Embedded System Design Techniques™

Designing IoT Sensor Nodes using the ESP8266

Session 1: The IoT Architecture

July 10th, 2017

Jacob Beningo

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Course Overview

Topics:

- **The IoT Architecture**

- Getting Started with the ESP8266

- Interfacing Sensors to the ESP8266

- Connecting the ESP8266 to the internet

- Device Management and the Automated Universe

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The Lecturer – Jacob Beningo

Jacob Beningo

Principal Consultant

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Jacobs CEC Courses

CEC 2013 – 2015

Fundamentals of Embedded Software (2013)

Mastering the Software Design Cycle (2014)

Python for Embedded Systems(2014)

Software Architecture Design (2014)

Baremetal C (2015)

Mastering the ARM Cortex-M Processor (2015)

Writing Portable and Robust Firmware in C (2015)

Design Patterns and the Internet (2015)

CEC 2016 2017

Bootloader Design for MCUs (2016)

Rapid Prototyping w/ Micro Python (2016)

Debugging (2016)

Professional Firmware (2016)

API's and HAL's February 2017

Baremetal to RTOS April 2017

Designing IoT Sensor Nodes July 2017

From C to C++ October 2017

Side Topics 2017

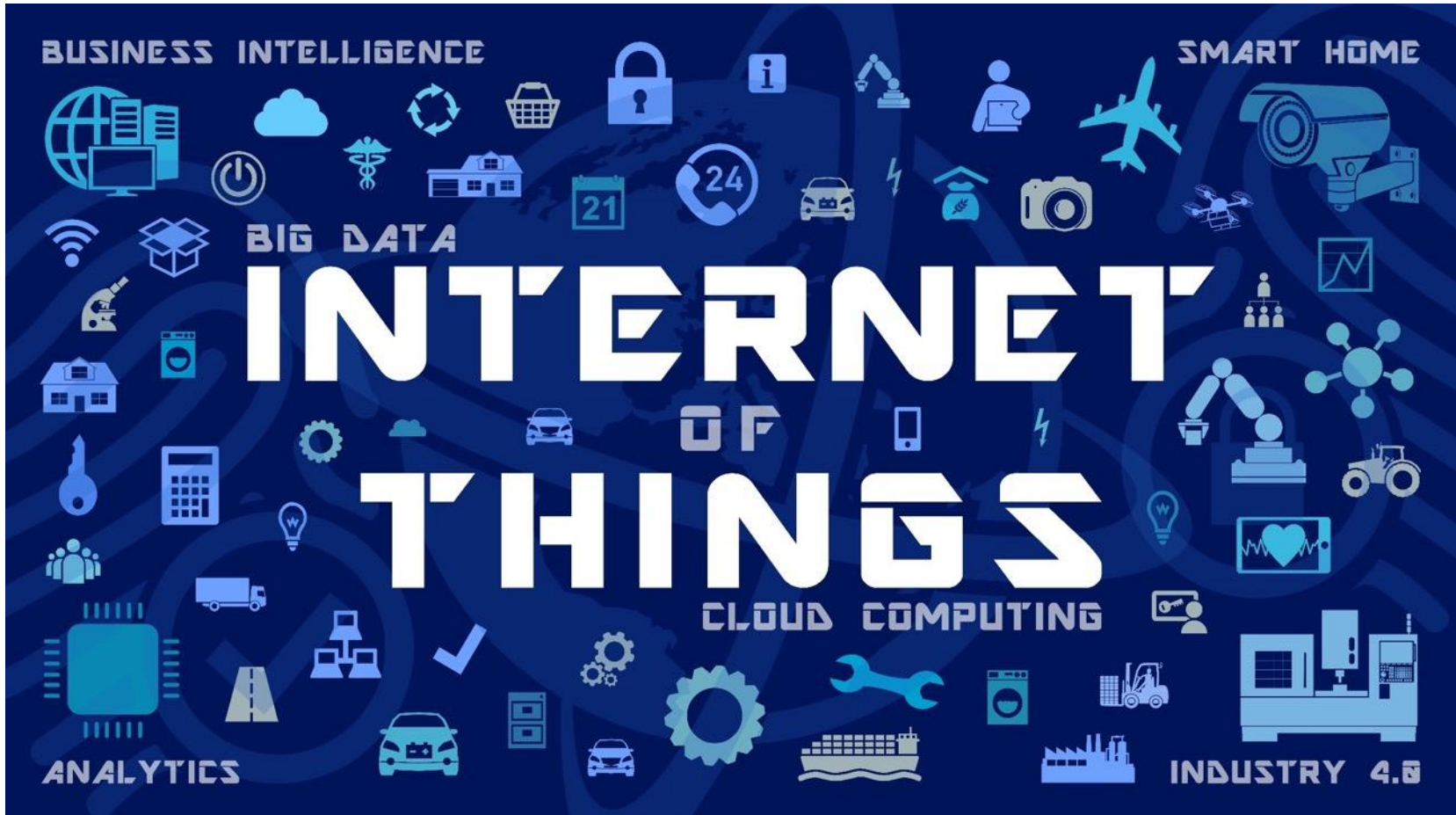Real-Time Software using Micro Python

Embedded Bytes Newsletter

http://bit.ly/1BAHYXm

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Session Overview

- Introduction

- IoT Architecture

- How IoT Works?

- IoT Sensor Node

- IoT Sensor Node Block Diagram

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Introduction

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What is IoT (Internet of Things) ?

- The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.
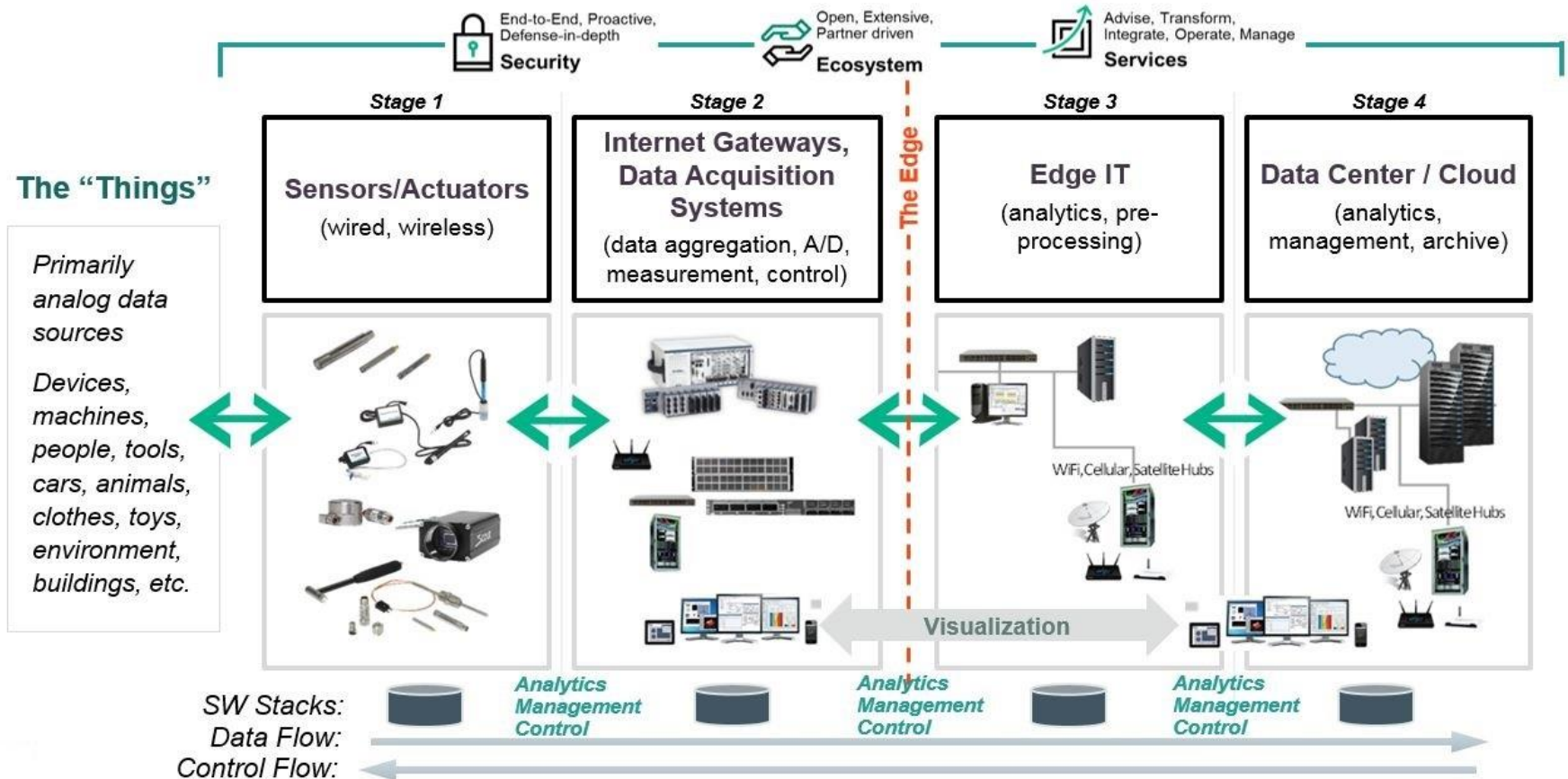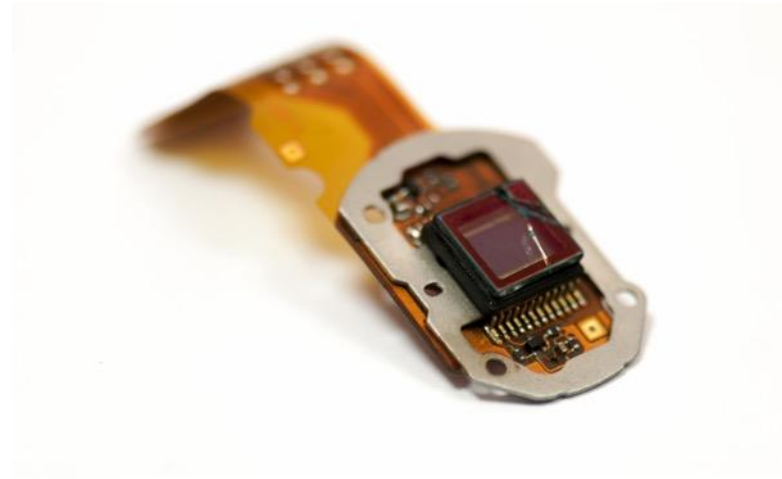
Source (IoTAgenda)

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What are Things?

INTERNET OF THINGS

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IoT Architecture

The 4 Stage IoT Solutions Architecture

Source:TechBeacon

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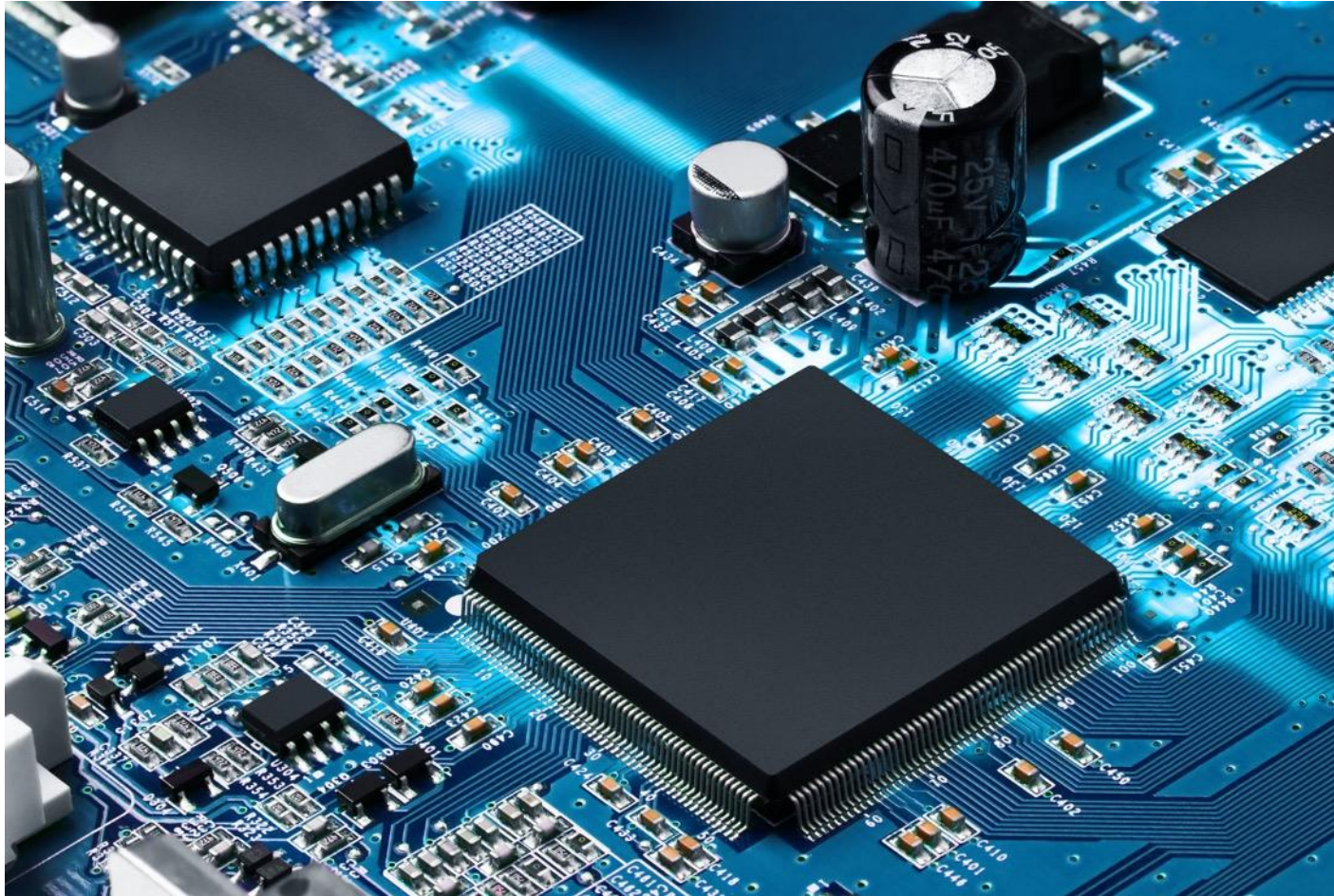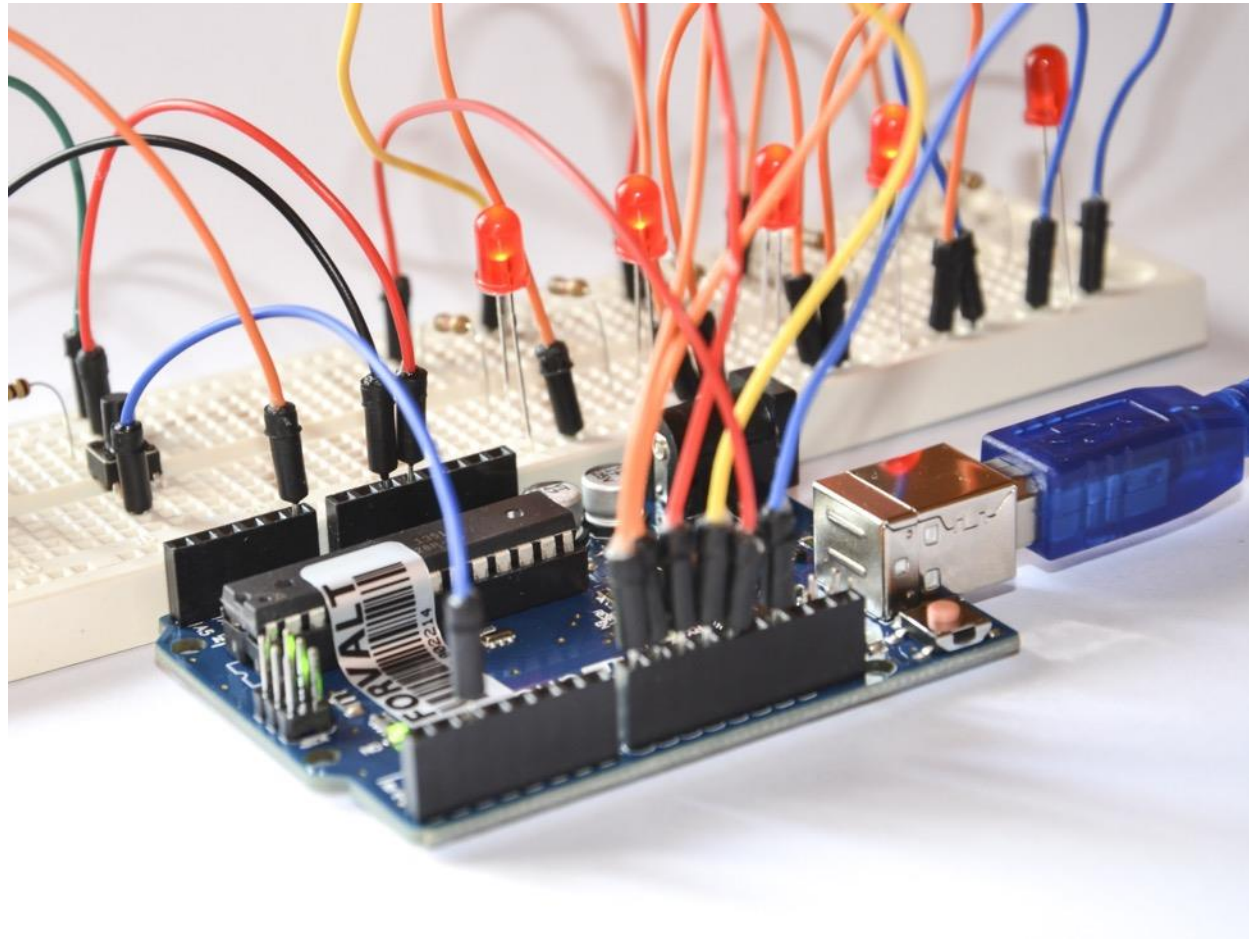# Stage 1. Sensors/actuators
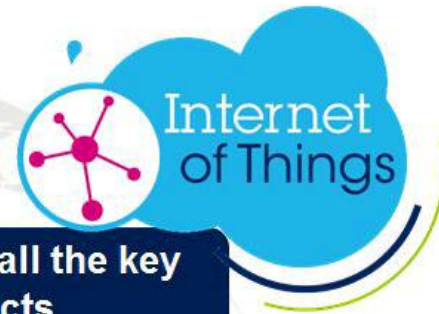
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Stage 2. The Internet gateway

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Stage 2. The Internet gateway

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Stage 3. Edge IT

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Stage 4. The data center and cloud

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IoT Sensor Node

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Our IoT Sensor Node
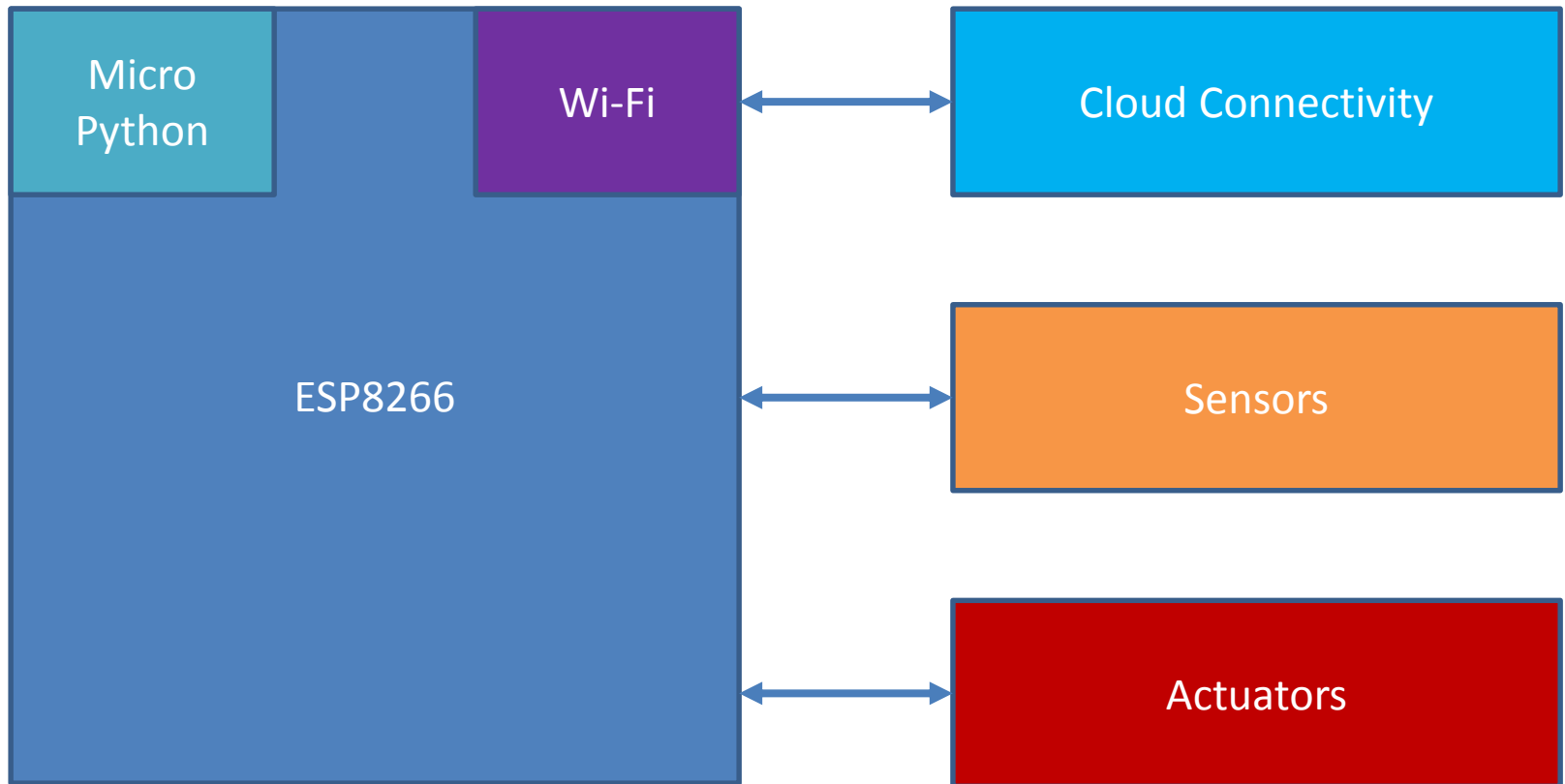
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Our IoT Sensor Node

1528-1902-ND
$19.50

1528-1695-ND
$39.95

1528-1771-ND
$6.95

1528-1017-ND
$3.95

1528-1468-ND
$6.50

1528-1550-ND
$37.50

Additional Resources

- Download Course Material for
  - Python Doxygen Templates
  - Example source code
  - Blog
  - YouTube Videos
- Embedded Bytes Newsletter
  - http://bit.ly/1BAHYXm

From www.beningo.com under

  - Blog > CEC – Designing IoT Sensor Nodes using the ESP8266

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