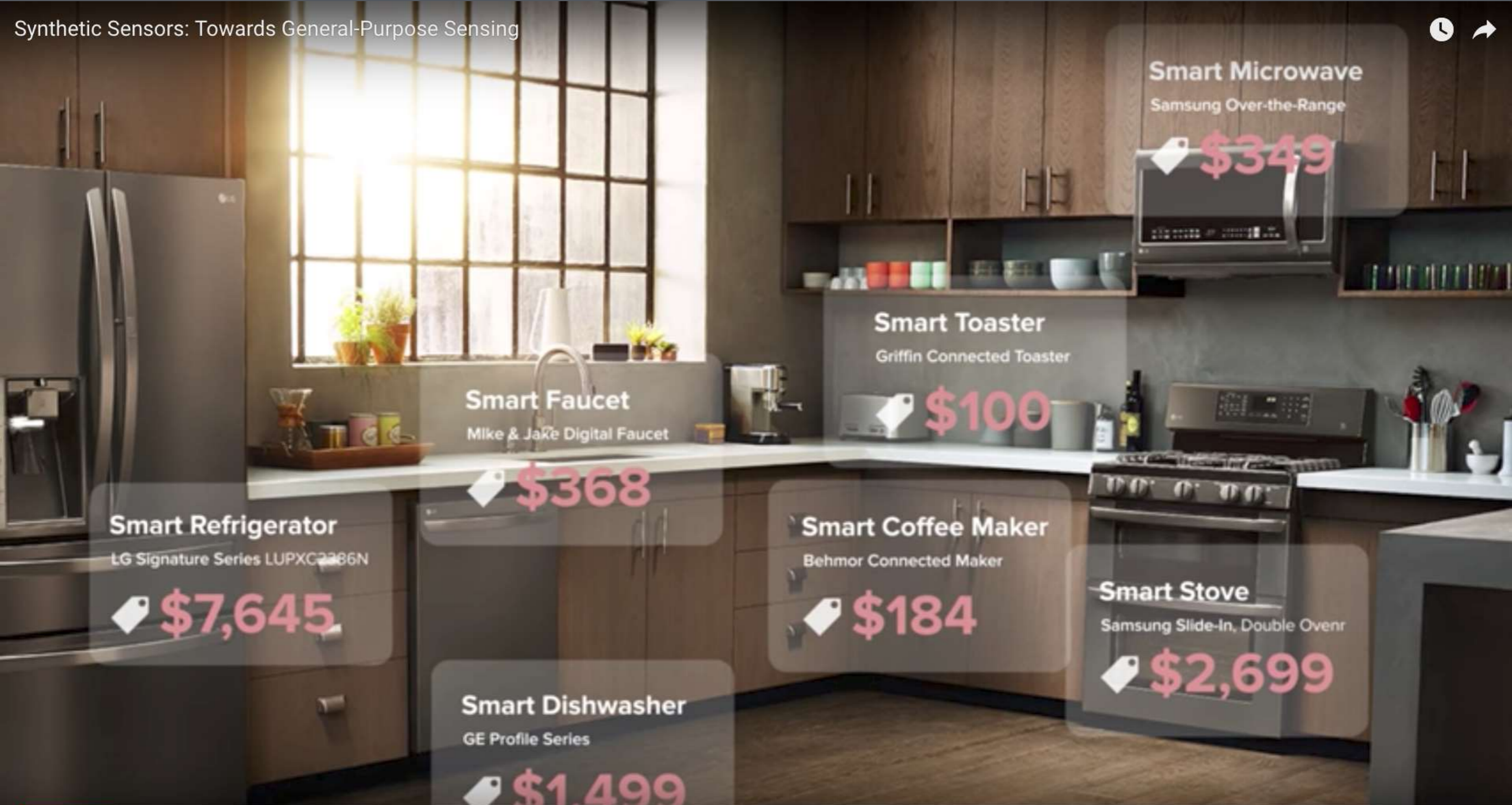
## WRITTEN BY

Patrick Caughill



February 22, 2017





**Smart Refrigerator**  
LG Signature Series LUPXC2386N  
**\$7,645**

**Smart Faucet**  
Mike & Jake Digital Faucet  
**\$368**

**Smart Dishwasher**  
GE Profile Series  
**\$1,499**

**Smart Coffee Maker**  
Behmor Connected Maker  
**\$184**



**Smart Toaster**  
Griffin Connected Toaster  
**\$100**

**Smart Stove**  
Samsung Slide-In, Double Oven  
**\$2,699**

**Smart Microwave**  
Samsung Over-the-Range  
**\$349**



- Cottons 
- Minimum iron 
- Woolens 
- Outerwear 
- Proofing 
- Express 

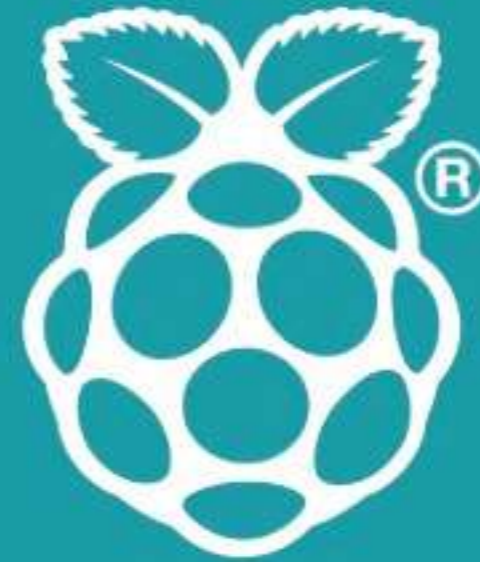
Further programmes   
Steam 



**amazon** dash  
BUTTON



**ARDUINO**

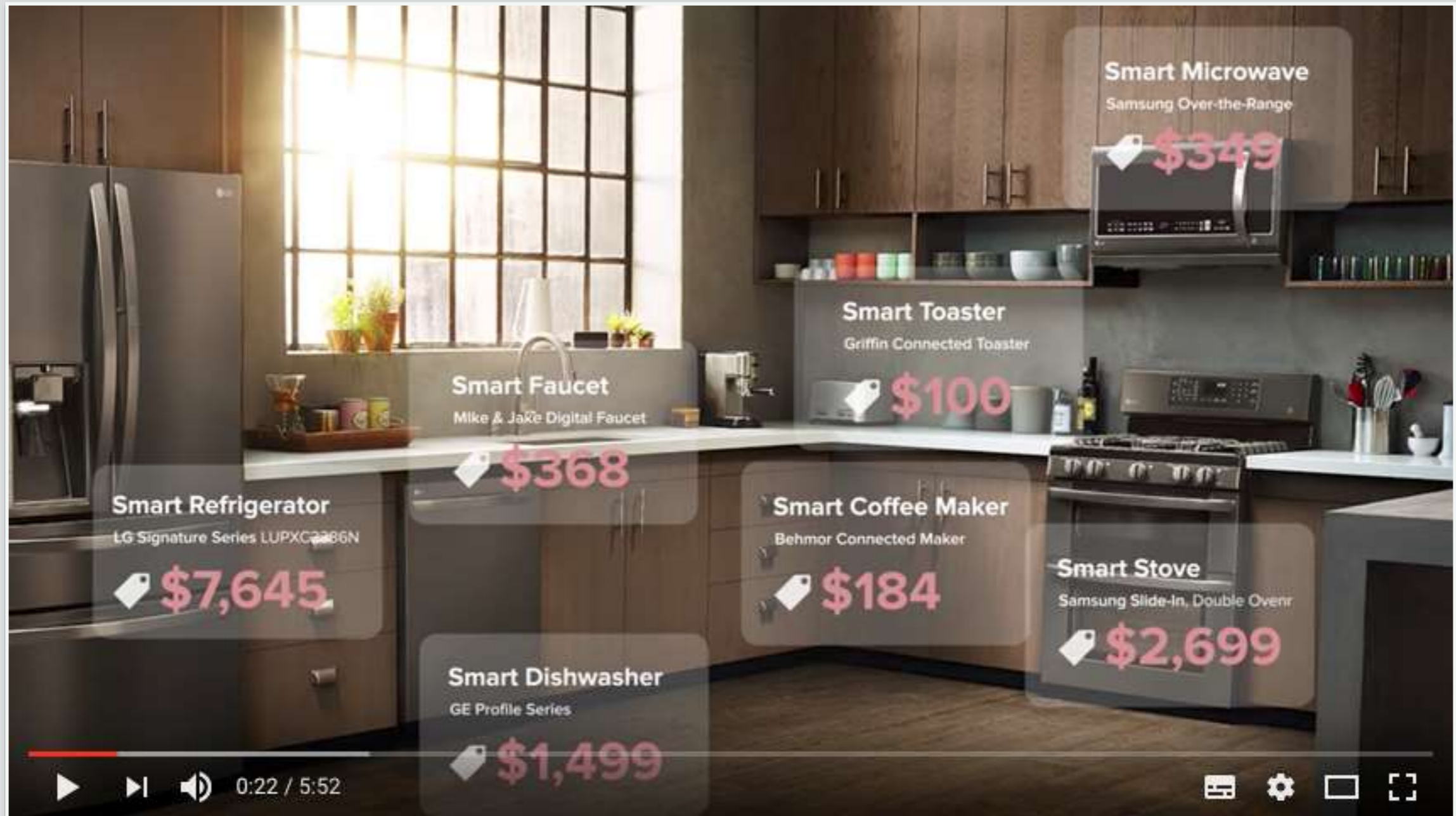


**Raspberry Pi**

<https://del.icio.us/knowledgefactory/arduino>



# Synthetic Sensors: Towards **General-Purpose** Sensing



<https://www.youtube.com/watch?v=aqbKrrru2co>

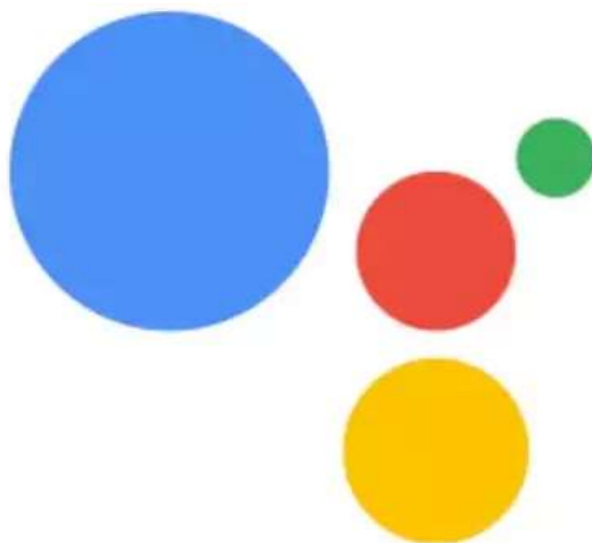
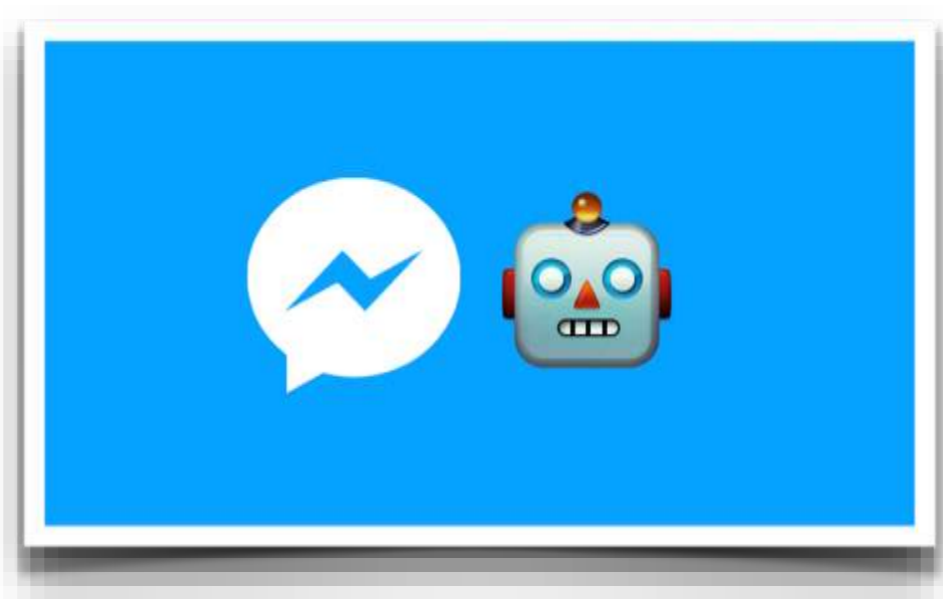
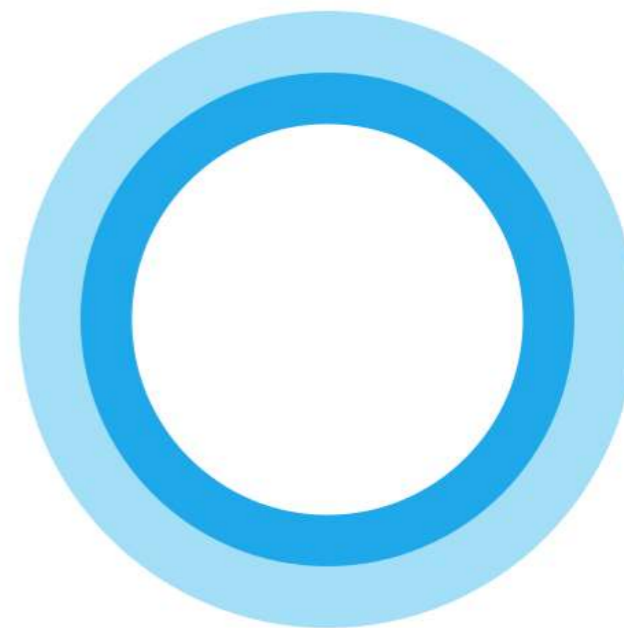
# Synthetic Sensors: Towards **General-Purpose** Sensing

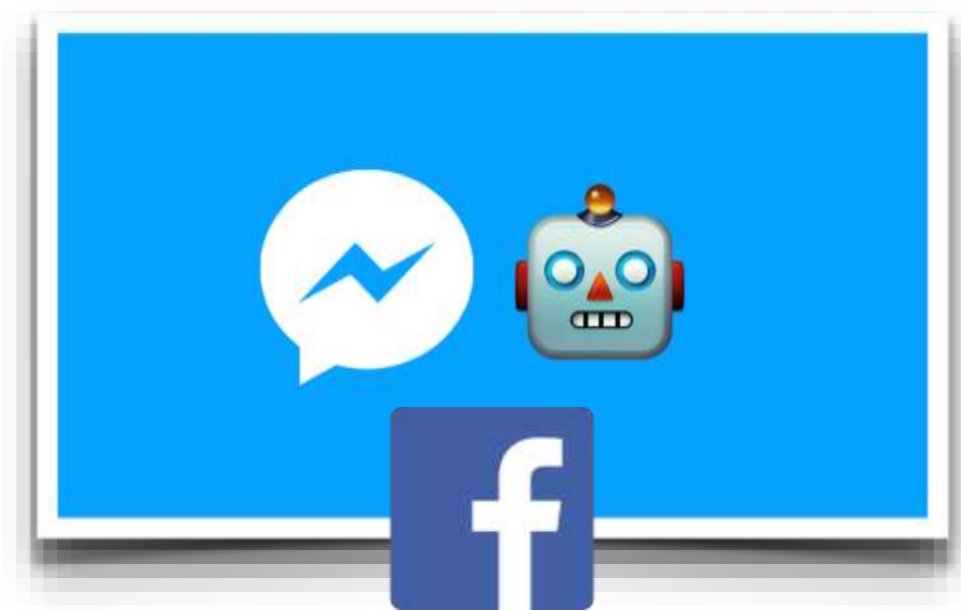
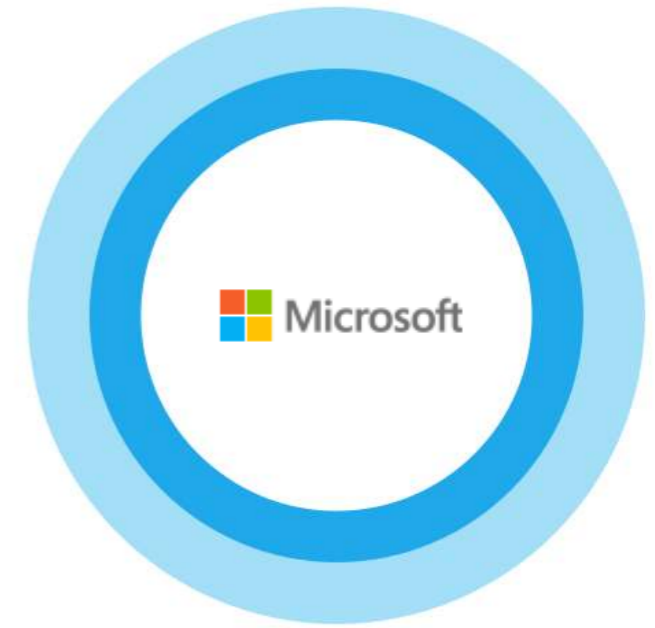


<https://www.youtube.com/watch?v=aqbKrrru2co>













amazon





LIZ STINSON DESIGN 05.12.17 07:00 AM

# THE SURPRISING REPERCUSSIONS OF MAKING AI ASSISTANTS SOUND HUMAN



ALL-NEW  
**amazon**dash

Say it. Scan it.  
It's in your cart.



<https://www.youtube.com/watch?v=s7IExS483wE>



<https://www.youtube.com/watch?v=s7IExS483wE>



# Amazon Dash Wand No More – Alexa Shopping Device Discontinued

ERIC HAL SCHWARTZ on June 22, 2020 at 10:00 am



---

<https://voicebot.ai/2020/06/22/amazon-dash-wand-no-more-alexa-shopping-device-discontinued/>

Tecnología

# Amazon asegura que el futuro de Alexa no está comprometido a pesar de los despidos masivos en esa división



eE

elEconomista.es

19/12/2022 - 16:29

<https://www.eleconomista.es/tecnologia/noticias/12081786/12/22/Amazon-asegura-que-el-futuro-de-Alexa-no-esta-comprometido-a-pesar-de-los-despidos-masivos-en-esa-division-.html>

A friendly face  
for your home

That plays well with  
others. Coming soon...

[Keep me posted](#) →



<https://www.essential.com/home>



## No se puede acceder a este sitio web

Comprueba si hay un error de escritura en [www.essential.com](http://www.essential.com).

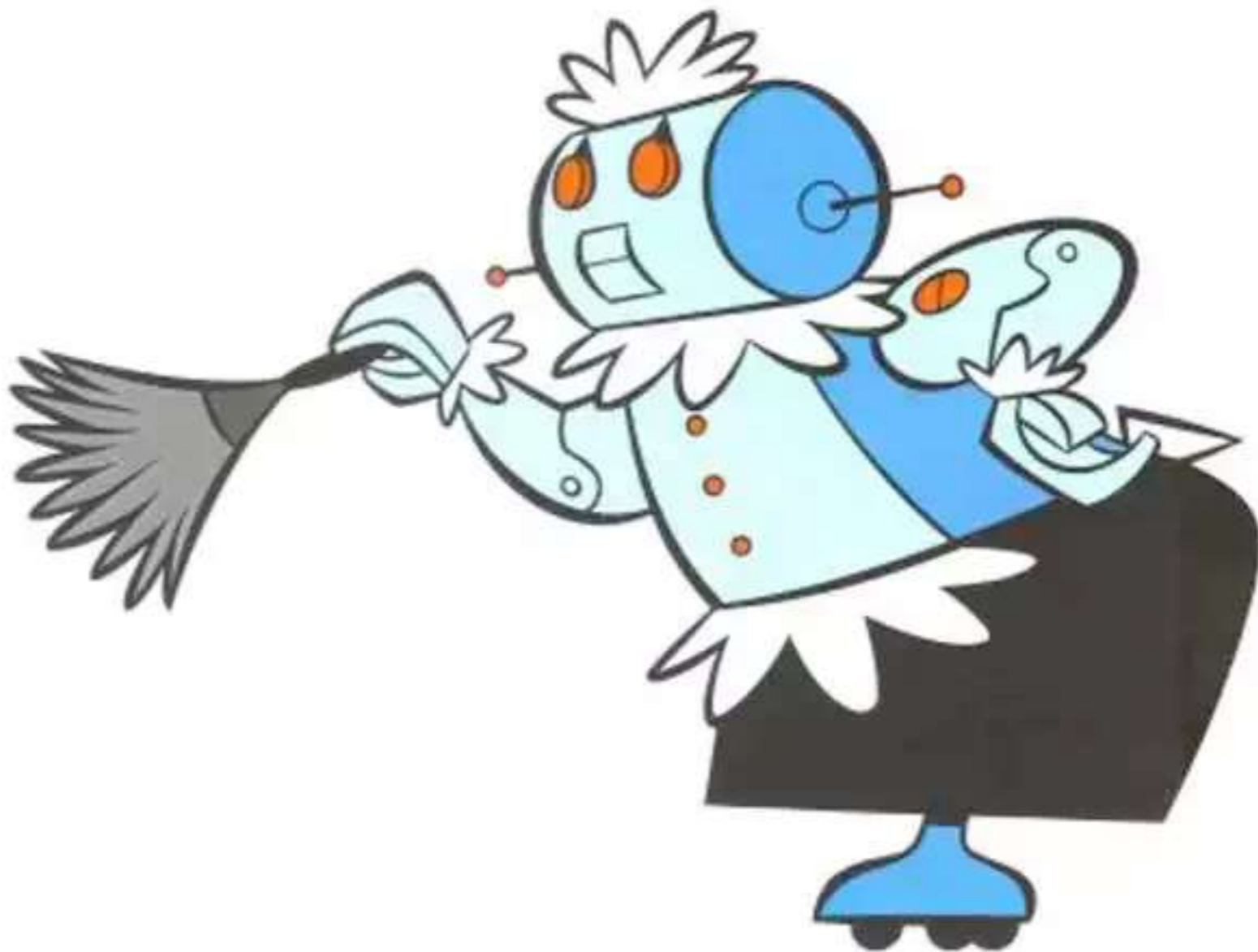
Si está escrito correctamente, prueba a ejecutar el diagnóstico de red de Windows.

DNS\_PROBE\_FINISHED\_NXDOMAIN

Volver a cargar

<https://www.essential.com/home>

?



?

Conectados - Autónomos - Inteligentes



# The Building Blocks of Autonomy

Prepared by  VISION SYSTEMS INTELLIGENCE

## AUTONOMOUS SOLUTIONS



Level of Integration

## PROCESSING



## SENSORS



## CONNECTIVITY



## MAPPING



## ALGORITHMS



## SECURITY/SAFETY

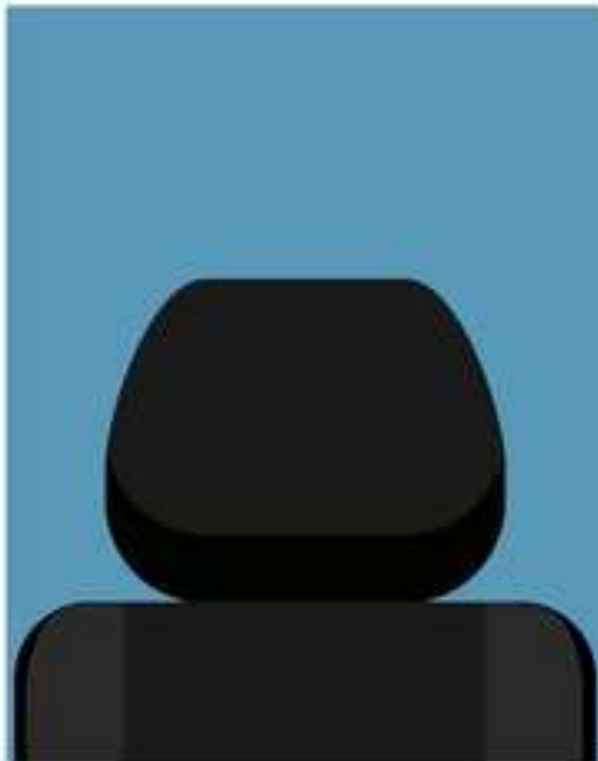


## DEVELOPMENT TOOLS



**UNITED STATES**

**DRIVER LICENSE**



**DL** X5551234

**EXP** 06/30/2020

**LN** DRIVING

**FN** SELF

12345 GARAGE PLACE  
SAN FRANCISCO, CA 94107

**DOB** SOON

DONOR

**SEX** ?

**HAIR** BLK

**EYES** SYLVANIA

LEATHER

**HGT** 3'

**WGT** 35 LB

**ISS** 05/10/2015

**CLASS** IDK

**END** MAYBE

Driving Technology Inc.



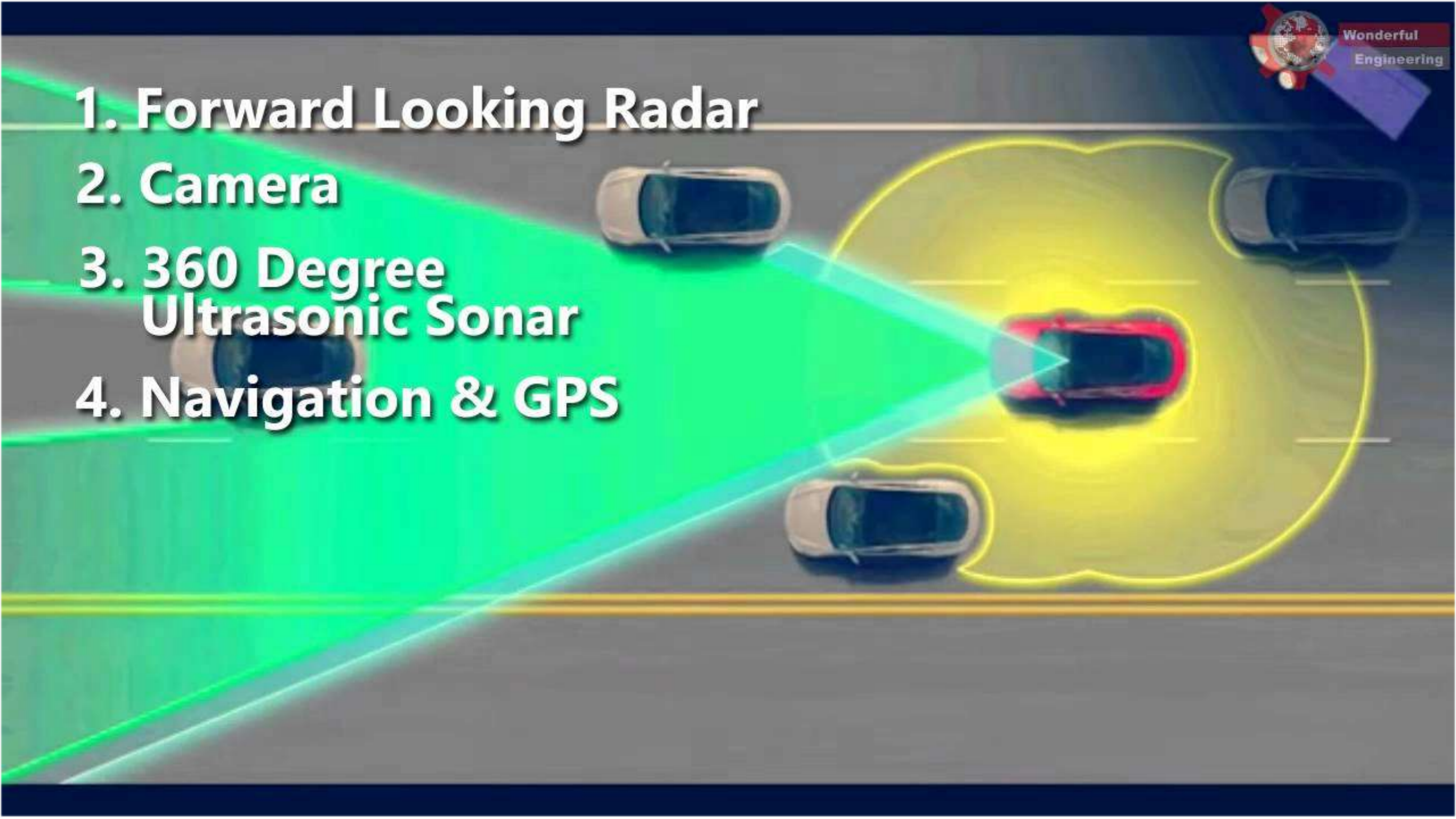


<https://www.youtube.com/watch?v=tIThdr3O5Qo>



<https://www.youtube.com/watch?v=tIThdr3O5Qo>

1. Forward Looking Radar
2. Camera
3. 360 Degree Ultrasonic Sonar
4. Navigation & GPS





<https://www.youtube.com/watch?v=V4PDTD2VHSU>

The future of personal transport

# The driverless, car-sharing road ahead

*Carmakers increasingly fret that their industry is on the brink of huge disruption*

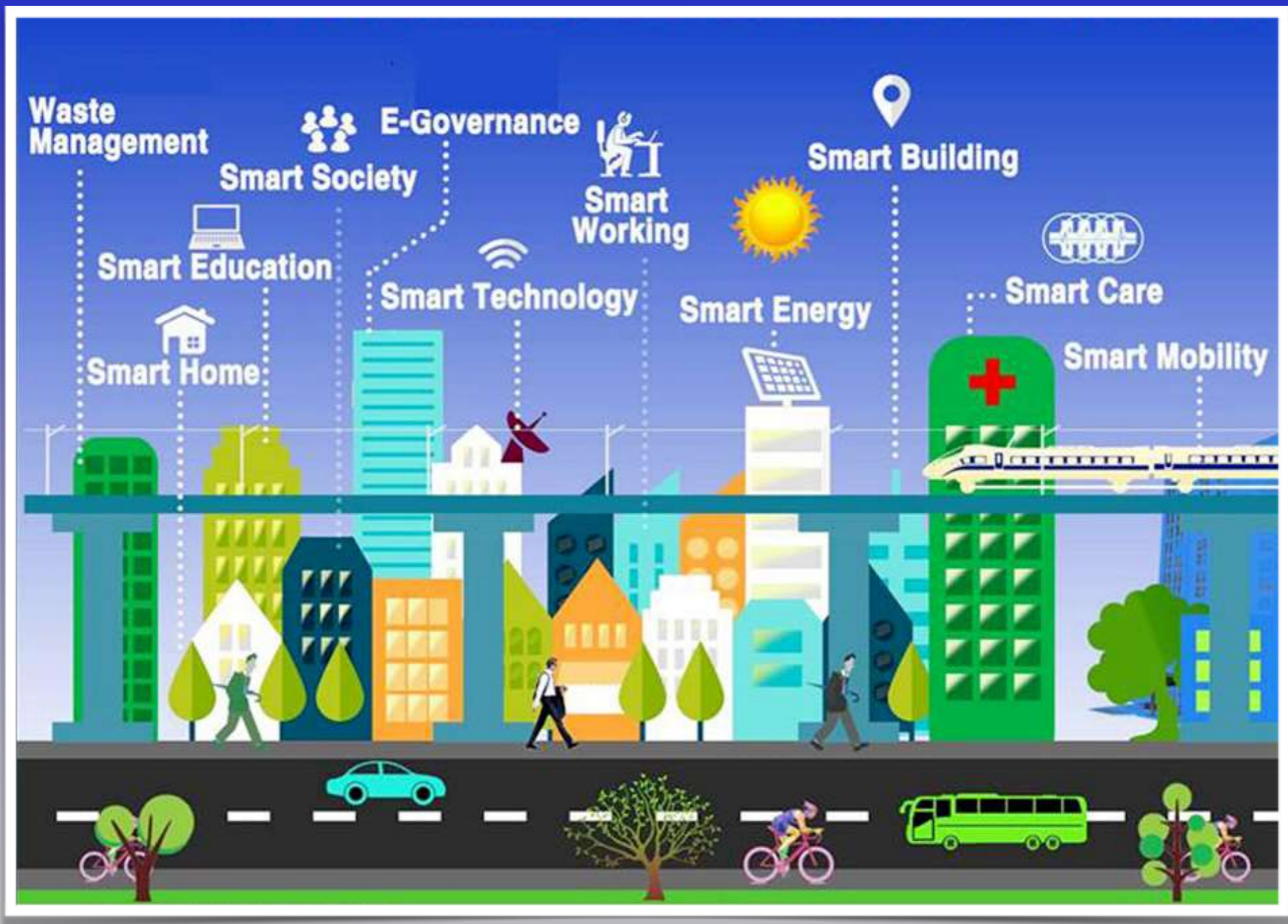


Conectadas - Autónomas - **Inteligentes**



# SMART CITY









### STORES

Deliver in-store offers and e-catalogues to target shoppers



### RESTAURANTS

Attract new customers with coupons while offering returning customers express pre-order and pick-up services



### SHOPPING MALLS

Guide visitors with floor plans, events, and the hottest sales for a boost in traffic and revenue



### AIRPORTS

In addition to flight information, showcase duty-free promotions and special vacation deals



### STADIUMS

Send welcome messages, seat maps, and coupons for snacks and sporting goods



### MUSEUMS

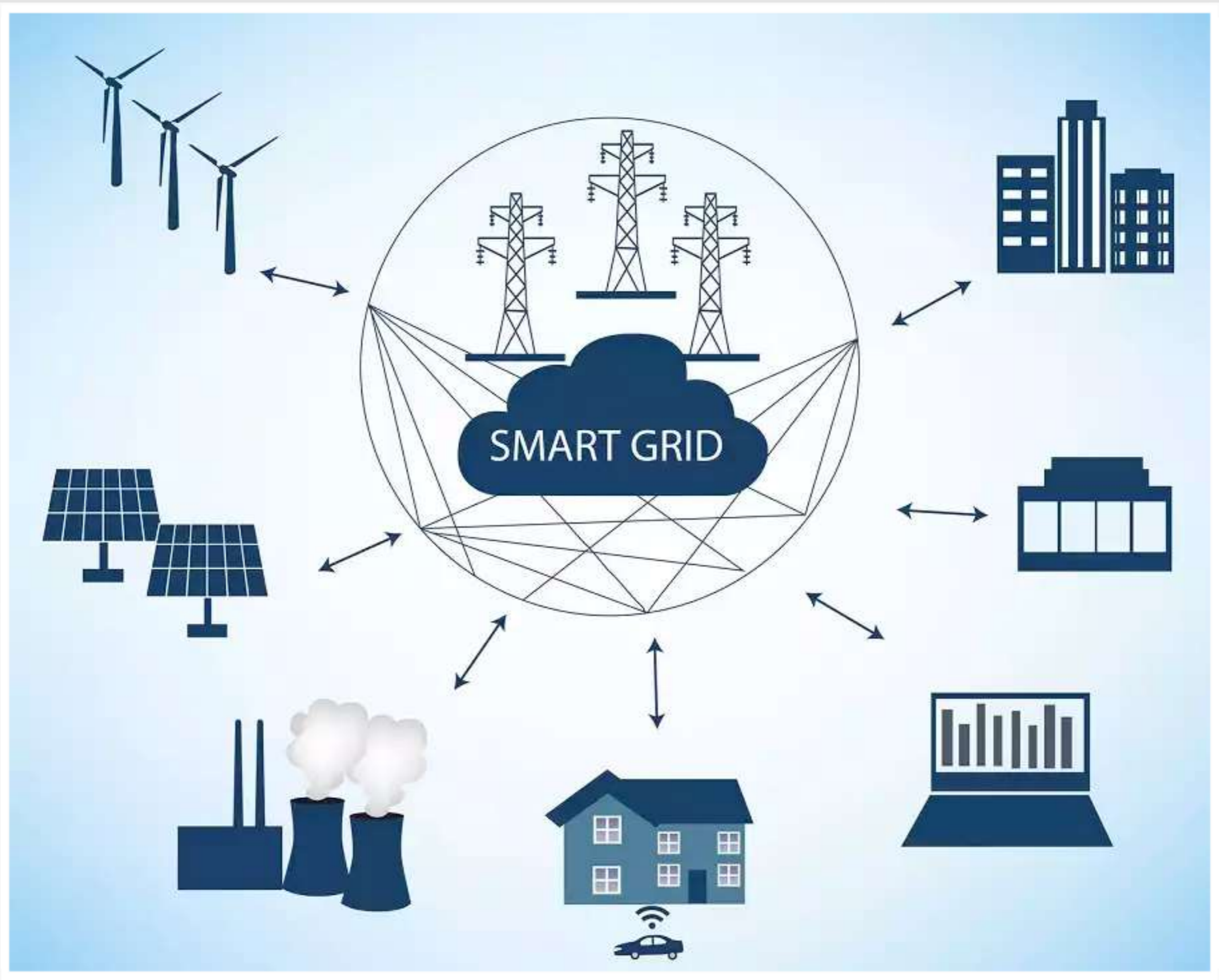
Provide mobile tours for exhibitions as well as museum shop promotions



<https://www.diigo.com/profile/juandacorrea?query=%23ibeacon>



<https://www.diigo.com/profile/juandacorrea?query=%23ibeacon>





**THE LINE**

**LA METRÓPOLIS DEL FUTURO**

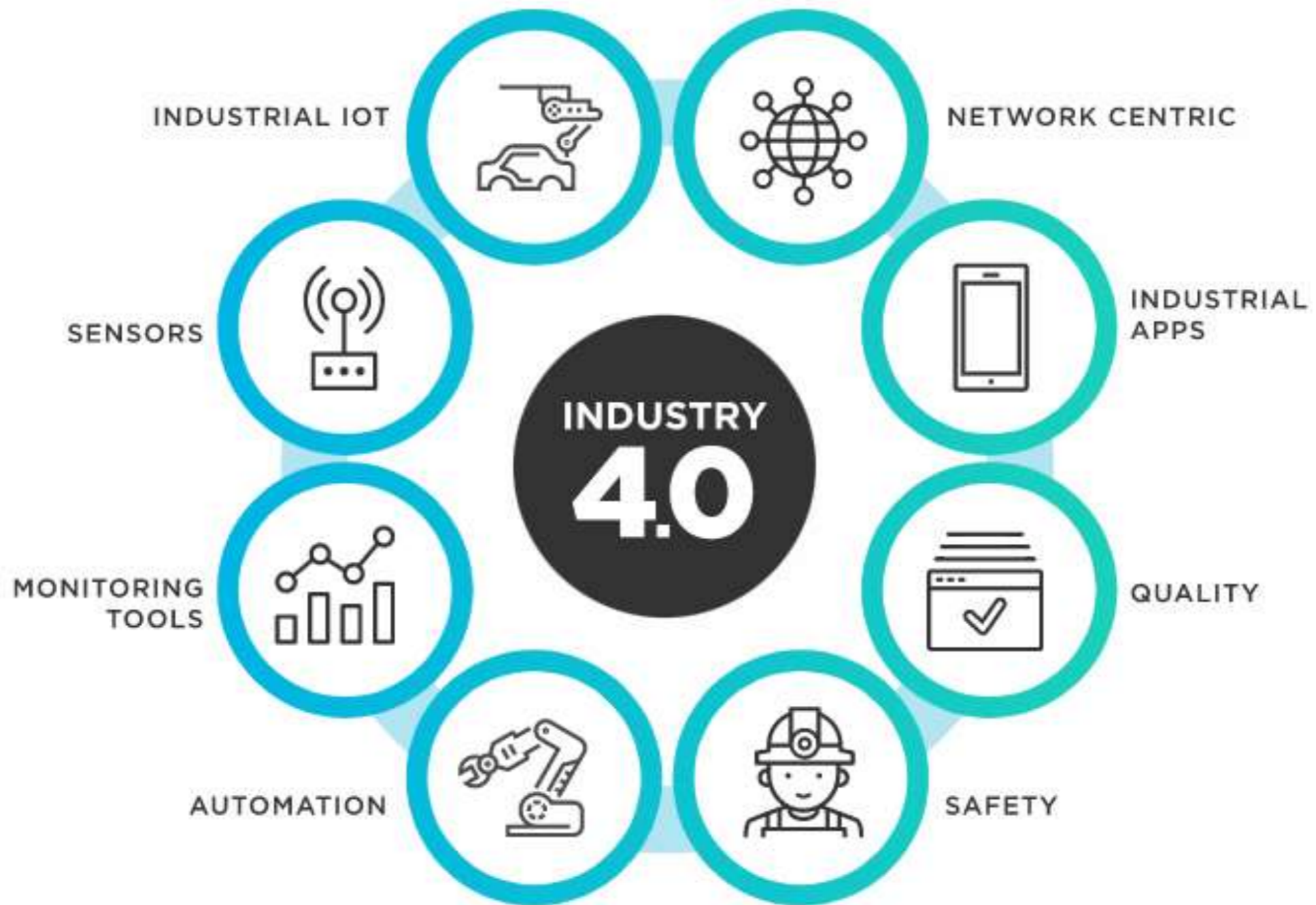
CLICK  
AHORA  
SUSCRIBETE



<https://www.youtube.com/watch?v=T7FmAlZ7YGs>

# INDUSTRIAL INTERNET OF THINGS







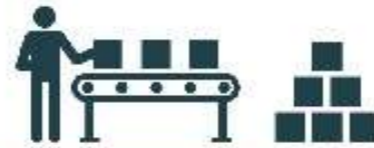


## INDUSTRY 1.0

Mechanization, steam power, weaving loom



1784



## INDUSTRY 2.0

Mass production, assembly line, electrical energy

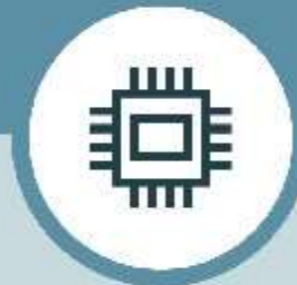


1870



## INDUSTRY 3.0

Automation, computers and electronics



1969



## INDUSTRY 4.0

Cyber Physical Systems, internet of things, networks



TODAY

# Industrial Internet of Things



# Industrial Internet of Things





# HARD







2010



<https://www.diigo.com/profile/juandacorrea?query=%23stuxnet>



“Es el primer gusano conocido que espía y reprograma sistemas industriales, en concreto sistemas SCADA de control y monitorización de procesos, pudiendo afectar a infraestructuras críticas como centrales nucleares.”

EP-4118 M	EP-4119 M	EP-4120 M		
EP-4109 M	EP-4110 M	EP-4111 M	EP-4112 M	EP-4113 M
2.739	2.739	2.996	3.252	3.508
PT 4109	PT 4110	PT 4111	PT 4112	PT 4113
0.077	0.078	0.077	0.078	0.077



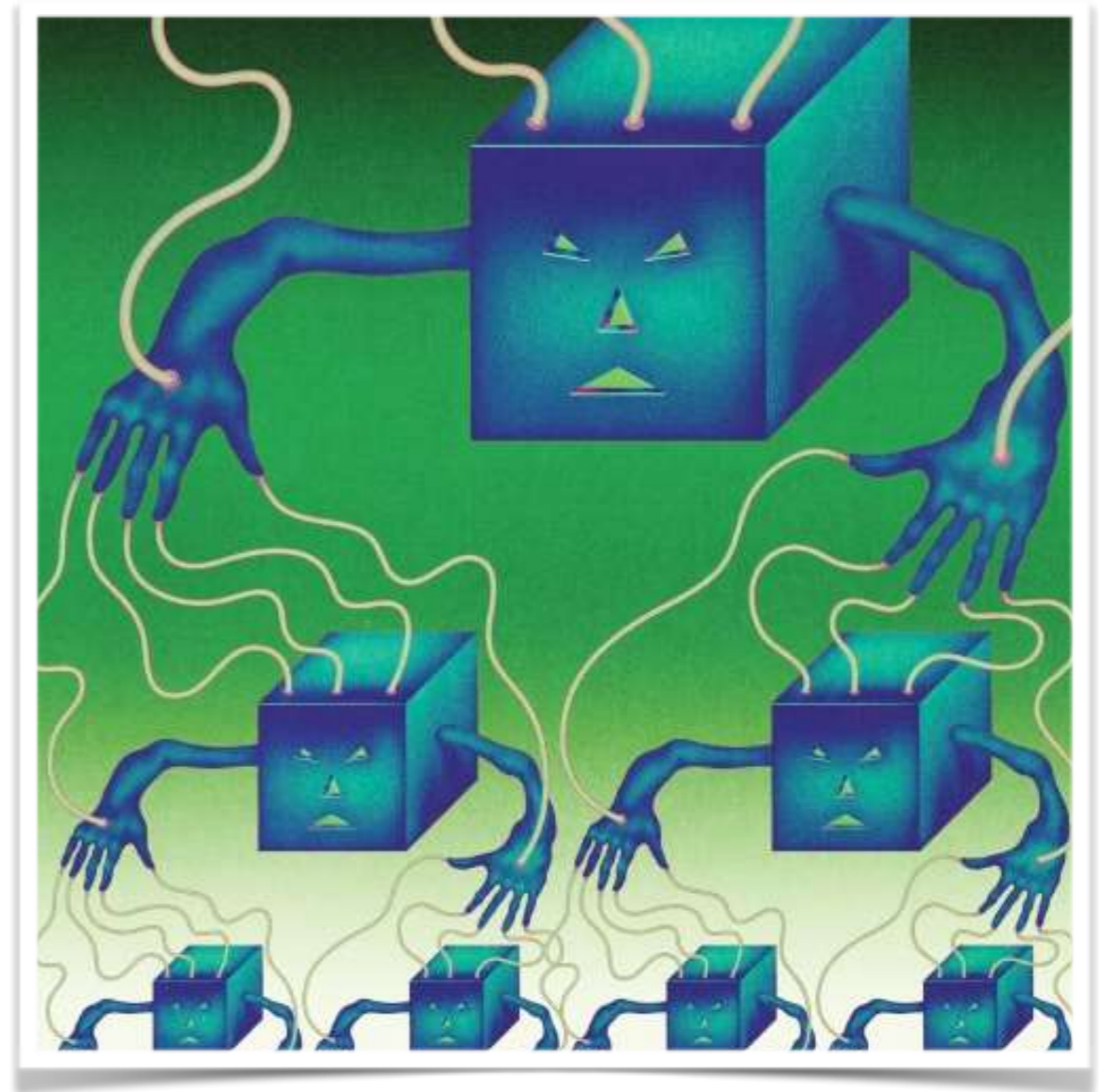
# Botnets

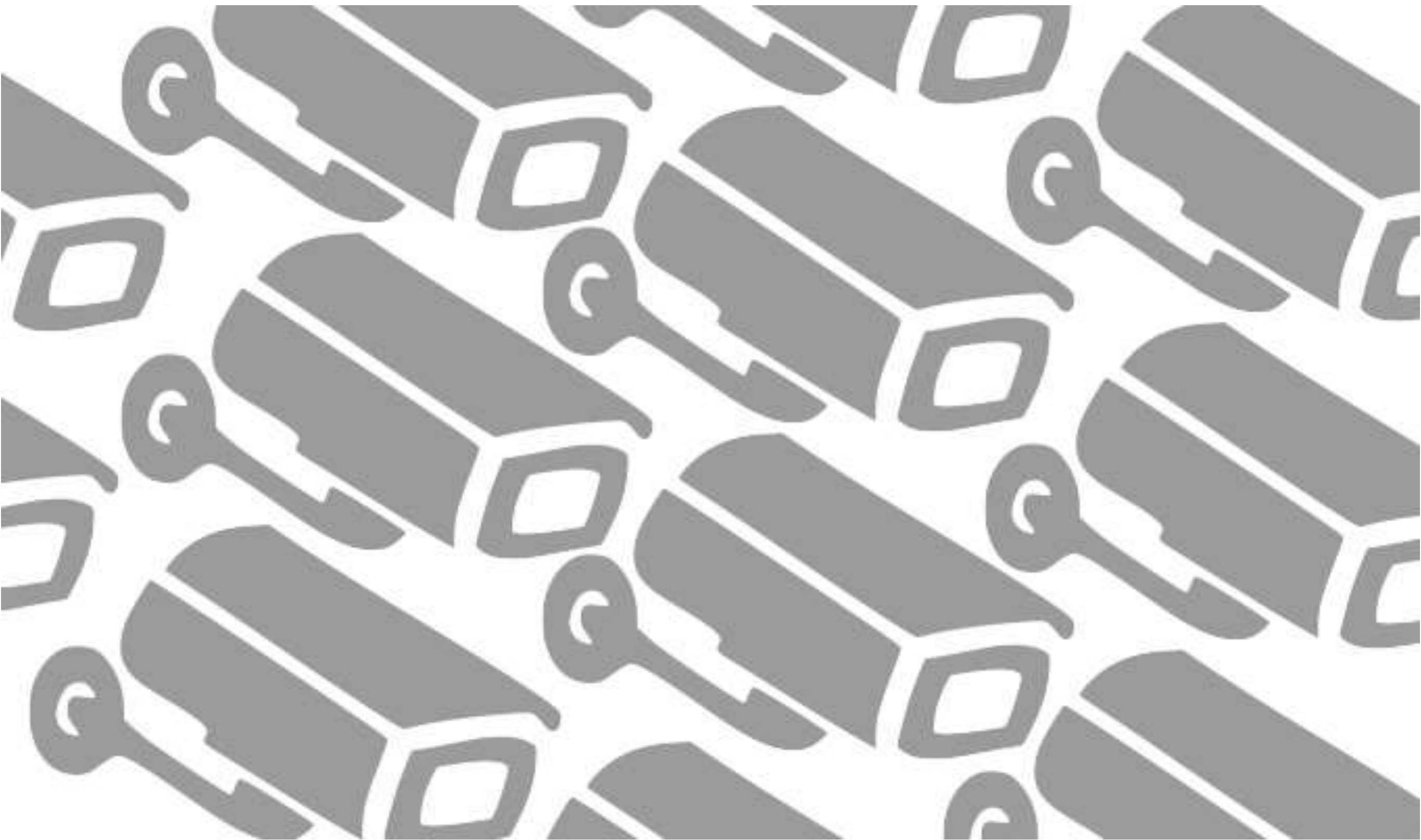


2016

## Botnets of Things

The relentless push to add connectivity to home gadgets is creating dangerous side effects that figure to get even worse.



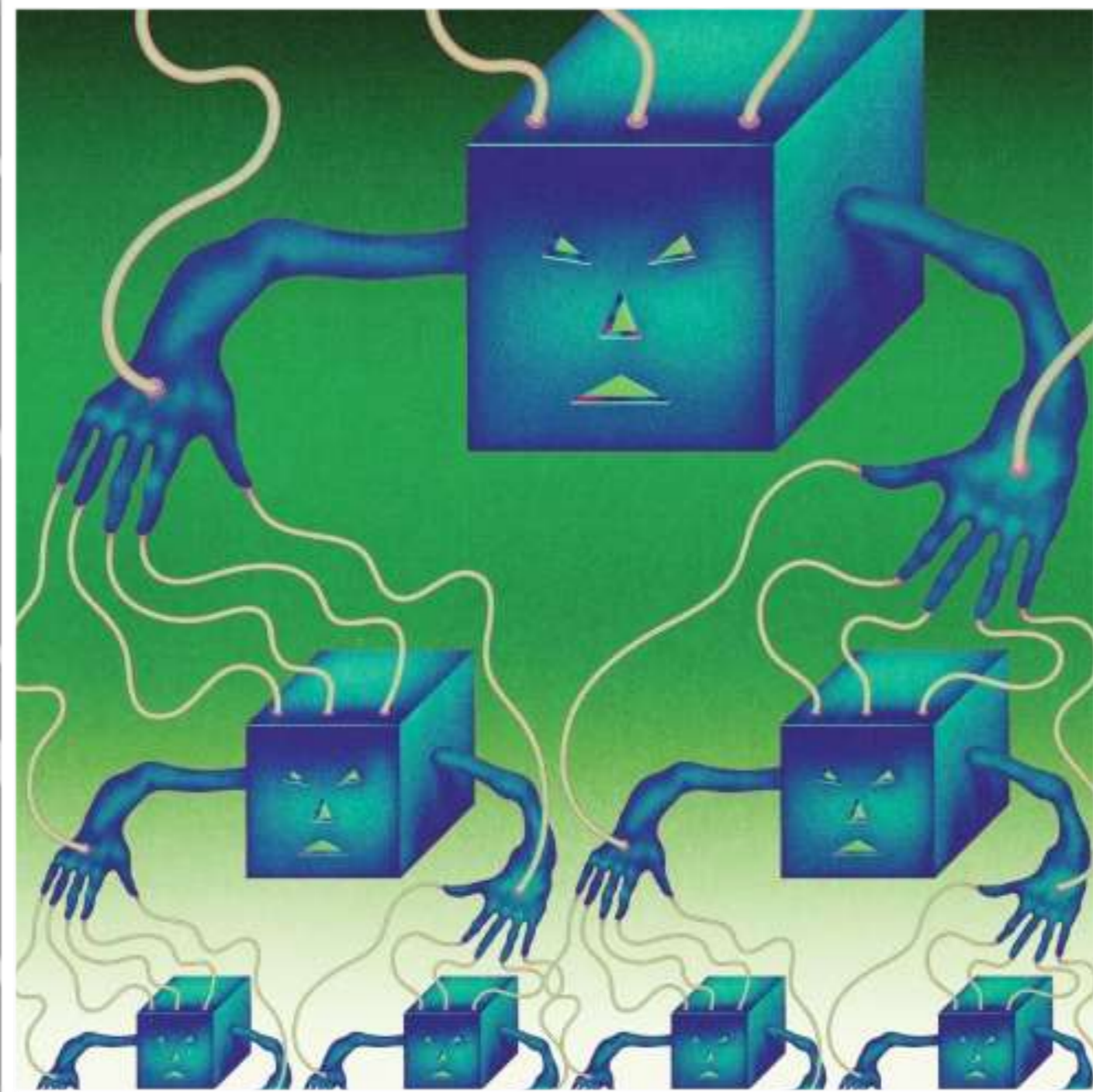






*“We Know What You  
Did Last Summer*

— Hackers





# Massive DDoS Attack

Spotify, Twitter, Github, Etsy, and More Go Offline

Spotify, Twitter, Github, Etsy, and More Go Offline

Massive DDoS Attack

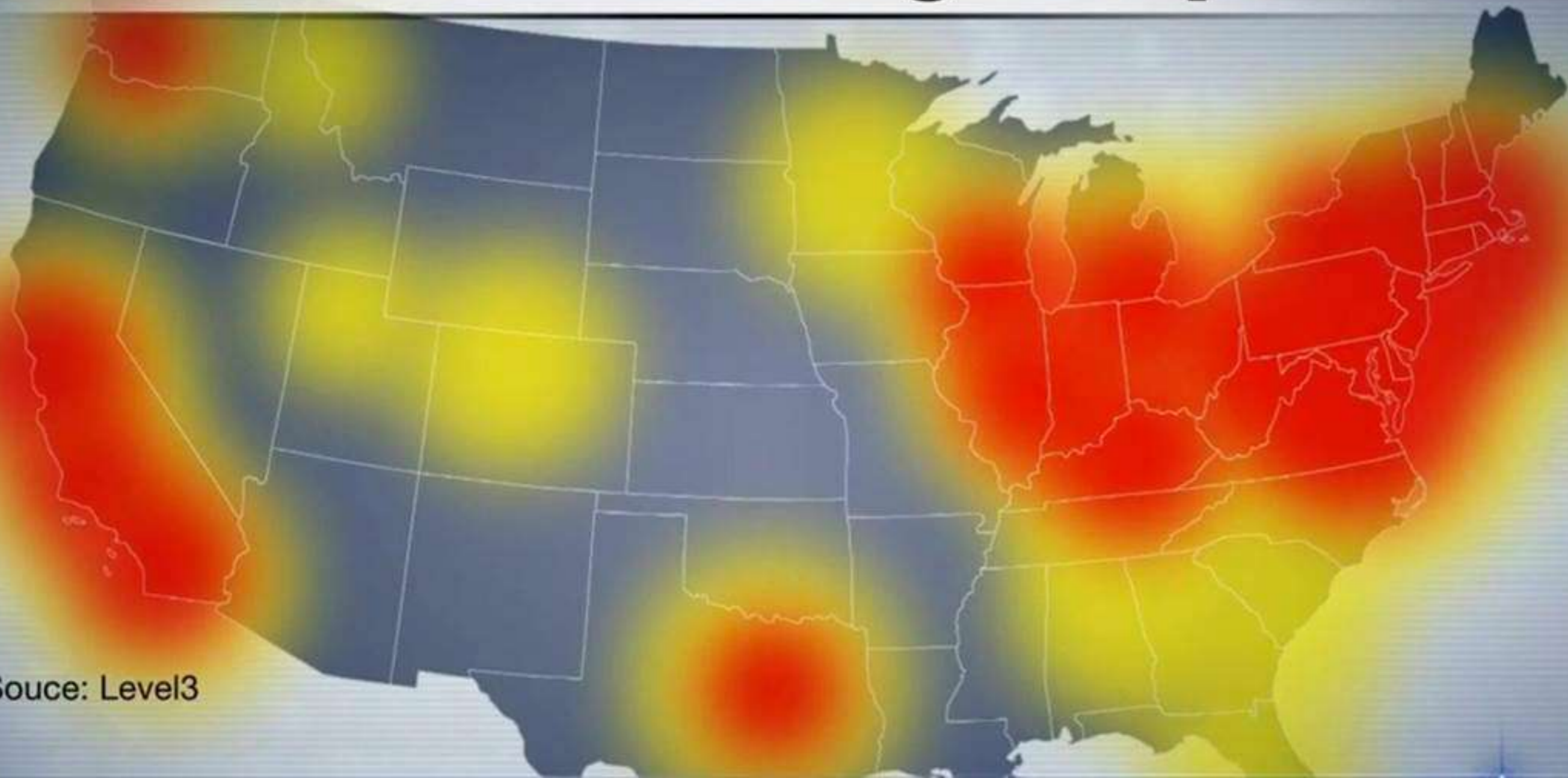
# DDoS Attack

DDoS ATTACK





# Service Outage Map



Source: Level3

Source: Level3



Taking Down The Internet

... ¡Y hay  
más!



ANDY GREENBERG SECURITY 06.20.17 09:29 AM

# WATCH HACKERS TAKE OVER THE MOUSE OF A POWER-GRID COMPUTER

**On December 23rd, 2015,  
hackers caused a blackout  
for roughly a quarter  
million Ukrainians.**



 CURT MERLO

ANDY GREENBERG SECURITY 06.20.17 06:00 AM

# HOW AN ENTIRE NATION BECAME RUSSIA'S TEST LAB FOR CYBERWAR

RUSSIA'S TEST LAB FOR CYBERWAR  
HOW AN ENTIRE NATION BECAME

[https://www.youtube.com/watch?v=PWbqAV\\_eh7k](https://www.youtube.com/watch?v=PWbqAV_eh7k)



ANDY GREENBERG SECURITY 06.22.17 05:40 PM

# SENATORS PUSH TRUMP FOR ANSWERS ON POWER GRID MALWARE ATTACK



<https://www.wired.com/story/congress-trump-power-grid-malware-letter/>





**KEEP**

**CALM**

**AND**

**Muchas**

**Gracias.**

**TEC**tulia  
Conversatorio digital

**MACROTENDENCIAS**

**TECNOLÓGICAS**

**Speaker:** Juan David Correa

**Fecha y hora:** Viernes 23 de Junio / 5pm a 7pm /

**Lugar:** Quokka Startups / Calle. 8 #43c 29.

Organizan

**NODRIZa**

**Quokka**

@juandacorrea