zolertia

The fastest and easiest way to create IoT solutions

Marc Fabregas-Bachs
Founder, Strategist and Leader
mfabregas@zolertia.io

RIoT Summit, July 15th, 2016

Our story

The Zoul

“Zolertia’s core platform-on-module to simplify the connection to internet for low-power consumption and constrained objects”

A new approach to wireless communications:

- Up to **300x** less power consumption than WiFi
- Up to **50x** distance communication than BLE
- Cryptography enhancement
- Mesh topology IP-based networks
- **Easy and fast integration**

The zoul

Based on Texas instrument CC2558 System on Chip

- ✓ **ARM Cortex-M3** 32 MHz clock speed, 512 KB flash and 32 KB RAM (16 KB retention) ISM 2.4-GHz IEEE 802.15.4, Zigbee compliant
- ✓ ISM 868-, 915-, 920-, 950-MHz ISM/SRD Band
- ✓ AES-128/256, SHA2 Hardware Encryption Engine
- ✓ ECC-128/256, RSA Hardware Acceleration Engine for Secure Key Exchange
- ✓ **Small form-factor** of 16.78 x 30.89 mm
- ✓ Self-contained and EMI-protected module under a shield
- ✓ **Fast integration and short time to market**

The platform

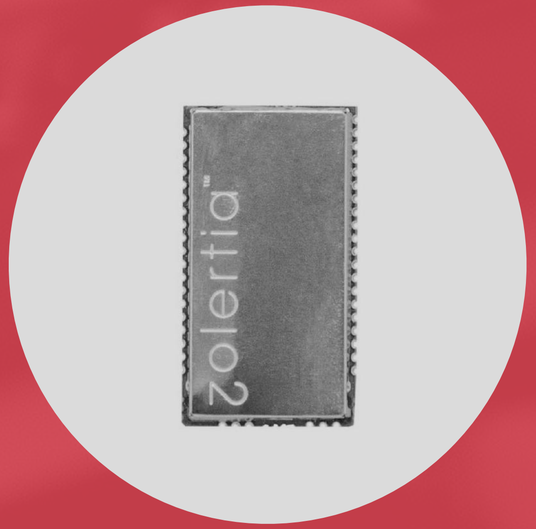
Business case

RIVA LIGHTING

New product requirements:

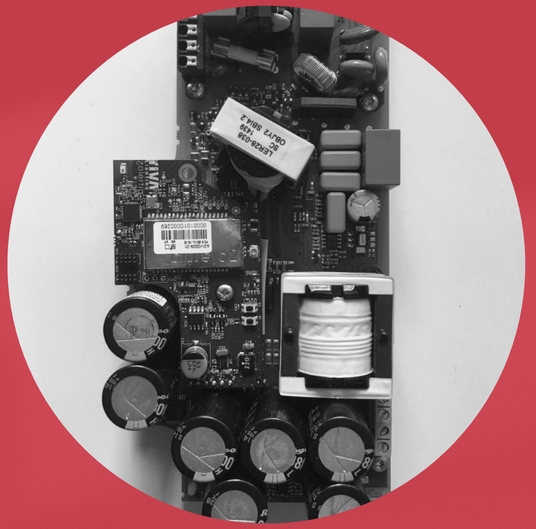
- Demand of connected solutions
- Big competitors working on this
- No background in-house
- Limited resources, time & money

Simple and fast 3-step solution



Program your application into the zoul module

Integrate in a intermediate board



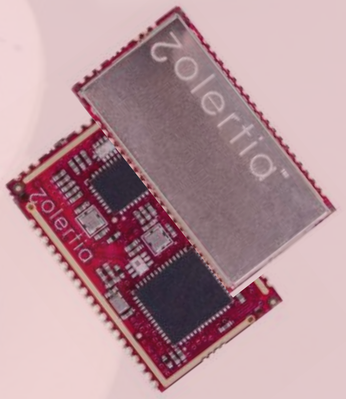
Plug'n'play in RIVA's exisiting product

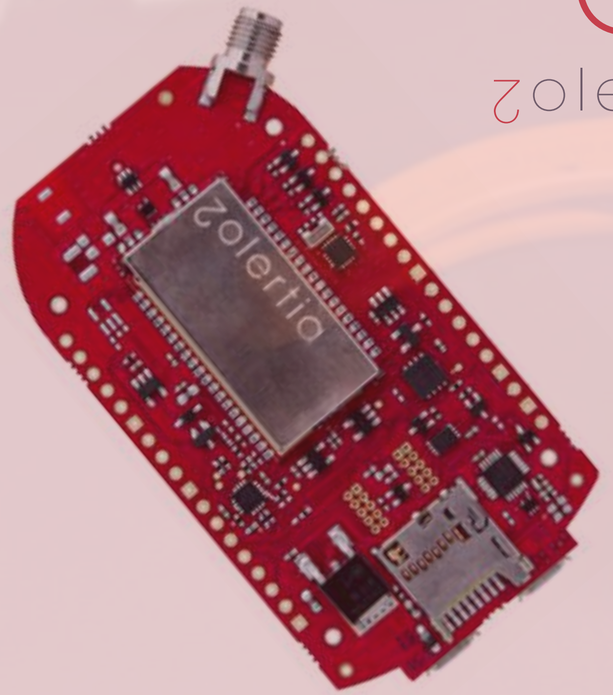
Outcome:

- ✓ Not connected lights but true smart lights interacting through Internet
- ✓ Boost the solution integrating other IoT devices: sensors and actuators
- ✓ Everything developed only in **9 months**, from conception to market

The IoT immerse process

zolertia™





zoul

Firefly

RE-Mote™

Connected products
R&D, engineering

Mock-ups
Makers, R+D

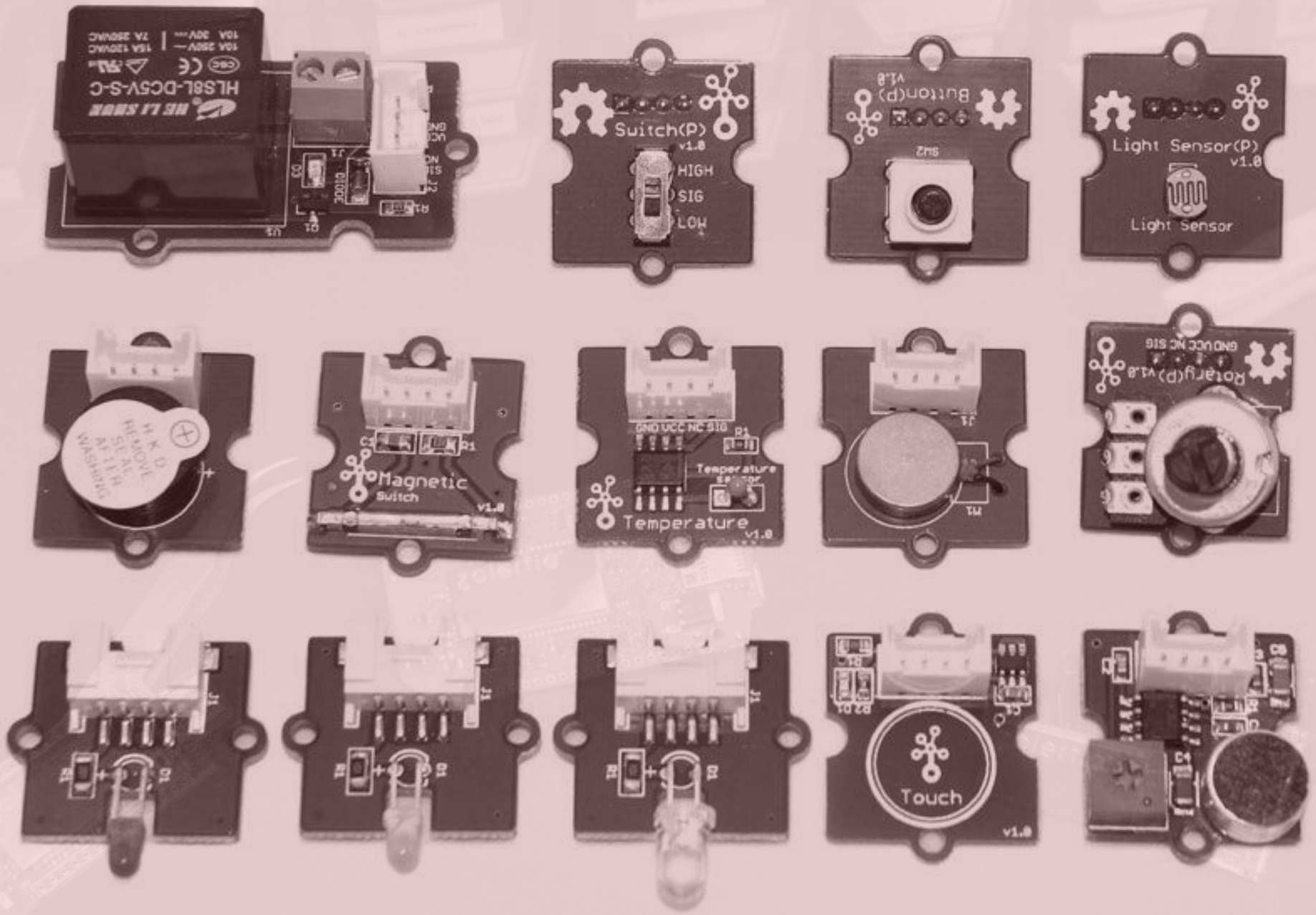
Fast prototyping & Proof of Concept,
Start-ups, Makers, Research

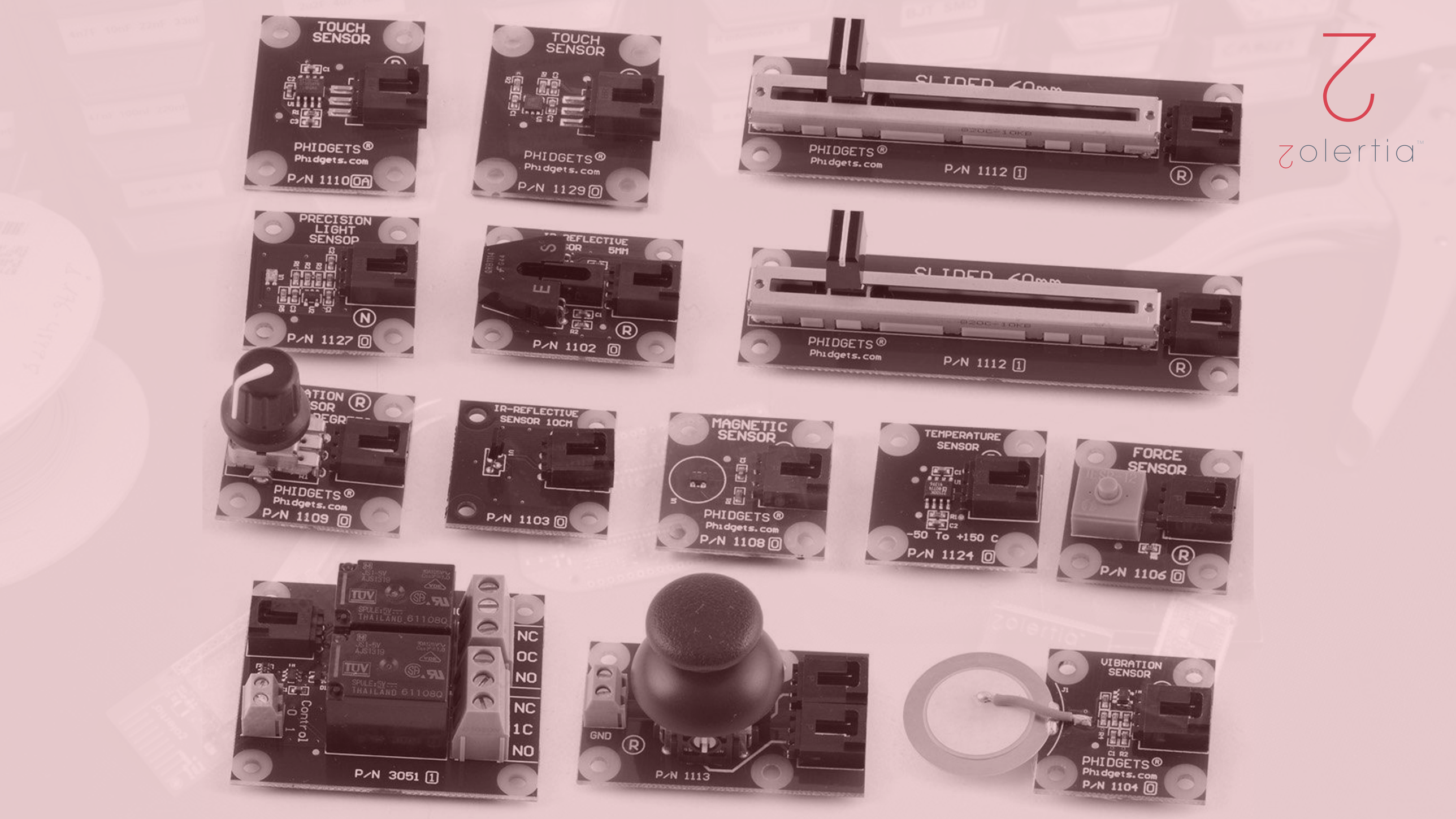
The RE-Mote

Ultra Low-Power Consumption Hardware platform

- ✓ **Consumption** down to 150 nA using the shutdown mode
- ✓ Programming over **BSL** without requiring to press any button to enter bootloader mode
- ✓ Built-in **battery charger** (500 mA)
- ✓ **Wide range** DC Power input: 3.3-16V
- ✓ **MicroSD** (over SPI)
- ✓ On board **RTCC** (programmable real time clock calendar) and external watchdog timer (WDT)
- ✓ Programmable **RF switch** to connect an external antenna

Early development
& proof-of-concept


HLS8L-DC5V-S-C
Switch(P)
v1.8
HIGH
SIG
LOW
Button(P)
v1.8
Light Sensor(P)
v1.8
Light Sensor
Magnetic
Switch
v1.8
GND VCC NC SIG
Temperature
v1.8
Rotary(P) v1.8
GND VCC NC SIG
Touch
v1.8


TOUCH SENSOR
PHIDGETS®
Phidgets.com
P/N 1110
TOUCH SENSOR
PHIDGETS®
Phidgets.com
P/N 1129
PHIDGETS®
Phidgets.com
P/N 1112
PRECISION LIGHT SENSOR
P/N 1127
P/N 1102
PHIDGETS®
Phidgets.com
P/N 1112
PHIDGETS®
Phidgets.com
P/N 1109
IR-REFLECTIVE SENSOR 10CM
P/N 1103
MAGNETIC SENSOR
PHIDGETS®
Phidgets.com
P/N 1108
TEMPERATURE SENSOR
-50 To +150 C
P/N 1124
FORCE SENSOR
P/N 1106
NC
OC
NO
NC
1C
NO
P/N 3051
GND
P/N 1113
VIBRATION SENSOR
PHIDGETS®
Phidgets.com
P/N 1104

Platforms

zolertia™

IBM Bluemix™

Wonderware® by Schneider Electric

PTC®

ThingWorx™ A PTC® Business

ORACLE®

FI-WARE

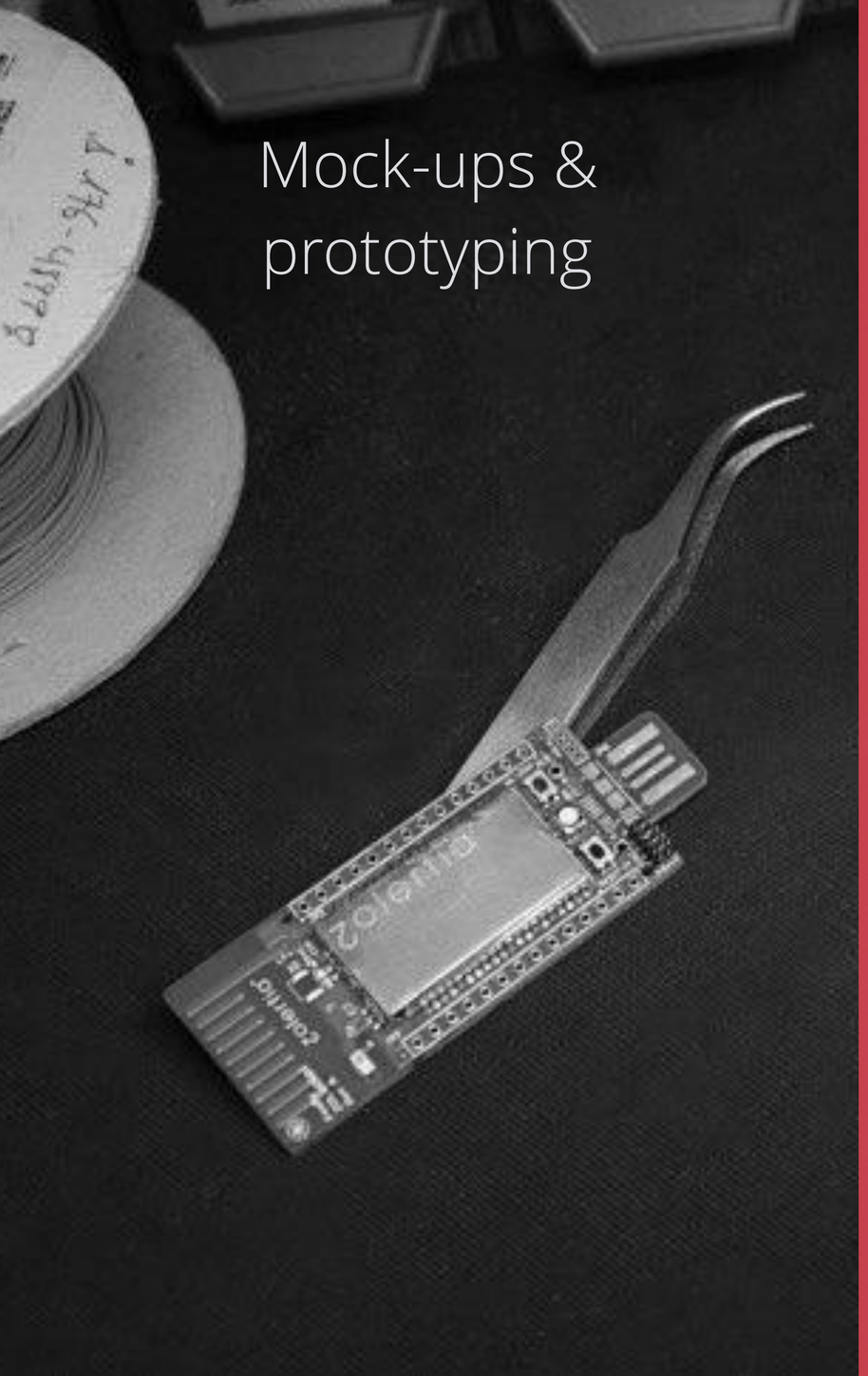
relayr bring things to life

Axēda®

EVRYTHNG™

Microsoft Azure

amazon web services™



The FireFly

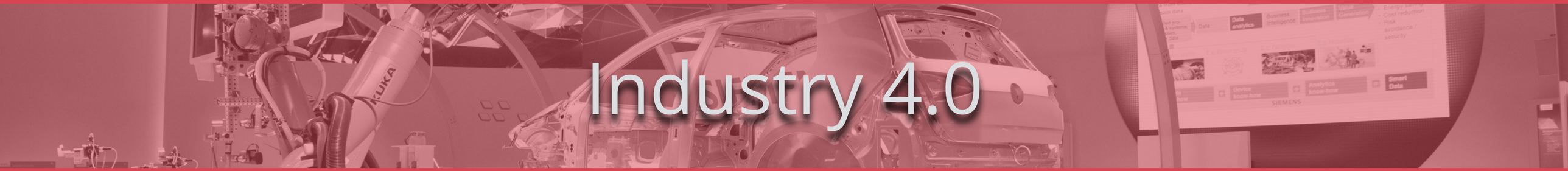
Exposes the most basic Zoul features, sporting only the most down-to-core ones to work with it

- ✓ On-board **printed PCB sub-1GHz antenna**, alternatively **u.FL** for sub-1GHz/2.4GHz external antennas
- ✓ Compatible with **breadboards and protoboards**
- ✓ On-board CP2104/PIC to flash over **USB**, with a PCB connector
- ✓ User and reset buttons
- ✓ RGB LED to allow more than 7 colour combinations
- ✓ **Small form factor** (53x25mm)

Main applications

Logistics

Smart Cities



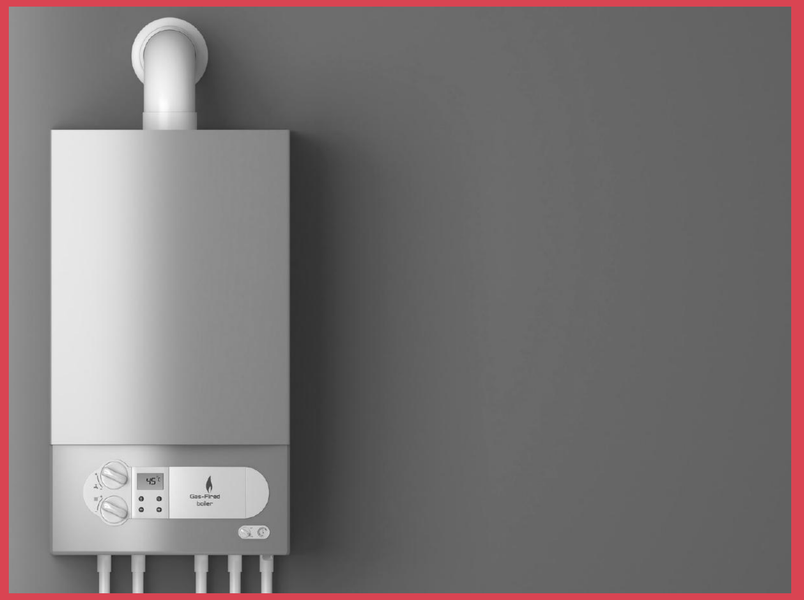
Industry 4.0

Farming

ZEFIRO

Iceland
FREE
DELIVERY
Iceland
30
31

BLANCO
Lkw-/Seefracht
Abholung


45°
Gas-fired
boiler

We already have slice of market

2014		2015	
20	Countries believed	35	Countries believed
100	Customers believed	+270	Customers believed
1k	Units sold	3k	Units sold

Traction

Product development:
expertise and wide knowledge

Product
management
& sales

Leadership
& strategy

Toni, Electronics
BsC UOC

Aitor, Electronics
BsC UOC

Antonio, Computer Sc.
PhD U Bogotá

Elisa, Admin.

Álex, Electronics
BsC UB

Albert, Telecom
MsC UPC

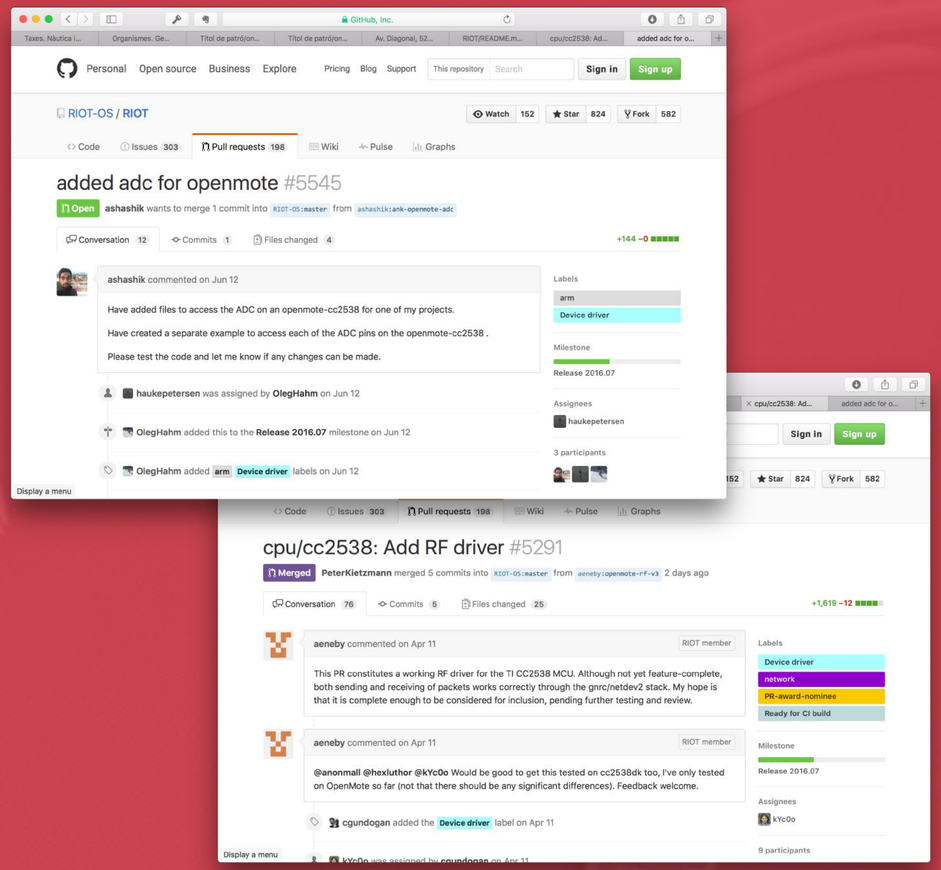
Javi, Electronics
BsC UB

Marc, Telecom+Electr.
MsC UPC

The team who made it possible

Next steps

- Finish porting:
  - ADC
  - Power management block
  - 2.4GHz and **CC1200**
- **Documentation** & examples
- OpenThread



https://github.com/RIOT-OS/RIOT/blob/master/boards/remote-reva/README.md

Join us!

Marc Fàbregas Bachs

Founder and Maverick Leader

mfabregas@zolertia.io

http://zolertia.io

@zolertia

/zolertia

zolertia