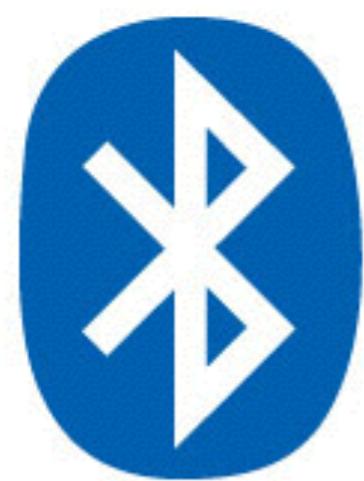


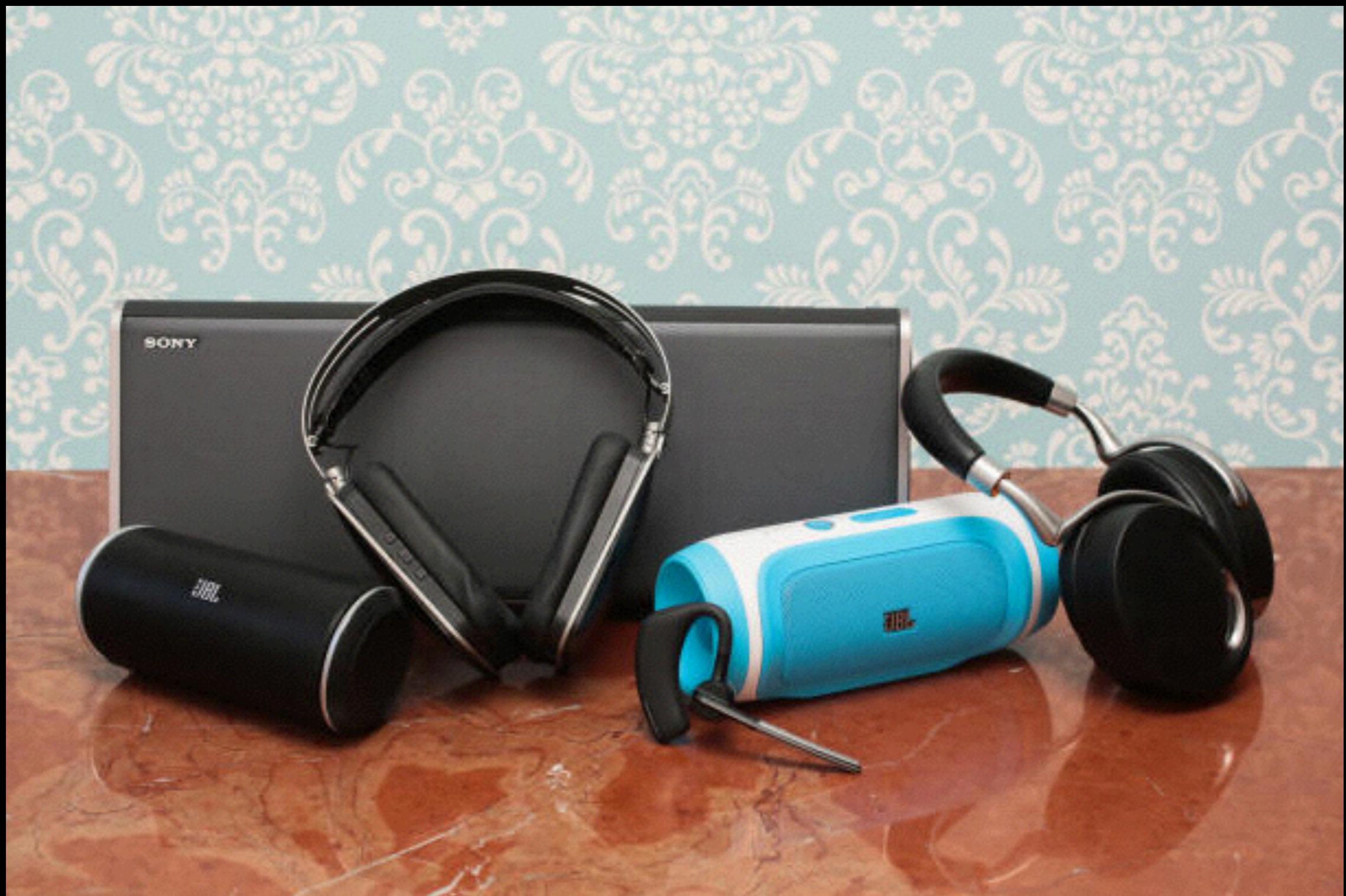
FOIRE BASILE

NETWORKING

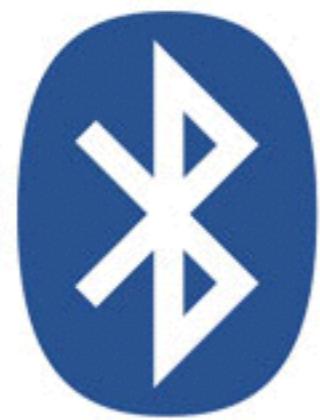


Bluetooth®

SPEAKERS



NEW



4.0

Bluetooth®

FITNESS



SMART WATCHES



HEALTH



AND MUCH MORE...

INTERNET OF THINGS

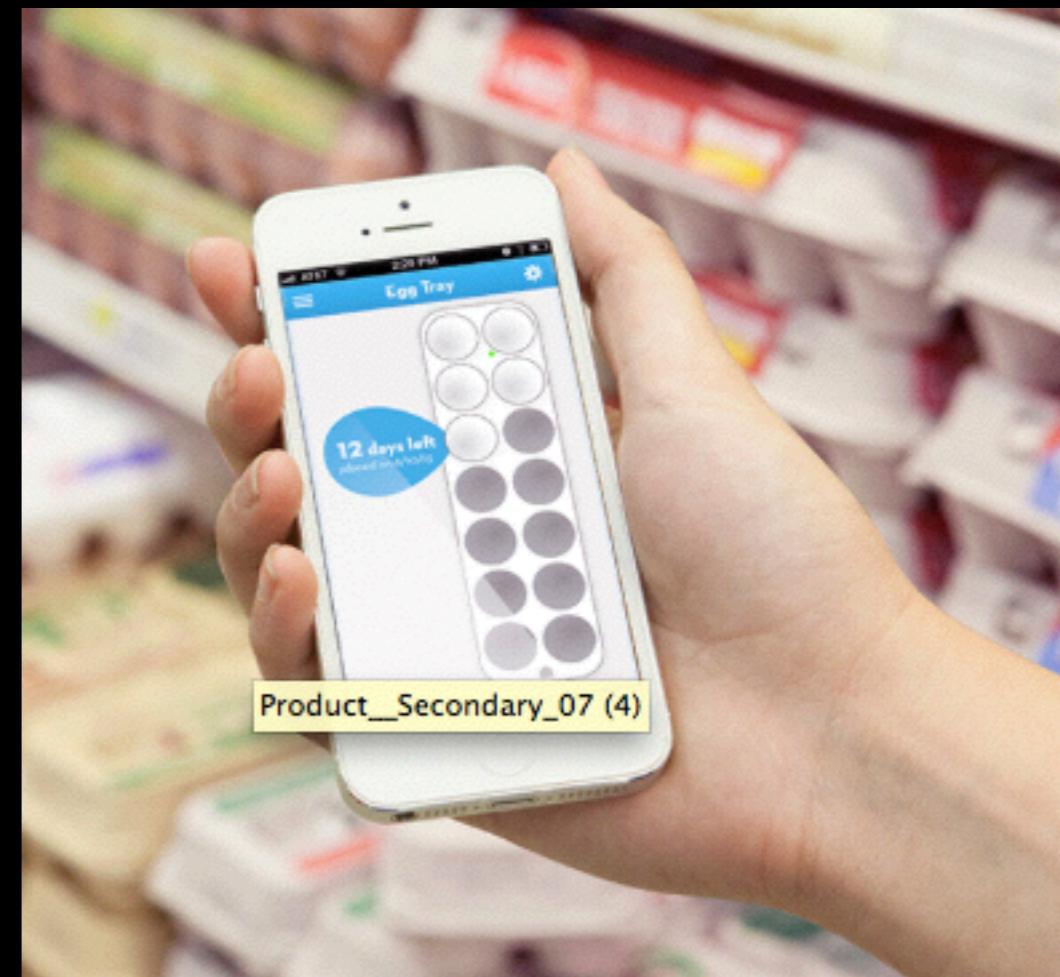


iBeacon

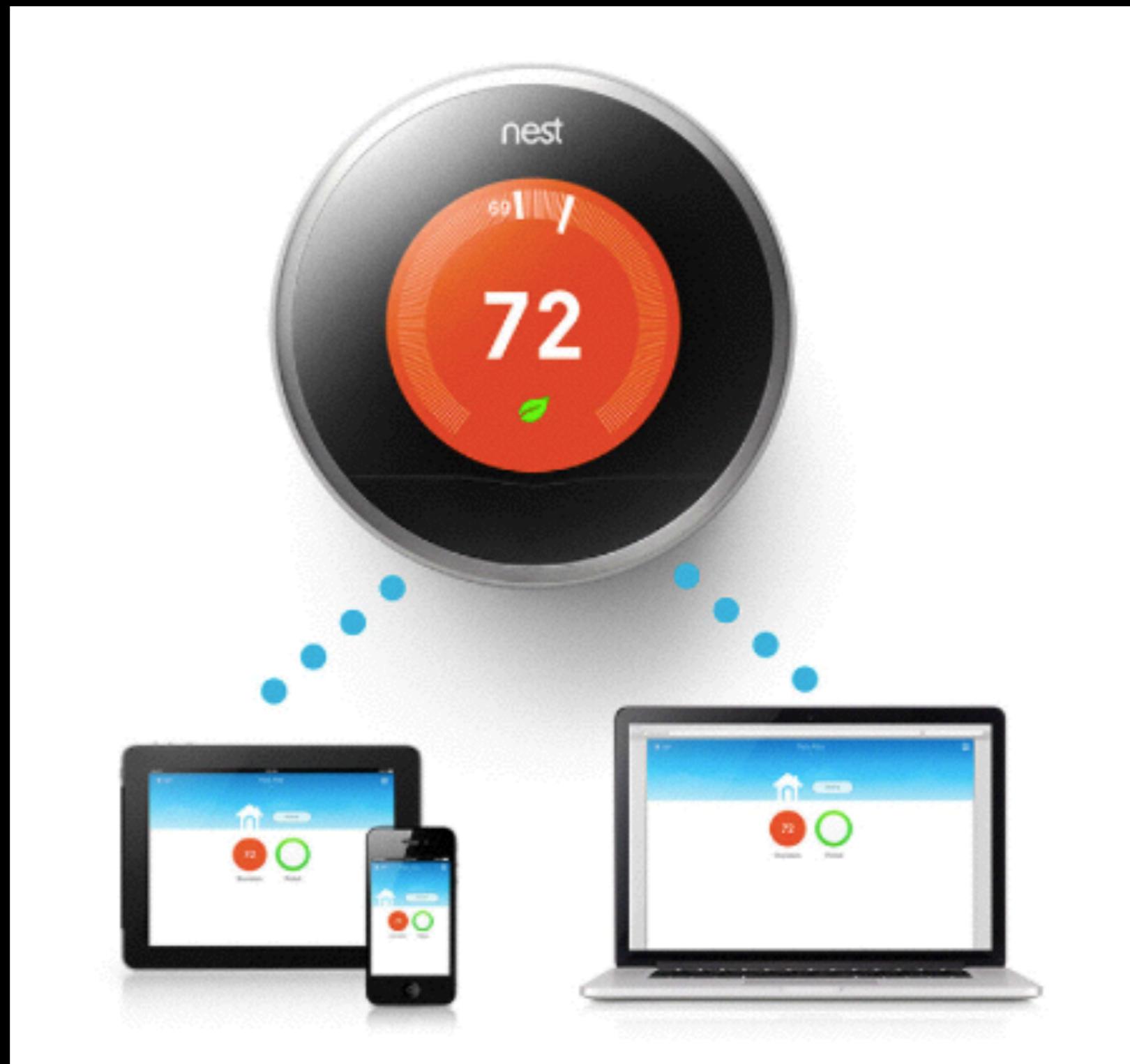
EGG MINDER



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NEST THERMOSTAT



LOCKITRON



IKU



HOW DO THEY WORK?

REQUIREMENTS

- No user manual needed
- Low Energy
- Cheap manufacturing cost
- Low maintenance
- Little bandwidth required
- Large quantities

BLUETOOTH 2.0

- Bluetooth 2.0
 - High bandwidth
 - High power requirements
 - Permanent connection
 - Pairing

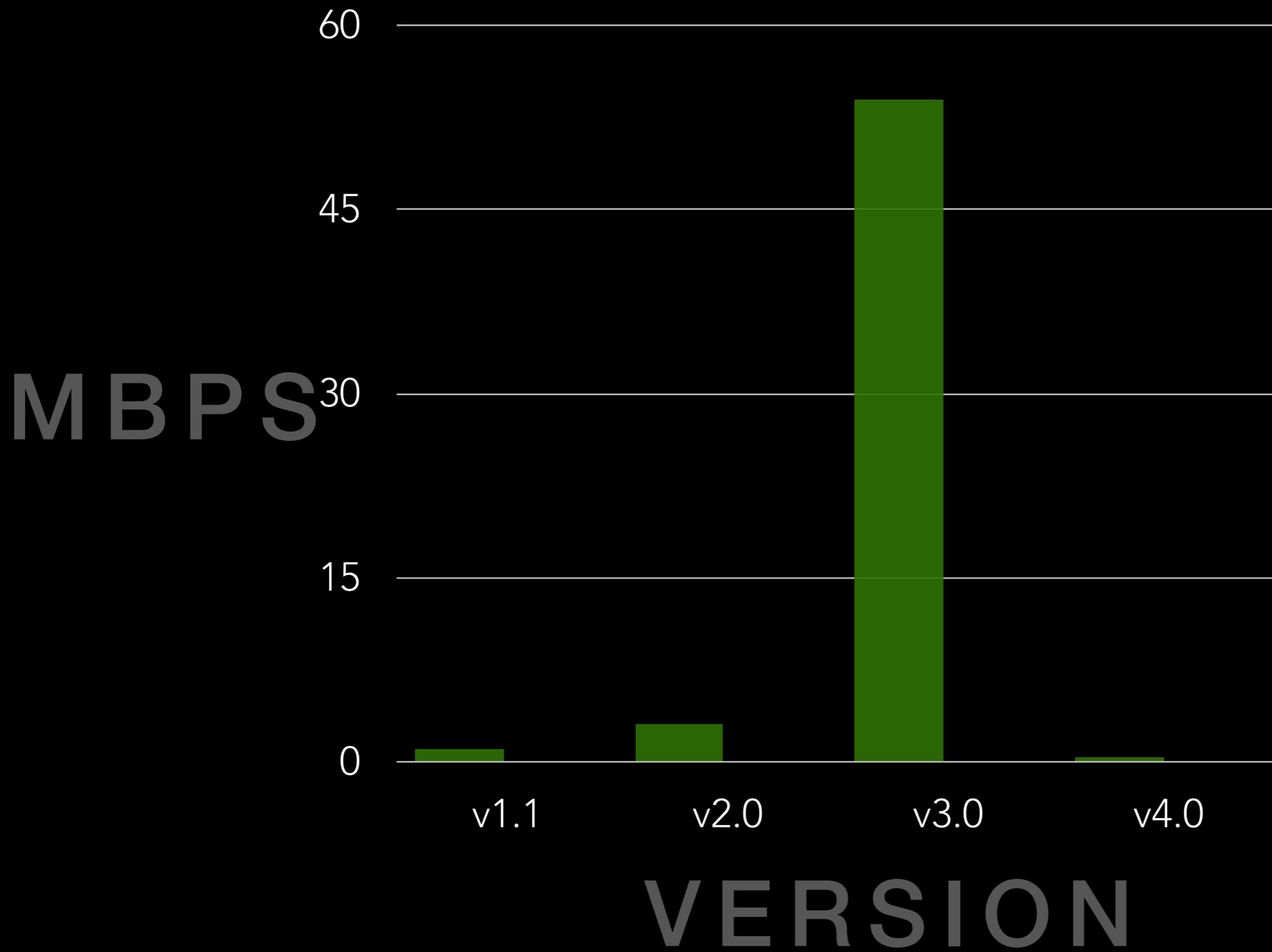
BLUETOOTH 4.0

- Completely new technology, only name is the same
- Very low power
- Very low cost
- Short interactions
- Device should last around one year with a single-cell battery

BLUETOOTH VS BLUETOOTH

	Bluetooth 2.0	Bluetooth 4.0
Devices	Audio, Video, Keyboard, Mouse, Speakers	Sensors, Wearable
Connections	Pairing	Advertising
Bandwidth	Large	Narrow 0.3 Mbps
Duration	Long	Short, Minimum
Energy	High	Minimal

BANDWIDTH



RFID & NFC

- Passive Radio
- Transfer small bits of information when very near
- No energy required on the transponder
- Privacy issues
- NFC is now getting into smartphones



IDENTIFICATION

TICKETING



NFC



TIME &
ATTENDANCE



HID



PHYSICAL
ACCESS

LOYALTY &
MEMBERSHIPS



CASHLESS
PAYMENT



SECURE
PC LOG-ON

TRANSIT

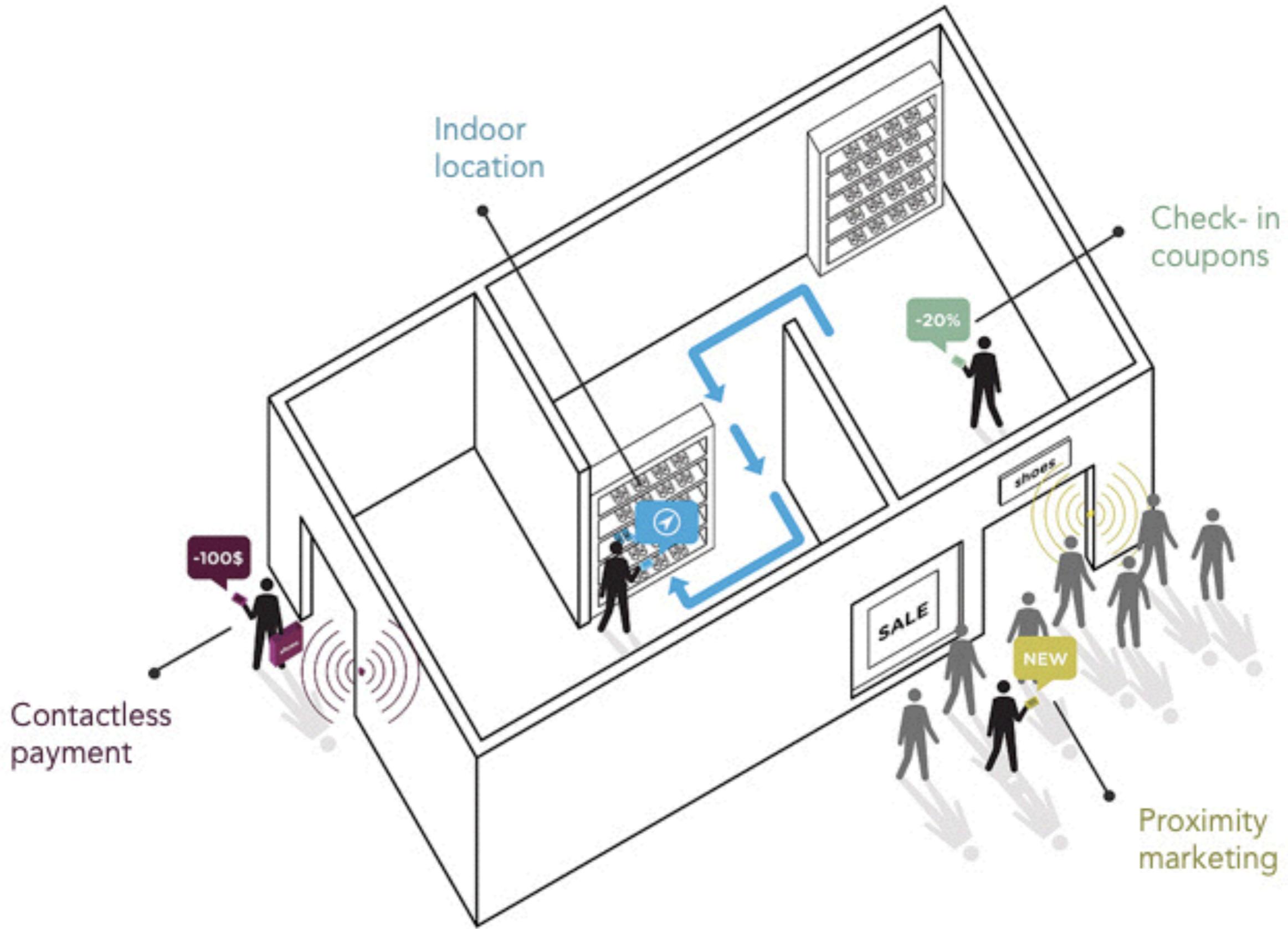


WIFI

- Large bandwidth
- High energy requirements
- Large range
- Ubiquitous
- Very easy to find an access point

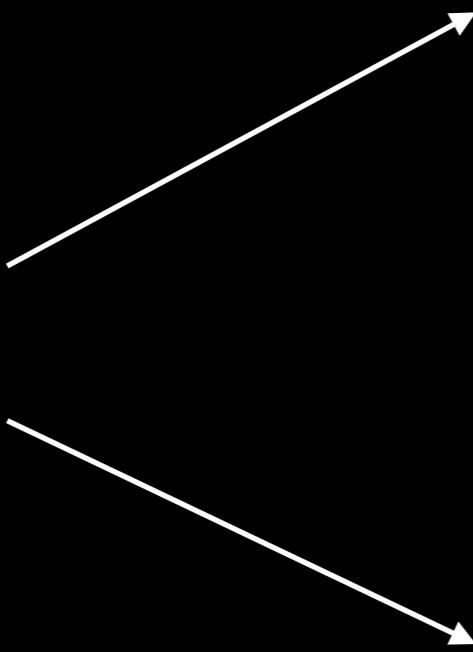
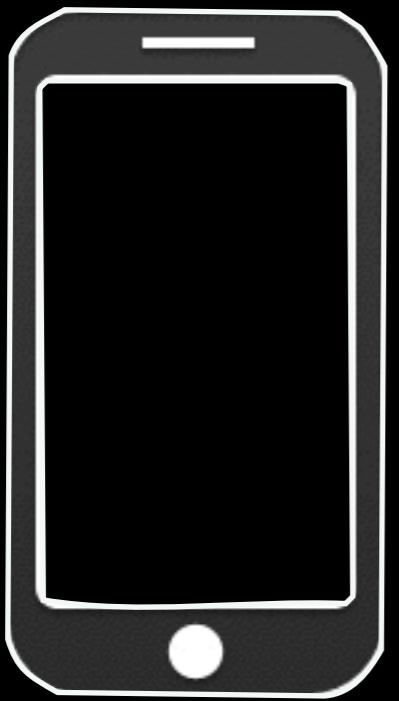
IBEACONS

- Based on Bluetooth Low Energy (4.0)
- Same characteristics
- Provides Geo-Location in closed Environment
- Supported only by newer Apple Devices



USE CASES

THIRD SCREEN



SENSOR DATA ACQUISITION

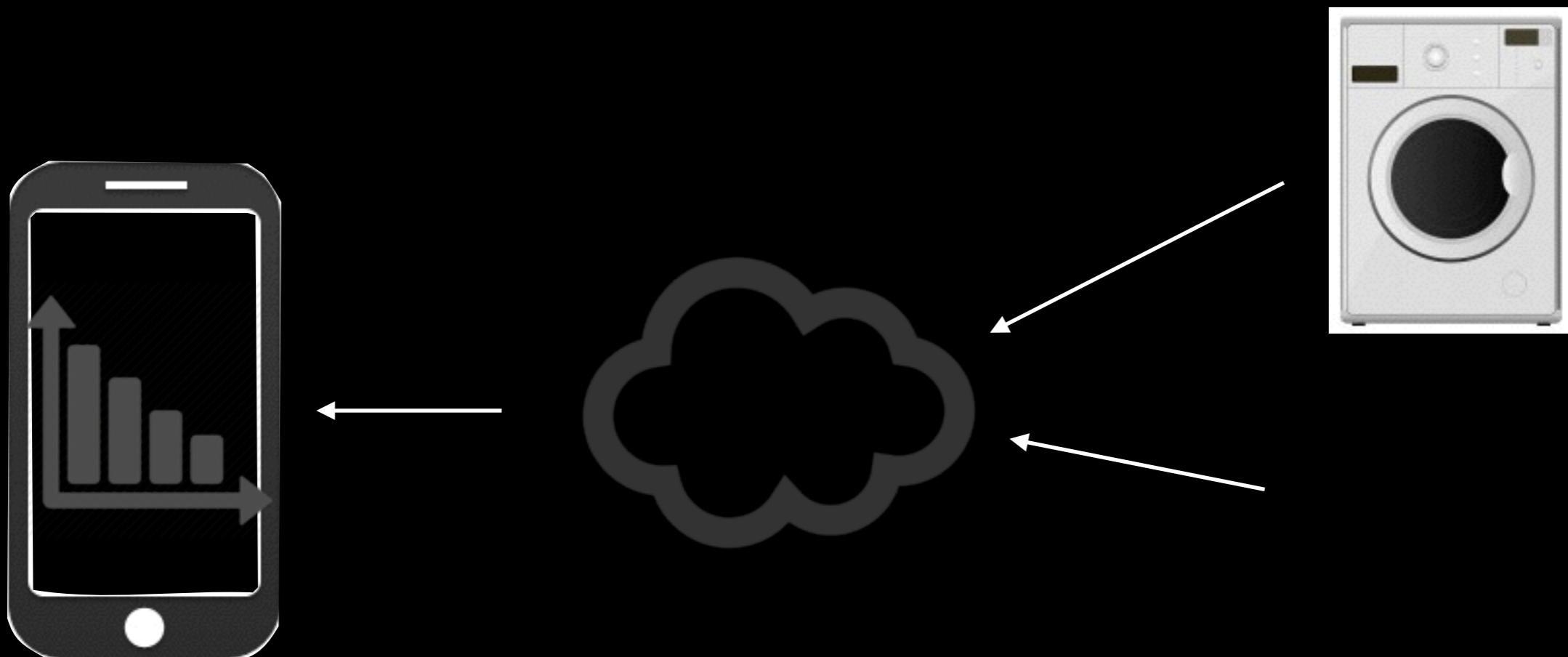


SENSOR DATA ACQUISITION





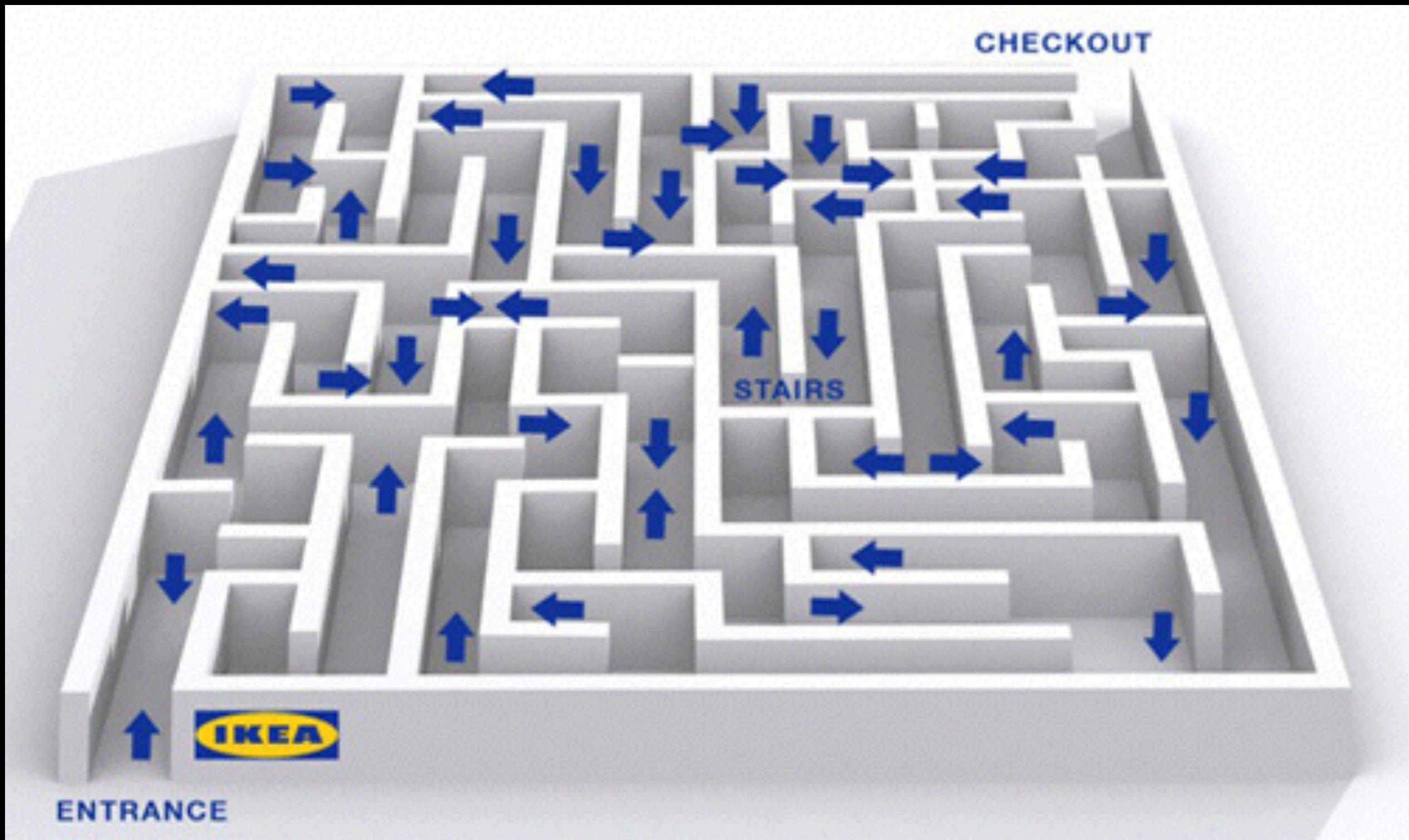
REMOTE CONTROL



REMOTE INPUT



INDOOR TRACKING



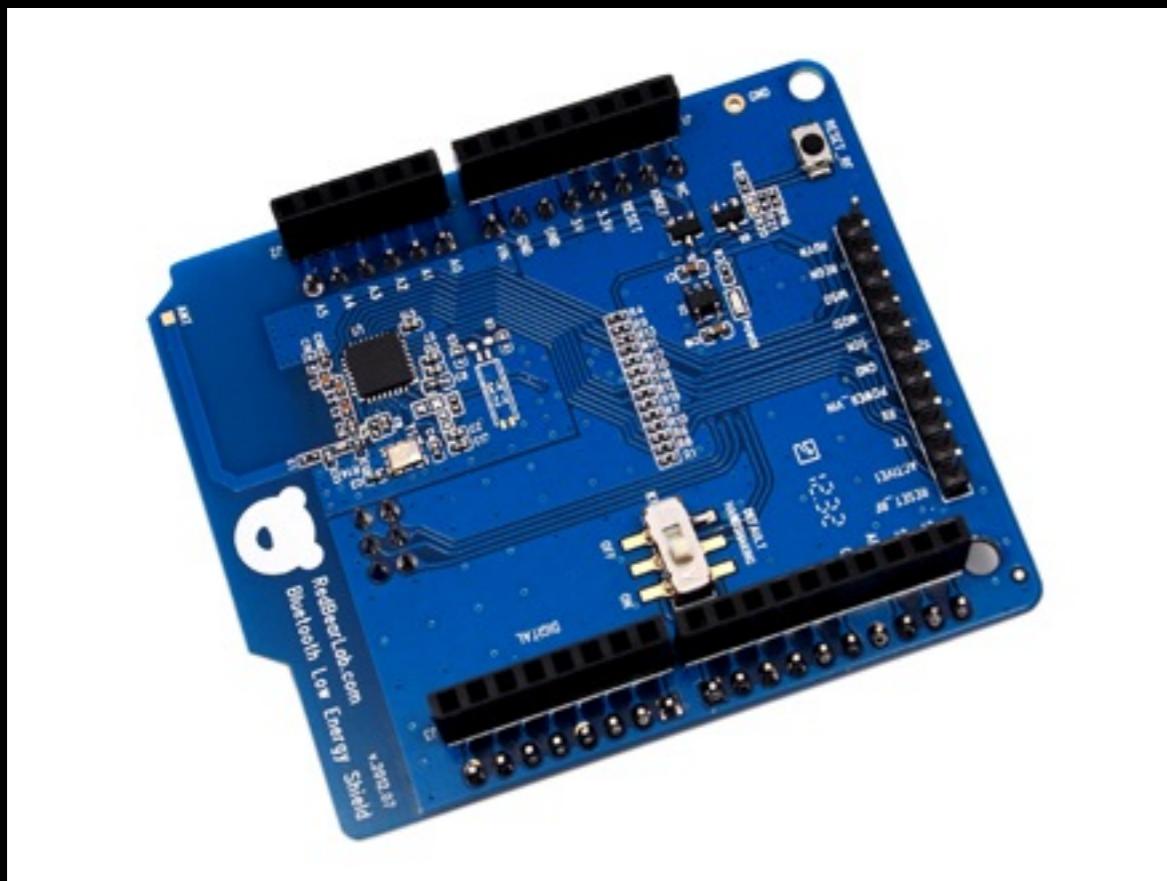
PROTOTYPING TOOLS AND TECHNIQUES

TI SENSORTAG

- Rapid development
- Two buttons
- Accelerometer
- Magnetometer
- Barometer
- Gyroscope
- Temperature sensors

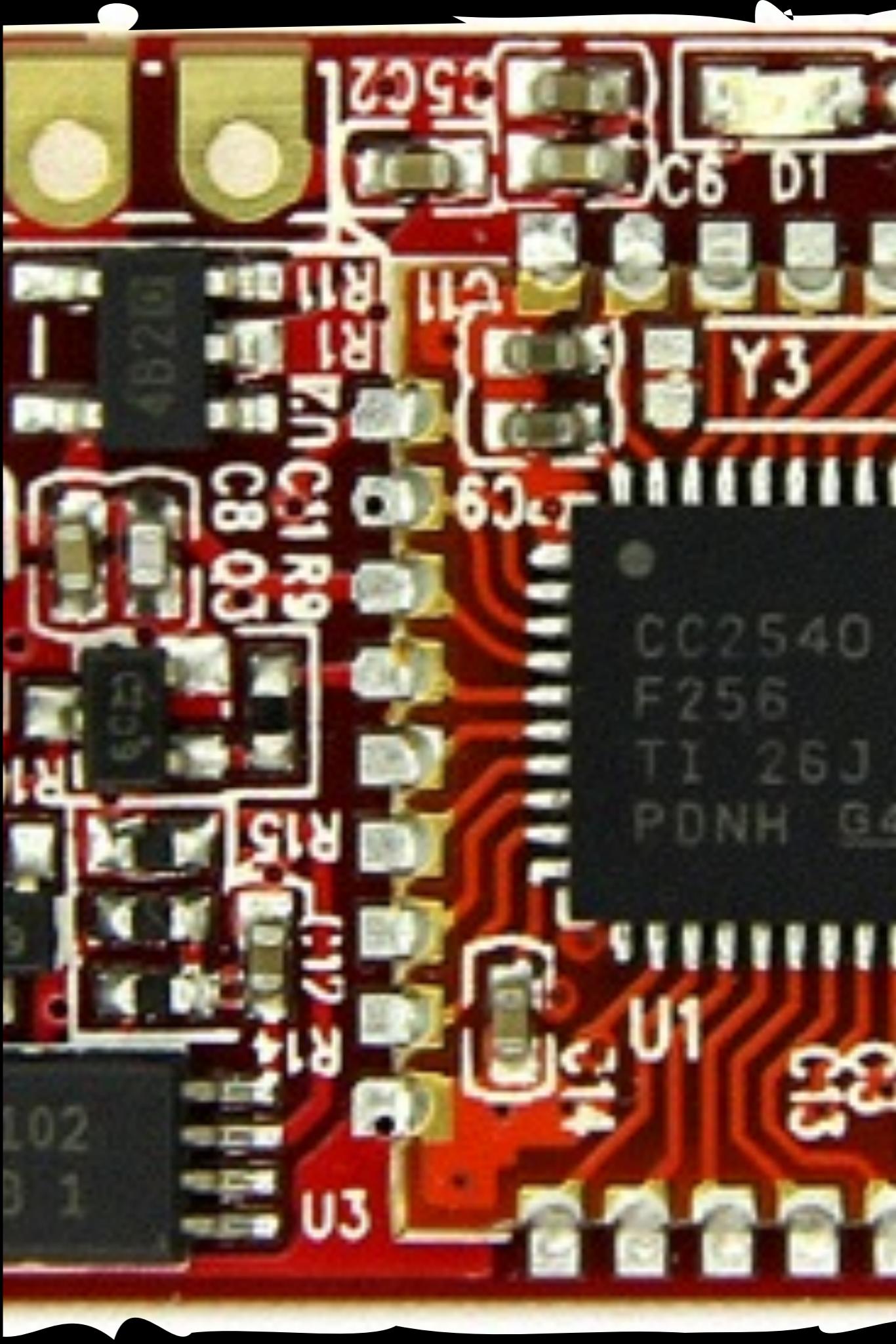


ARDUINO + BLE SHIELD

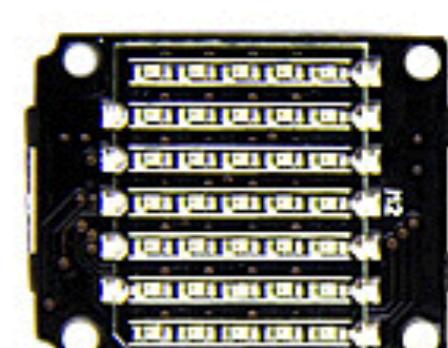
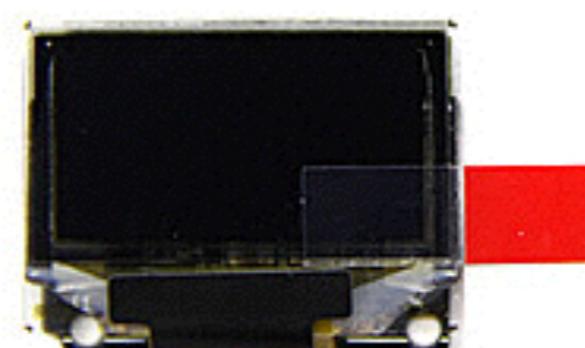
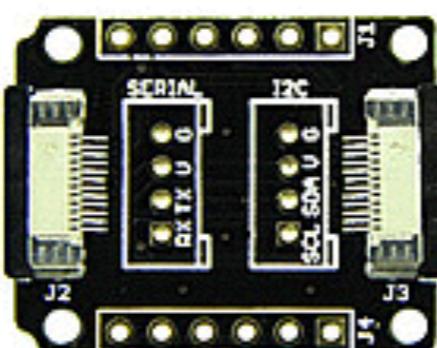
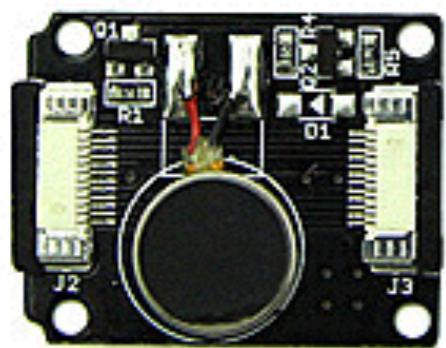
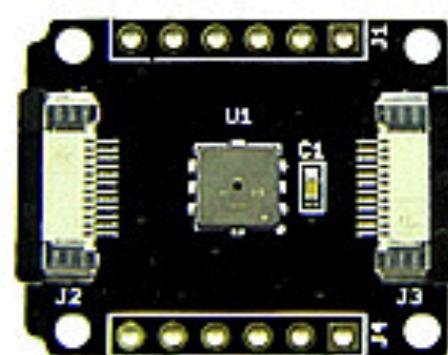
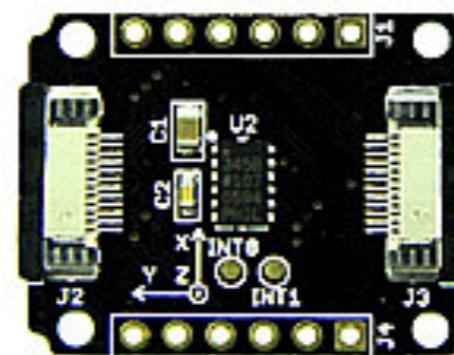
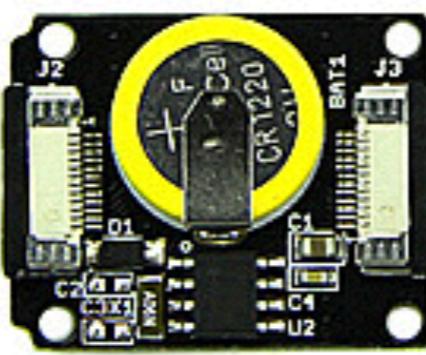
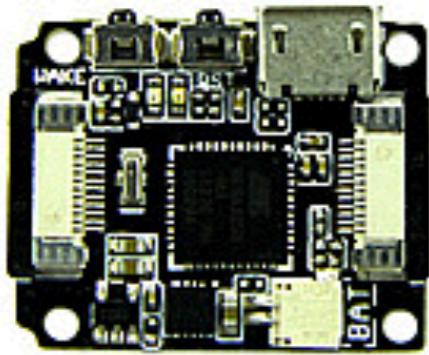


BLE MINI

- Embedded Microcontroller
 - Powered by a Watch battery
 - Doesn't need Arduino
 - BLE Central support
 - iBeacon support

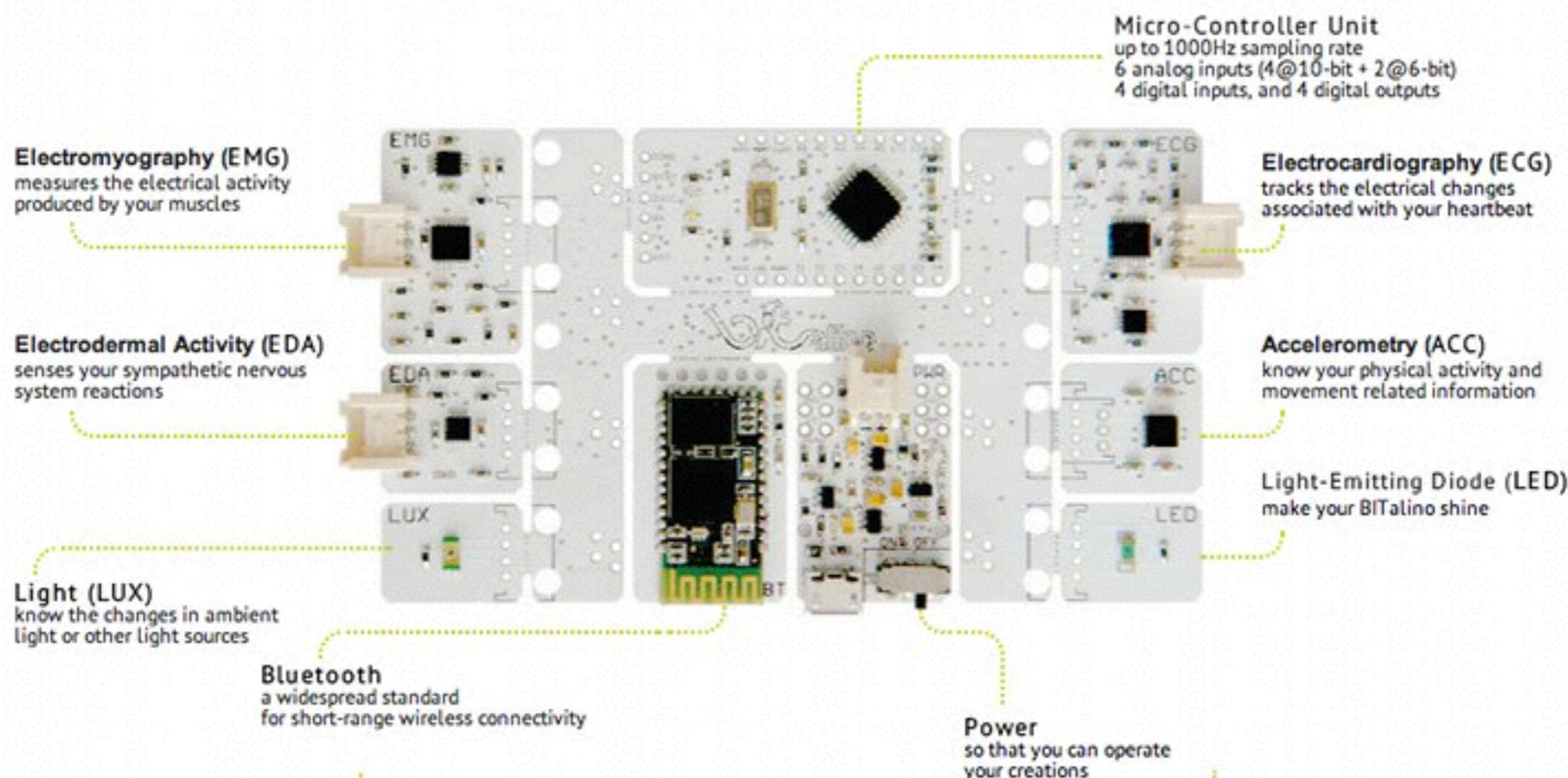


XADOW



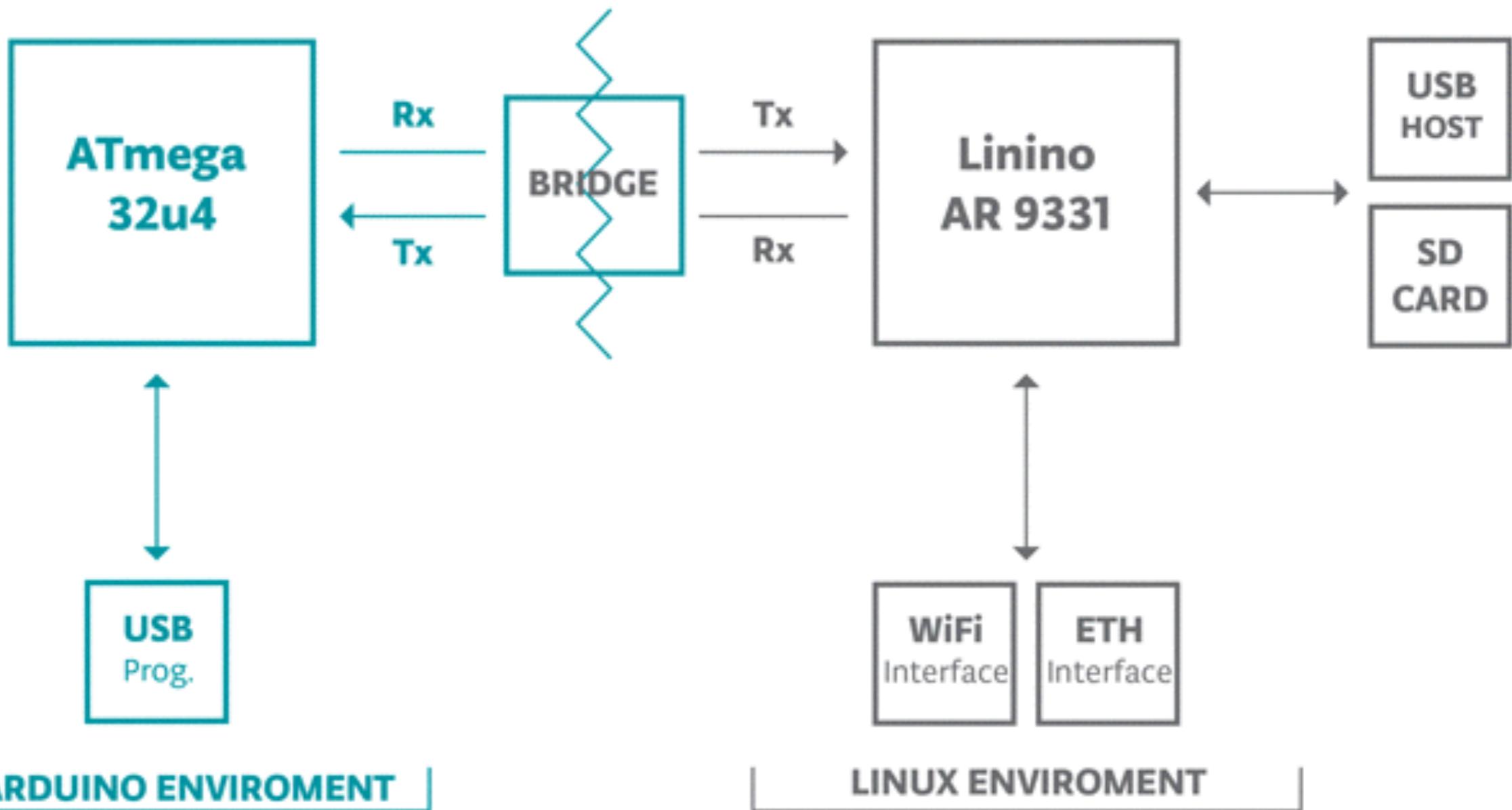
BITALINO

Anatomy of a Bitalino



ARDUINO YUN





ELECTRIC IMP

