



Internet of Things Weather Station

IEEE Northern Virginia Section

Hands-On Professional Development Series

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Thursday

Internet of Things

- An Internet development in which **everyday objects** have network connectivity.
- It uses **existing network infrastructure** to allow objects send and receive data.
- It is a mixture of **hardware, software, data and service.**
- Estimated to consist of almost 30 billion objects by 2020. 212 billion sensors = 28x total world population
- “Any object that can be usefully connected to the Internet will be connected in the next few years.”

Examples of IoT “Things”

- ▶ Things are any physical object with a device that has its **own IP address** and can connect to and send / receive data via a network
- ▶ Wearable healthcare & activity monitoring devices
- ▶ Home security, power control & comfort systems
- ▶ Automatically reorder home supplies
- ▶ Monitor farm livestock and irrigation
- ▶ Measure traffic congestion, car maintenance, etc.

THE IMPACT OF IOT

BILLIONS OF DEVICES

- More than 50 billion in 2020
- Heterogeneous architectures
- Big Data and broadband communications

Source: Intel



MANY APPLICATION DOMAINS

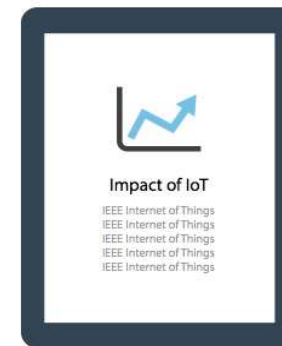
- Consumers (i.e., wearable, home automation, wellness)
- Commercial (i.e., retail, building, logistics)
- Industrial (i.e., manufacturing, energy, transportation)
- Public Sector (i.e., Smart Cities and regions, public safety, security, healthcare)

Source: Beecham

DIFFERENT BUSINESS APPROACHES

- Intelligent services
- Open ecosystems
- Different value chains
- Many different business models
- New actors (e.g., Makers)

Source: Freescale



The IoT is Driving Markets

Connected-home device shipments will grow at a compound annual rate of 67% over the next five years...and hit 1.8 billion units shipped in 2019 – BI Intelligence



IoT-connected wind and solar installations will grow at a CAGR of 21% from 2014 -2020 with total number of connections growing from almost two million in 2014 to 6.3 million in 2020 - ABI Research



The Global Internet of Things

Be part of the sweeping convergence of technologies, markets, applications, and the Internet through the IEEE Future Directions Internet of Things (IoT) Initiative





You are a piece of the IEEE IoT Success

IEEE IoT is one of IEEE's important, multi-disciplinary, cross-platform Initiatives. It serves as a home for engineering and technology professionals working on IoT in industry, academia, and government.



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 - iot.ieee.org
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 - standards.ieee.org/innovate/iot
 - IEEE Xplore Digital Library:
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IEEE World Forum on IoT

12-14 December 2016 Reston, VA



➤ <http://www.ieee-wf-iot.org/>