Build an IoT Weather Monitoring System with **Etisalat Digital**

FUTURE NOW
etisalat digital

Date & time

Saturday, October 12th, 11:00am - 2:00pm

Location

in5 Tech, Dubai Knowledge Park

Register Now

*Attendance is free.

ptc | THE ASSEMBLY تركيب MAKE SMART THINGS | in5

ABOUT THE ASSEMBLY

- A **Smart Lab** based out of **in5** since December 2014
- Over 250 Free workshops done
- **Assembly : HACK** - Embedded systems, IOT, hardware.
- **Assembly : CODE** - Software projects - APIs, frameworks, apps
- Target Audience – **Students | Professionals | Entrepreneurs**
- Focus on Smart Technology and Practical Applications
- Forum: members.theassembly.ae

ABOUT THE ASSEMBLY

FACEBOOK   **The Assembly - @MakeSmartThings**

TWITTER   **@MakeSmartThings**

INSTAGRAM   **@MakeSmartThings**

YOUTUBE   **The Assembly**

OVERVIEW

OBJECTIVE: To build a distributed **IoT weather monitoring system**, that:

- Collects temperature and humidity data on various edge devices (in our case, **Raspberry Pis**)
- Syncs up that data with **the Thingworx cloud platform** in real time
- Presents that data in the form of a web application accessible at a remote location

GETTING STARTED

- PASTEBIN: https://pastebin.com/ZzY42Ejv
- GITHUB: https://github.com/the-assembly

Installation:

- **Thingworx Academic Simulator (TAS)** - simulates edge devices for feeding data to the platform
  MAC:
  http://apps.ptc.com/schools/software/ThingWorxAcademicSimulatorSetup.dmg
  WINDOWS:
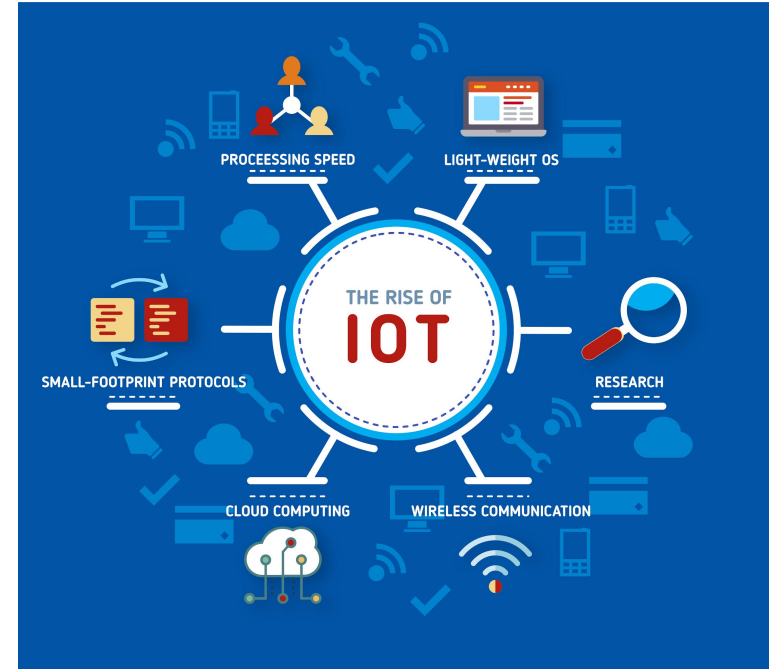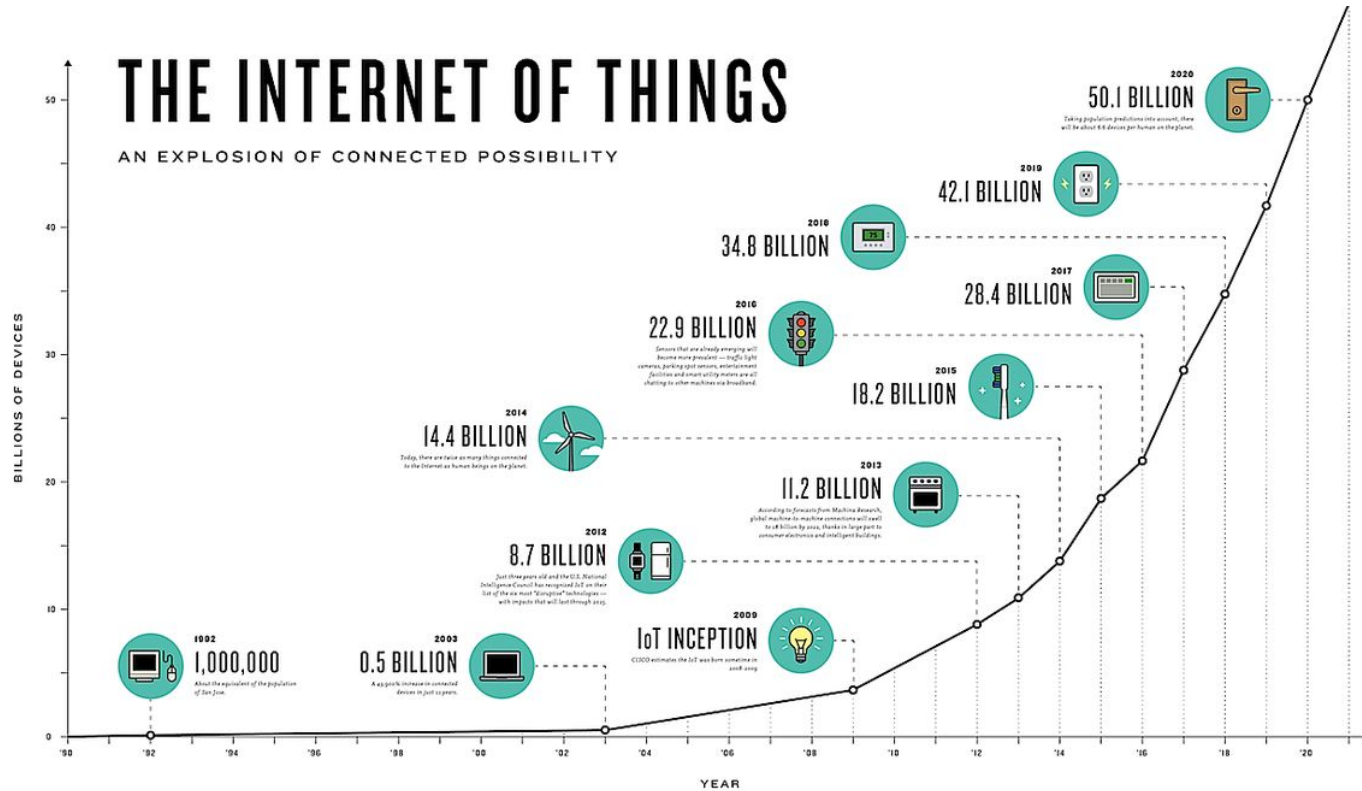 http://apps.ptc.com/schools/software/ThingWorxAcademicSimulatorSetup.exe

THE INTERNET OF THINGS

- The Internet Of Things (IoT) is **the network of physical objects that can exchange data for value**

THE INTERNET OF THINGS

AN EXPLOSION OF CONNECTED POSSIBILITY

BILLIONS OF DEVICES

1992
1,000,000
About the equivalent of the population of San Jose.

2003
0.5 BILLION
A 49,900% increase in connected devices in just 11 years.

2009
IoT INCEPTION
CISCO estimates the IoT was born sometime in 2008-2009.

2012
8.7 BILLION
Just three years old and the U.S. National Intelligence Council has recognized IoT on their list of the six most "disruptive" technologies — with impacts that will last through 2025.

2013
11.2 BILLION
According to forecasts from Machina Research, global machine-to-machine connections will swell to 18 billion by 2022, thanks in large part to consumer electronics and intelligent buildings.

2014
14.4 BILLION
Today, there are twice as many things connected to the Internet as human beings on the planet.

2015
18.2 BILLION

2016
22.9 BILLION
Sensors that are already emerging will become more prevalent — traffic light cameras, parking spot sensors, entertainment facilities and smart utility meters are all chatting to other machines via broadband.

2017
28.4 BILLION

2018
34.8 BILLION

2019
42.1 BILLION

2020
50.1 BILLION
Taking population predictions into account, there will be about 6.6 devices per human on the planet.

YEAR

THE ASSEMBLY
MAKE | SMART | THINGS
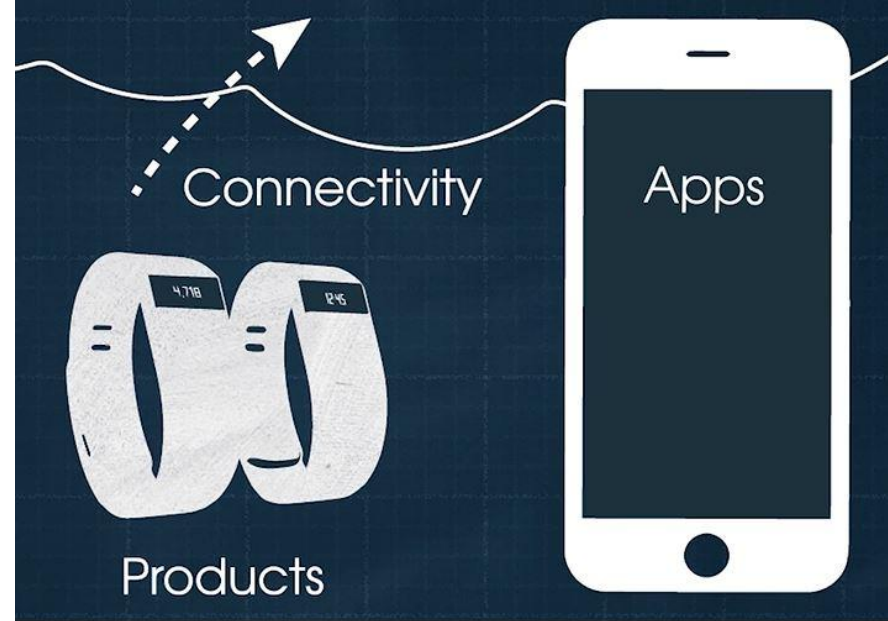
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SMART, CONNECTED PRODUCTS

- [Harvard Business Review](#)
- Capabilities of a **Smart, Connected Product (SCP)**
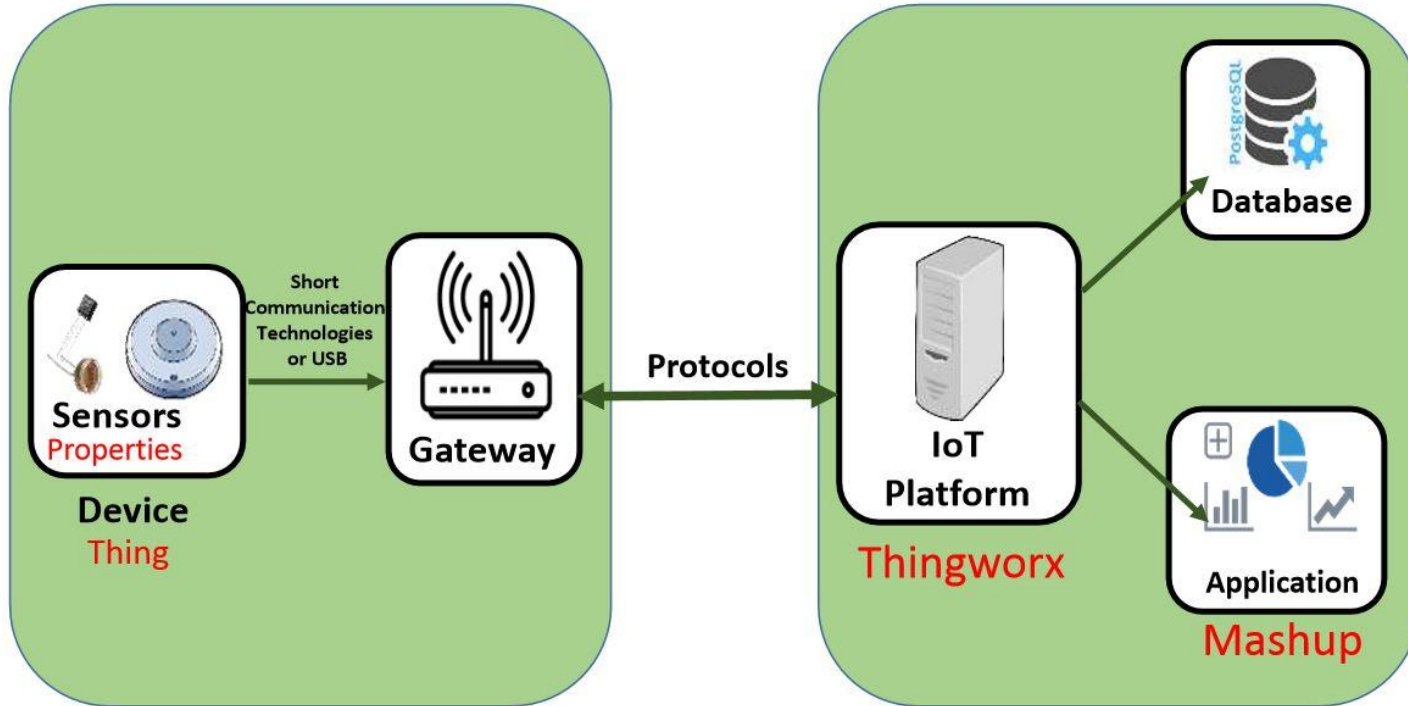 - Monitor
  - Control
  - Optimize
  - Automate

THINGWORX FEATURES

- Fast To Market
- Simplicity
- Scalability
- Built-in Analytics
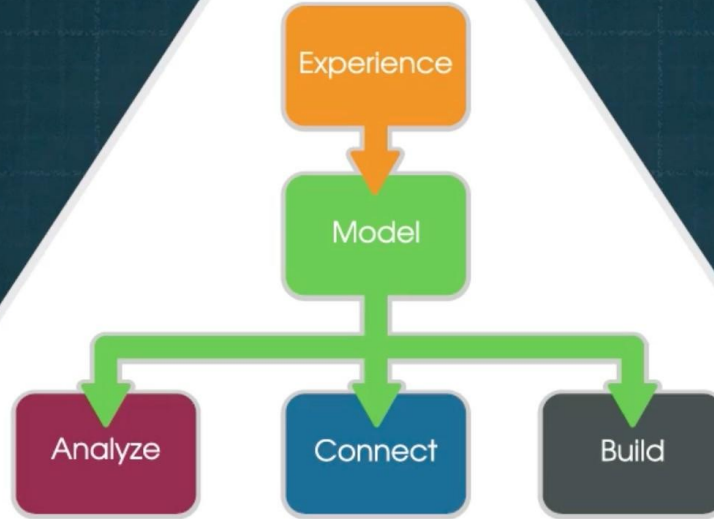- Multi-tenancy model
- Data Encryption
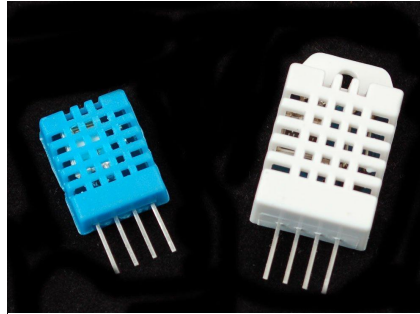
THINGWORX GENERAL STRUCTURE

DHT11 & DHT22 SENSORS

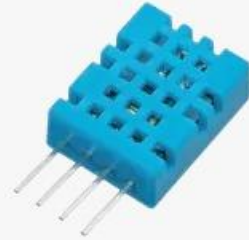
DHT22 pins	
1	VCC
2	DATA
3	NC
4	GND
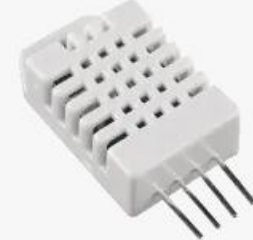
DHT11		DHT22
0 - 50°C / ± 2°C	**Temperature Range**	-40 - 125 °C / ± 0.5 °C
20 - 80% / ± 5%	**Humidity Range**	0 - 100 % / ± 2-5%
1Hz (one reading every second)	**Sampling Rate**	0.5 Hz (one reading every two seconds)
15.5mm x 12mm x 5.5mm	**Body Size**	15.1mm x 25mm x 7.7mm
3 - 5V	**Operating Voltage**	3 - 5V
2.5mA	**Max Current During Measuring**	2.5mA

CONNECTIVITY