How to think about IoT

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SO WHAT?
OK, I CONNECTED IT UP. NOW WHAT?

I am collecting sensor data, but what do I do with it?
How do I act?
How do I build intelligence?
Do I keep the data?
USE THE HUMAN ANALOGY
USE THE HUMAN ANALOGY

Cogitative

Conscious

Reflexive

Wireless

Actuators

Sensors

RFID/barcodes

Physical/chemical/spectral sensing

Wearables

Physical State

Display (human in the loop)

E Ink, LED, OLED, haptic

Location

Environment

Image Processing

Radar

Batteries, MEMS, PV, etc.
USE THE HUMAN ANALOGY

Cogitative

Conscious

Reflexive

Display
(human in the loop)

Physical (motors, vehicles, etc.)

Actuators

Physical State

Environment

Location

Object ID

Sensors

RFID/barcodes

Image Processing

Wearables

Physical/chemical/spectral sensing

Radar

Wireless

FOG Computing

CLOUD (High Computation)

LOCAL

USE THE HUMAN ANALOGY

Object ID
Environment
Location

Sensors

RFID/barcodes
Image Processing
Wearables
Physical/chemical/spectral sensing
Radar

Cogitative

Conscious

Reflexive

Display
(human in the loop)

Physical (motors, vehicles, etc.)

Actuators

Wireless
REAL TIME VERSUS NOT

CLOUD (High Computation)

Cogitative
Conscious
Reflexive

Non-realtime
LOCAL

Sensors
Real time
Actuators

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EXTERNAL CONTROL

Instructions may come from outside

Cogitative

Conscious

Reflexive

Sensors

Actuators

Could be dangerous
COGNITIVE FIREWALL

Turn the lights on, it is dark

OK

Cogitative

Conscious

Reflexive

Sensors

Actuators

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COGNITIVE FIREWALL

Turn microwave on for 100 minutes

Cogitative

Conscious

Reflexive

Sensors

Actuators

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IN SUMMARY

1. IoT is local and global
2. IoT is sensors and actuators
3. Some IoT is real-time, and some is not
4. There is a place for machine learning
5. Not all data need be stored
6. Security is important
THANK YOU!

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The Internet of Things

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END OF MODULE - Introduction