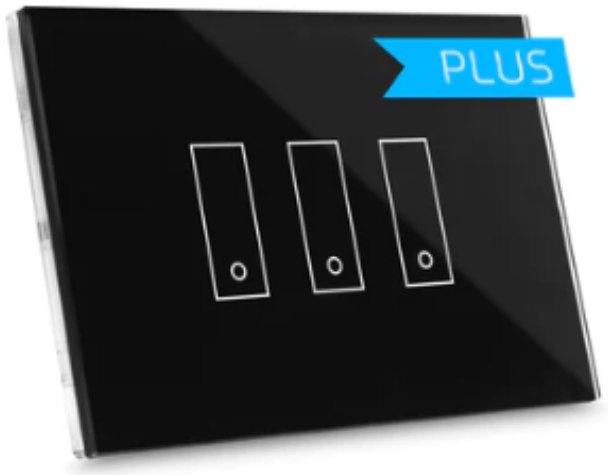
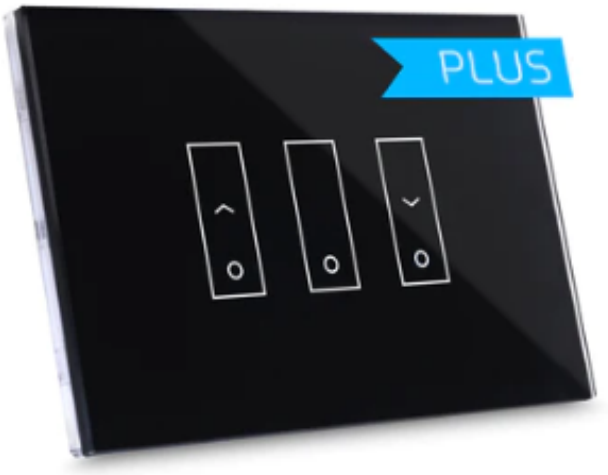

iotty

Company introduction





Some background

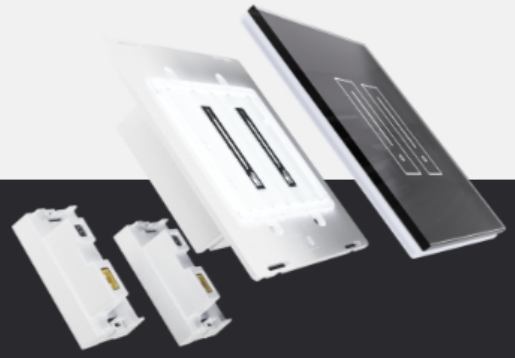
- Startup founded in 2017
- Started on Indiegogo
- Located in Bologna (BO), Porcia (PN), and Westwood (NJ)

Patented products

ADVANCED TECHNOLOGY

Dimmer Module

During install, easily click in a dimmer module to any circuit to make it dimmable.



Anatomy of a iotty gen2 lightswitch

- 3 touch gangs controlling 3 relays
- customizable backlight
- light and temperature sensors
- Wi-Fi and Bluetooth connectivity

Architectural overview

Key points

- Hubless
- Wi-Fi
- MQTT
- Multiple controllers (manual, app, Google Home, Alexa, etc.)

Architecture at a glance

- App
- Devices
- Internal cloud services
- External cloud services
- External controllers (apps/voice assistants)
- MQTT
- ServiceBus

Firmware platform details

Gen 1

- esp8266
- cypress

Gen 2

- esp32
- renesas

How to face domain modelling and integrate external services in a world of mixed and evolving taxonomies

Domain modeling

- What is a `device`?
- What are `gangs` and `plates`?
- What is a `place`, a `room`, an `automation`?
- Is there any difference between `switch` and `light`?
- Is a dimmable light the same as a non-dimmable one?

Playing cool with the big players

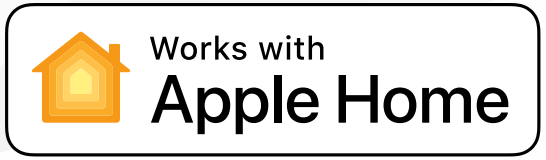
"Works with" Google Home, Smart Things, Alexa, Siri, IFTTT

- Adapting to external requirements
- Being reactive to ever changing specifications

Being consistent with external clients

- Defining a future-proof specification
- Keeping an extra eye on security

On-board protocols



Building custom solutions vs adopting (and adapting) existing software/firmware

Over the air update

- Differences between industrial IoT and consumer IoT
  - Internet reach, speed, and consistency
  - Access to devices
  - Knowledge of router and ISP setup
- Reinventing the wheel?

Cloud solutions

- IoT Hub or plain MQTT broker?
- Managed vs unmanaged services

Troubleshooting technical problems described by non-technical people

- *"My device doesn't work"*
- *"Alexa doesn't turn on the light"*
- *"I have the ACME router with a no-brand Wi-Fi repeater, and I'm trying to use the app from a virtualized Android environment"*

Wrapping up

Technology landscape overview

- Firmware: C++, ESP-IDF
- General Purpose coding: .NET, C#, ASP.NET
- Database: PostgreSQL, Entity Framework
- Protocols: MQTT, HTTP
- Services: IoTHub, ServiceBus, Azure in general
- Infrastructure: Terraform, ARM, Bicep
- DevOps: CI/CD with Azure DevOps
- App: Javascript, Typescript, CSS
- General dev tools: Bash, Git, ...

A glance into the future

Internship opportunities

1. Machine Learning on historical data (1Tb+)
2. DevOps: CI/CD application building pipelines

Questions

Slides made with MARP https://marp.app/ (markdown presentation ecosystem)