CropTech.

SMART **HYDROPONIC** SYSTEMS

CropTech.

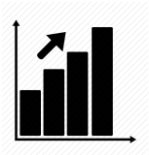
Smart Automation Systems

Founded on August, 2015

CropTech. is a company providing smart automation systems and services mainly for agriculture sector, especially **hydroponics**, **aquaponics** and **aeroponics**. We believe that, maximizing **yields**, while lowering **costs** is possible only through extensive **innovations** in power optimization, self-diagnostics, fault detection, remote control and life support system for hydroponic systems. Thus, we build autonomous, highly scalable & cloud-connected hydroponics systems for home, small, medium & enterprise indoor and outdoor growing to fight global **food security problem**.

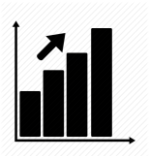
Global Challenges vs.

Addressing the problem and current trends in its solving process



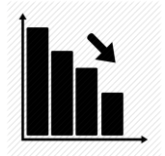
9.6b world population in 2050

Small or no growth in world arable land



Energy costs, clean energy requirements

Agriculture water supplies



Sustainability in Agriculture

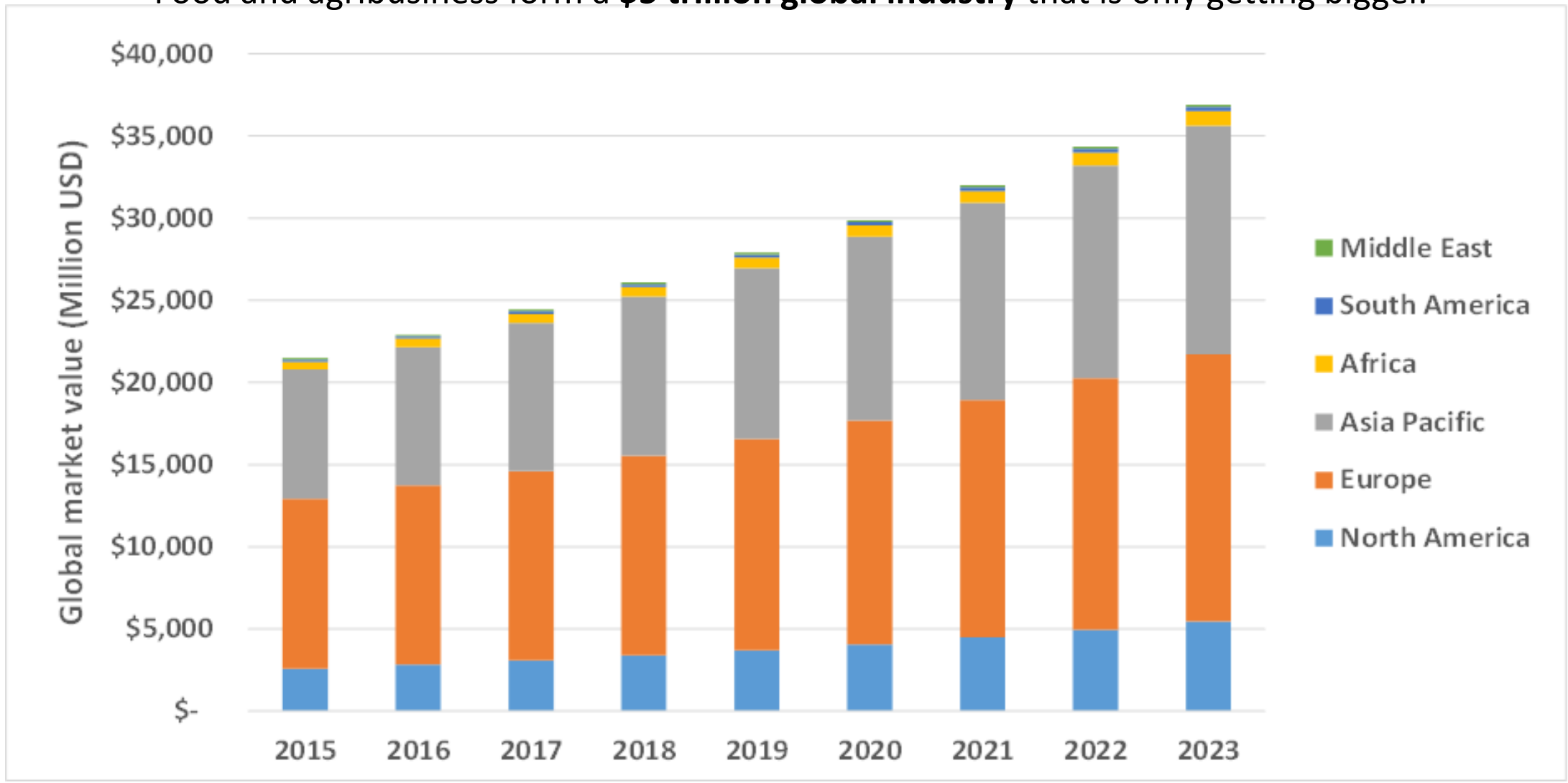
Arable land degradation

Increasing the efficiency in agriculture is crucial and the most challenging task for future development. Growing crops like fruits and vegetables nearby urban areas eliminates the transportation energy costs and thus positively influence global greenhouse effect.

Hydroponics Market Size continues to Grow

Addressing the problem and current trends in its solving process

Food and agribusiness form a **$5 trillion global industry** that is only getting bigger.



Why Hydroponics?

Addressing the problem and current trends in its solving process

NO SOIL

WATER REUSE

Crops can grow twice as fast in hydroponics due to getting exactly the correct amounts of nutrients, water and oxygen.

Hydroponic growing can reduce water consumption by up to 90% compared to traditional farming techniques. Using Aeroponics the number attacks 98%.

Hydroponically grown crops can use NO herbicide or pesticide chemicals which significantly impact the environment and our bodies.

Hydroponics is a subset of hydroculture and is a method of growing plants using mineral nutrient solutions, in water, **without soil**. Terrestrial plants may be grown with their roots in the mineral nutrient solution only (liquid hydroponic systems) or in an inert medium, such as perlite, mineral wool, gravel, expanded clay pebbles or coconut husk (aggregate hydroponic systems). Hydroponics is a subset of **soilless culture**, but many types of soilless culture do not use the mineral nutrient solutions required for hydroponics.

12 Best Fruits, Vegetables, and Herbs for Hydroponics

Addressing the problem and current trends in its solving process

Fao.org

Vegetables
(world production/year)

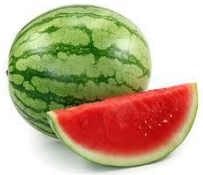
Tomatoes
163M tonnes (2013)

Cucumbers
71M tonnes (2013)

Lettuce
24M tonnes (2013)

Radish
1.3M tonnes (2013)

Fruits
(world production/year)



Watermelon
108M tonnes (2013)

Grapes
77M tonnes (2013)

Strawberries
7.7M tonnes (2013)

Blueberries
420K tonnes (2013)

Herbs
(world production/year)

Oregano
71.3M tonnes (2013)

Chives
13.3M tonnes (2013)

Rosemary
1.2M tonnes (2013)

Basil
257K tonnes (2013)

On the other hand zucchini, corn, summer squash, potatoes, wheat are not very suitable plants for hydroponic systems. It is not because these will not grow in hydroponic environment, but because of the space they need. These have their place in standard fields

Running Costs of Hydroponic System

Addressing the problem and current trends in its solving process

Energy: 15% of total costs

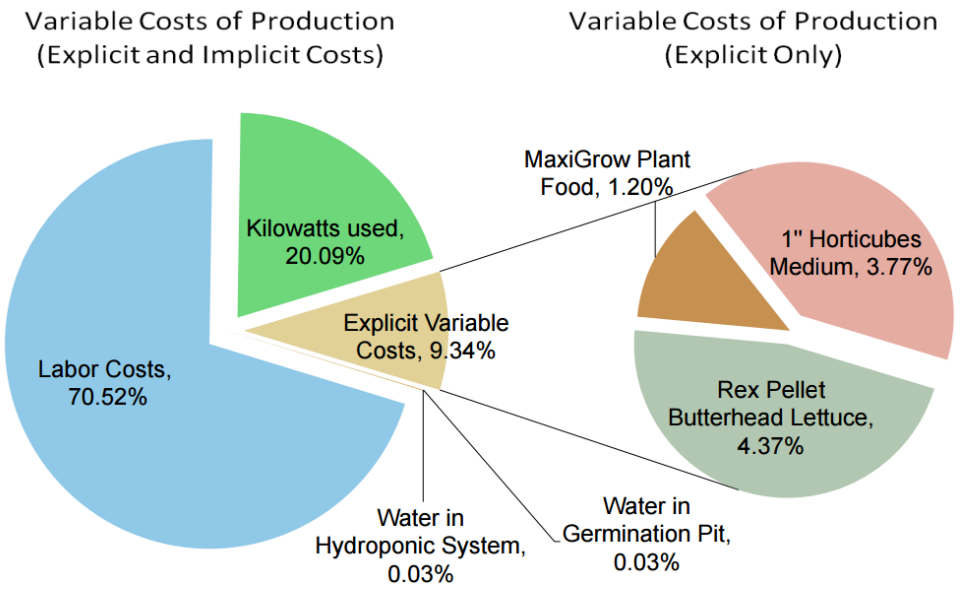
Supplies: 7% of total costs

Water: 5% of total costs

Labor: 60% of total costs

Packaging and Marketing: 8% of total costs

Miscellaneous: 3% of total costs



High Precision monitoring, fault diagnostics and partial automation cuts the *production* labor costs by up to 50%

More **sophisticated** methods have to be used for **fault detection**, **real-time monitoring**, **control and automation** of such systems. Utilization of artificial intelligence in hydroponic and aeroponic systems may lead not only to early fault detection, thus avoiding damage to grown plants, but may also help to fully automate all the processes required in aeroponics and hydroponics and adapt to current needs of grown plants in real-time without any or **small interventions** of human operators, help to **lower costs** and make the whole process **more efficient** and likely **more profitable**.

OK, I've seen all the benefits, but what's the catch?

responzIO – Hydroponics Automation Unit

Making hydroponics easier, more effective and even more profitable

Cloud

ResponzIO is the ultimate tool for automation, monitoring and remote control in various **hydroponics**, **aquaponics** or **aeroponics** applications. ResponzIO is also suitable automation system for soil culture systems **indoors** or **outdoors**.

Package Includes:

- responzIO main controller
- 4-8 Programmable Power Sockets
- Ambient Light Sensor
- Air Humidity and Temperature Sensor
- PH/EC Sensor
- Water Temperature Sensor
- Water Flow Sensor

Features:

- **Decision Support Features**
- Wifi/Ethernet Connectivity
- Web-based User Interface
- Remote Monitoring
- **Fault Diagnostics**
- Remote Control
- **Scalability**

5 W low power consumption

99 % outstanding stability

20 different sensor types

CO2 sensor | Air humidity sensor | Flow sensor | Soil humidity sensor | Light sensor | PH sensor | Water temperature

Air temperature | Heater control | Ventilation control | Sprinkler control | Light control | Water level sensor | Dissolved oxygen | EC sensor

responzIO – Hydroponics Automation Unit

Making hydroponics easier, more effective and even more profitable

Monitoring

AAA – Access, Anywhere, Anytime

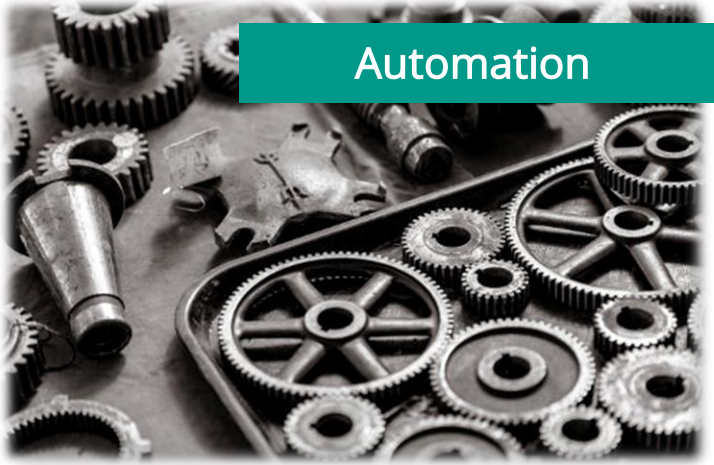
Collect, **analyze** and process data

16 Sensors – real time monitoring

Alarms when out of preset range

Early failure **diagnostic** system

Export data for further processing



Automation

8 programmable power sockets

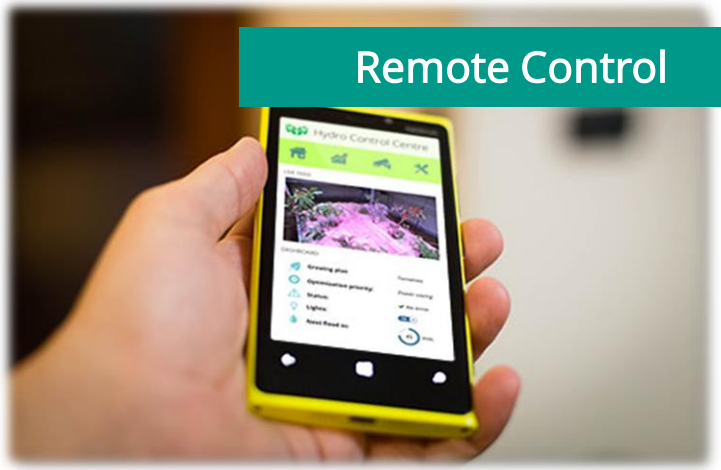
Irrigation, heating, air conditioning

Energy **efficient** light control

Create your own **rules** for actions

Schedule repetitive actions

Nutrition solution conditioning



Remote Control

Easy to use **web based interface**

Smartphone application available

24/7 access to your ResponzIO

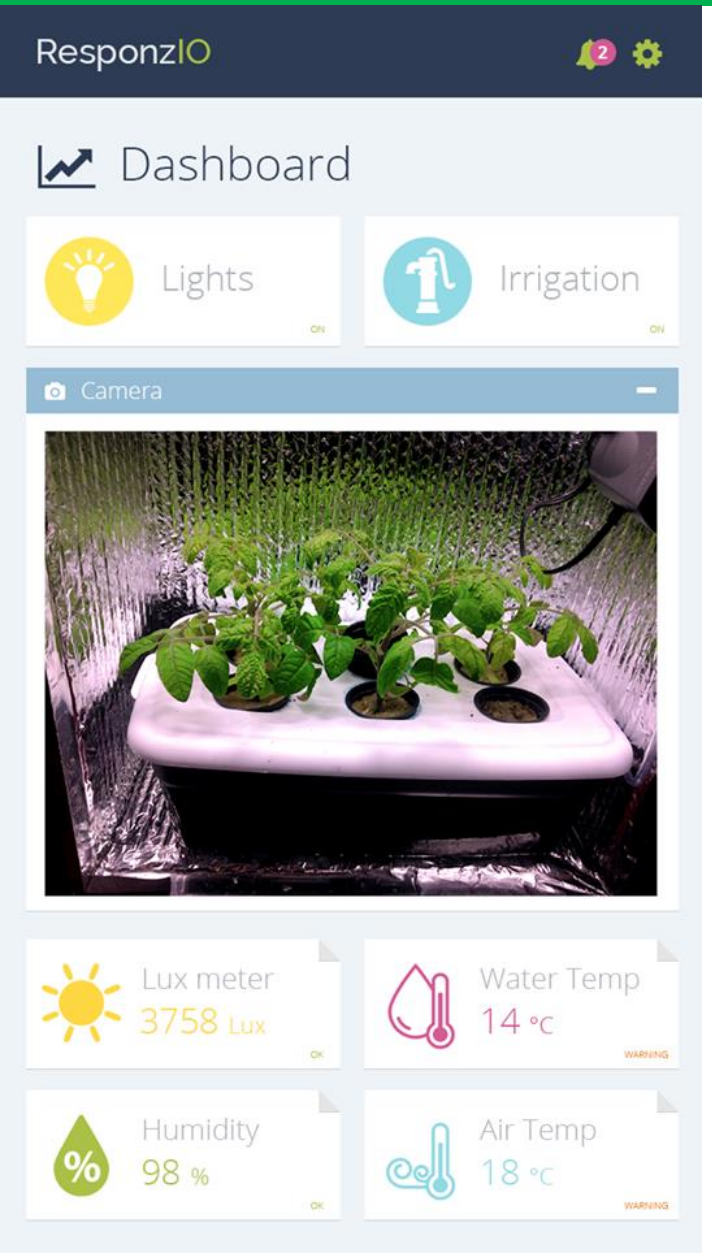
Watch your plants getting **edible**

Notifications in case of problems

Share **experience** with your friends

responzIO – Dashboard Preview

Making hydroponics easier, more effective and even more profitable



You can access your responzIO via:

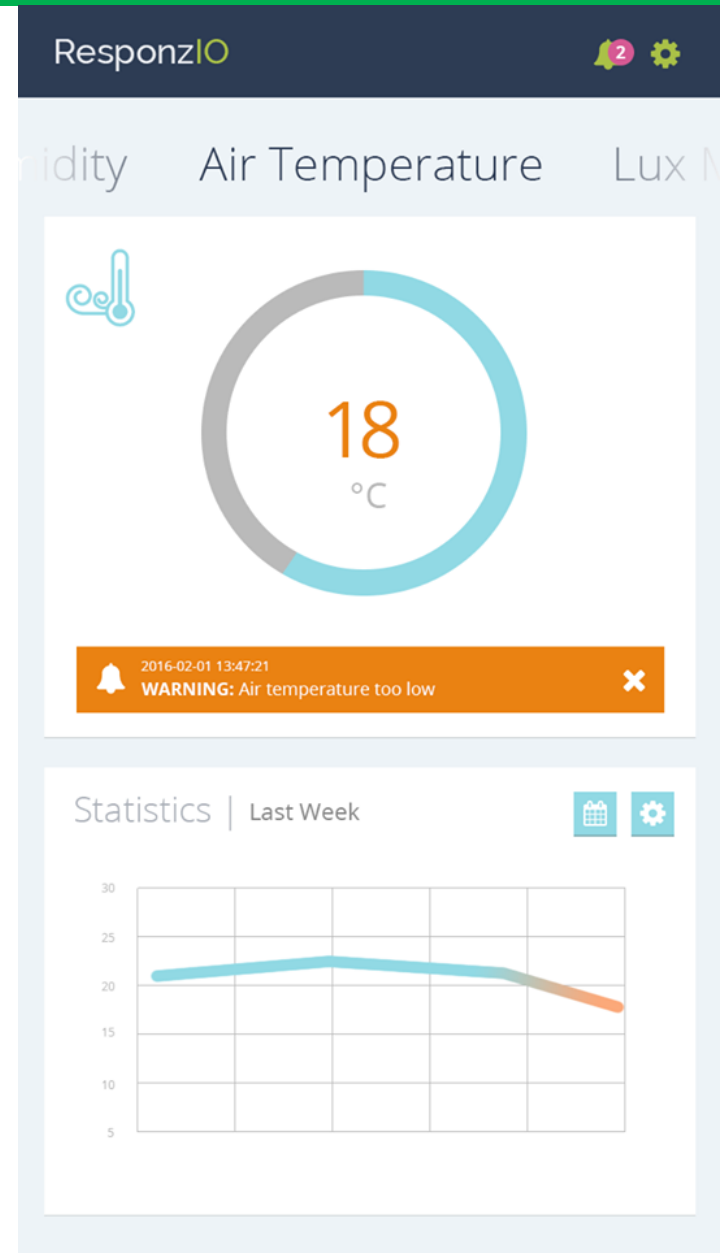
responzIO HotSpot
Connect directly to responzIO wifi network
(Phone, Tablet, Computer)

or

Local Area Network
(Phone, Tablet, Computer)

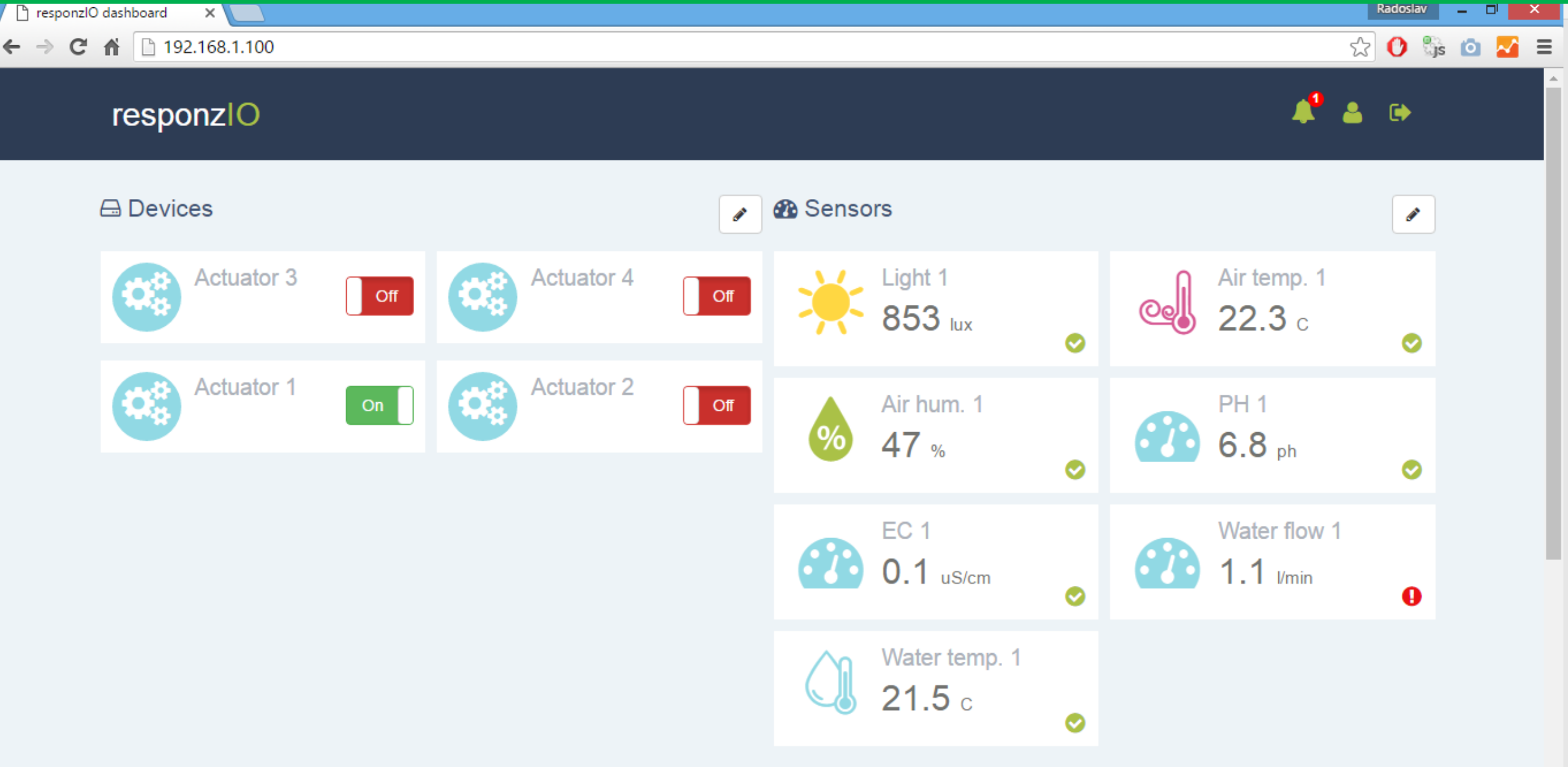
or

Internet (cloud connection)
(Phone, Tablet, Computer)



responzIO

Making hydroponics easier, more effective and even more profitable



responzIO Use Cases

Making hydroponics easier, more effective and even more profitable

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responzIO Use Cases

Making hydroponics easier, more effective and even more profitable

responzIO Integration

responzIO Use Cases

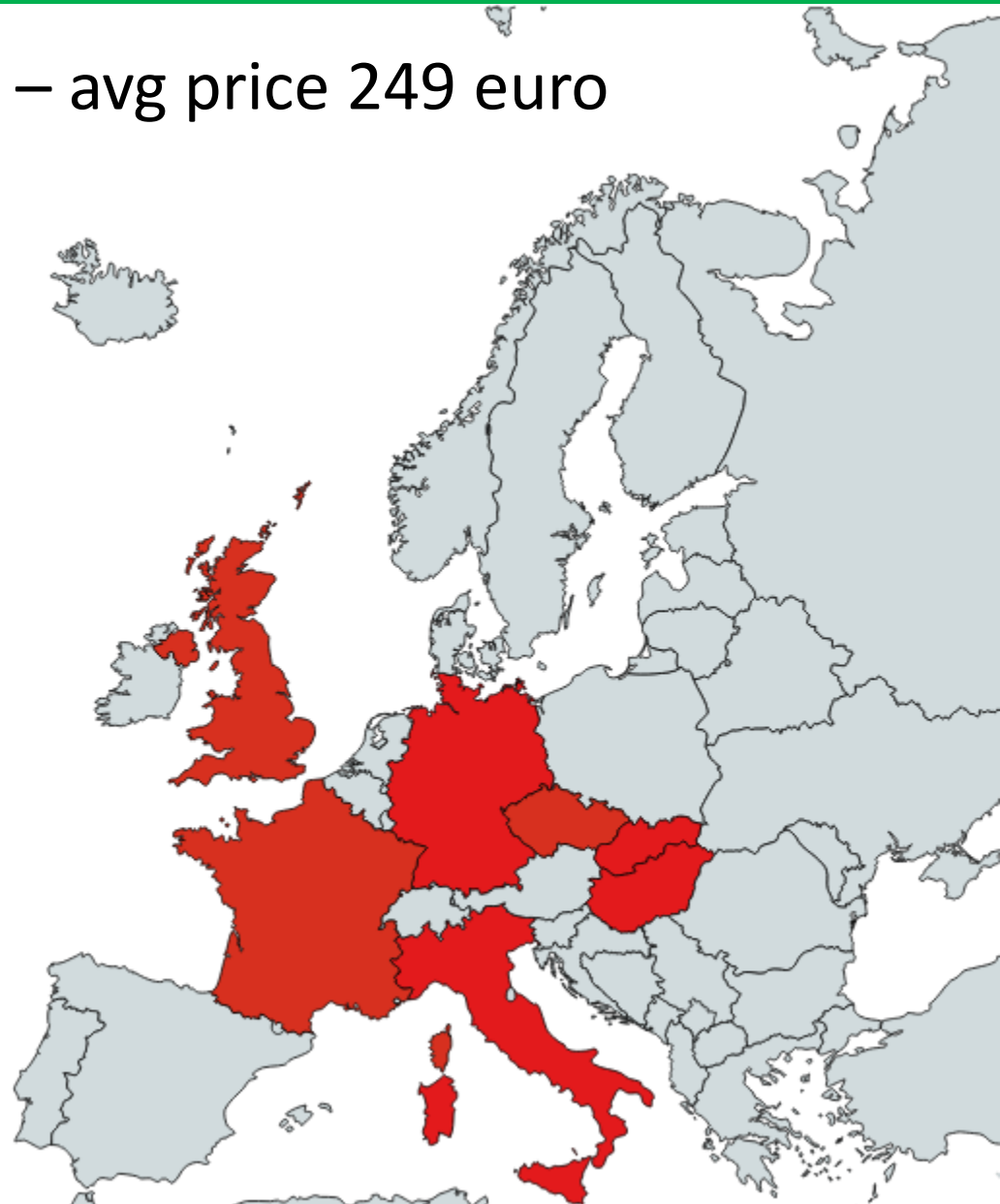
Making hydroponics easier, more effective and even more profitable

Beta Test Project

Making hydroponics easier, more effective and even more profitable

20x responzIO manufactured and sold – avg price 249 euro

- **Hydroponic Distributors**
- **Retails – grow shops**
- **End customers**
- **High School Project**
- **Other Hydroponic Project Integrations**



Competition

	CropTech. 	SUZAN 	FUTUREHOUSE Automation	G SE 	Growtronix		AmHydro
Price (end customer)	599e	599e	599e	650e	549e*	1200e	3999e
Country of origin	Slovakia	Poland	Canada	Germany	USA	USA	USA
Wifi/Ethernet	✔	BT	GSM	✘	✘	✔	RS232
Web-based User Interface	✔	✘	N/A	✘	✘	✔	✘
Monitoring/diagnostics/control	✔	✔	Limited	Limited	✔	✔	✔
Programmable	✔	✔	✔	✔	✔	✔	✔
Smartphone application	✔	Windows app	✘	✘	✘	✔	✘
Additional Sensors Available	✔	Limited	Limited	Limited	✔	Limited	✘

TYPICAL CUSTOMERS

Customer identification and market analysis

Industrial Food Producers

Legal Cannabis Industry

Home Gardeners

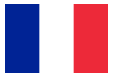
Stage 1

Stage 2

Stage 3

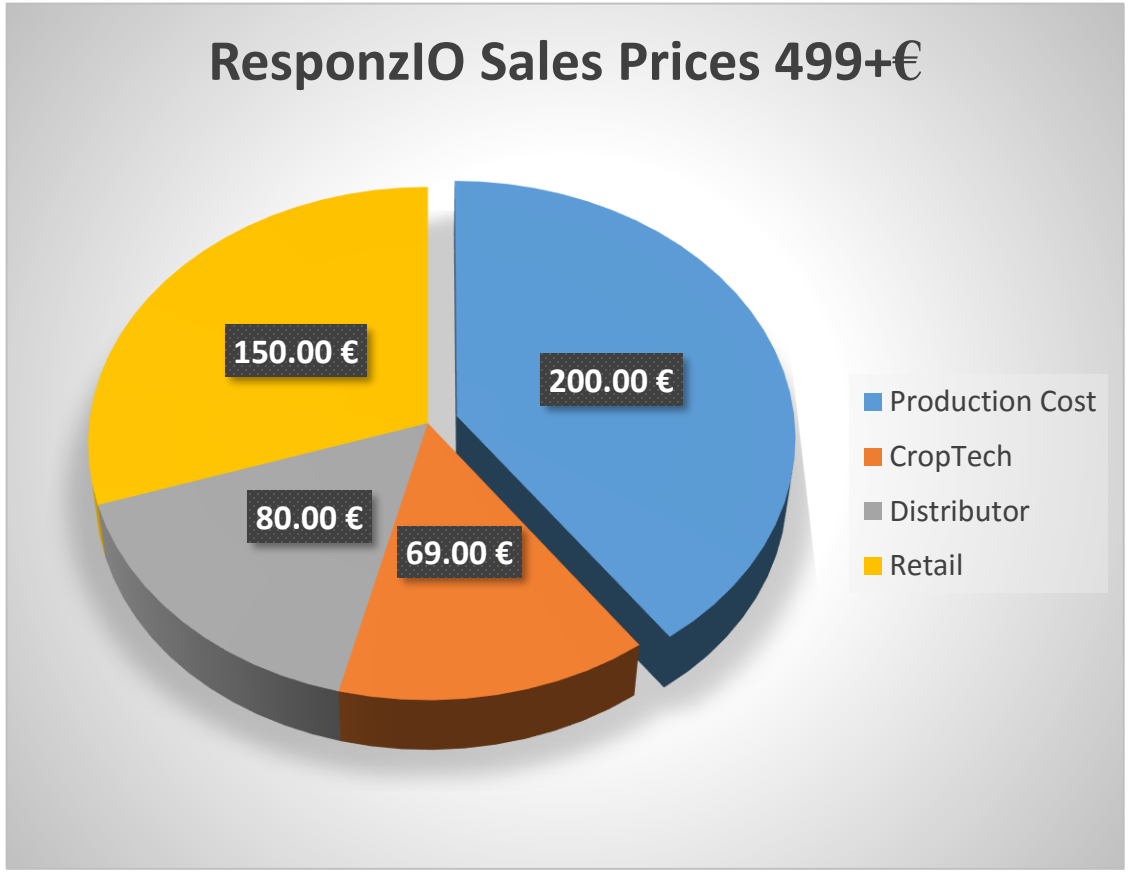
Distribution Channels

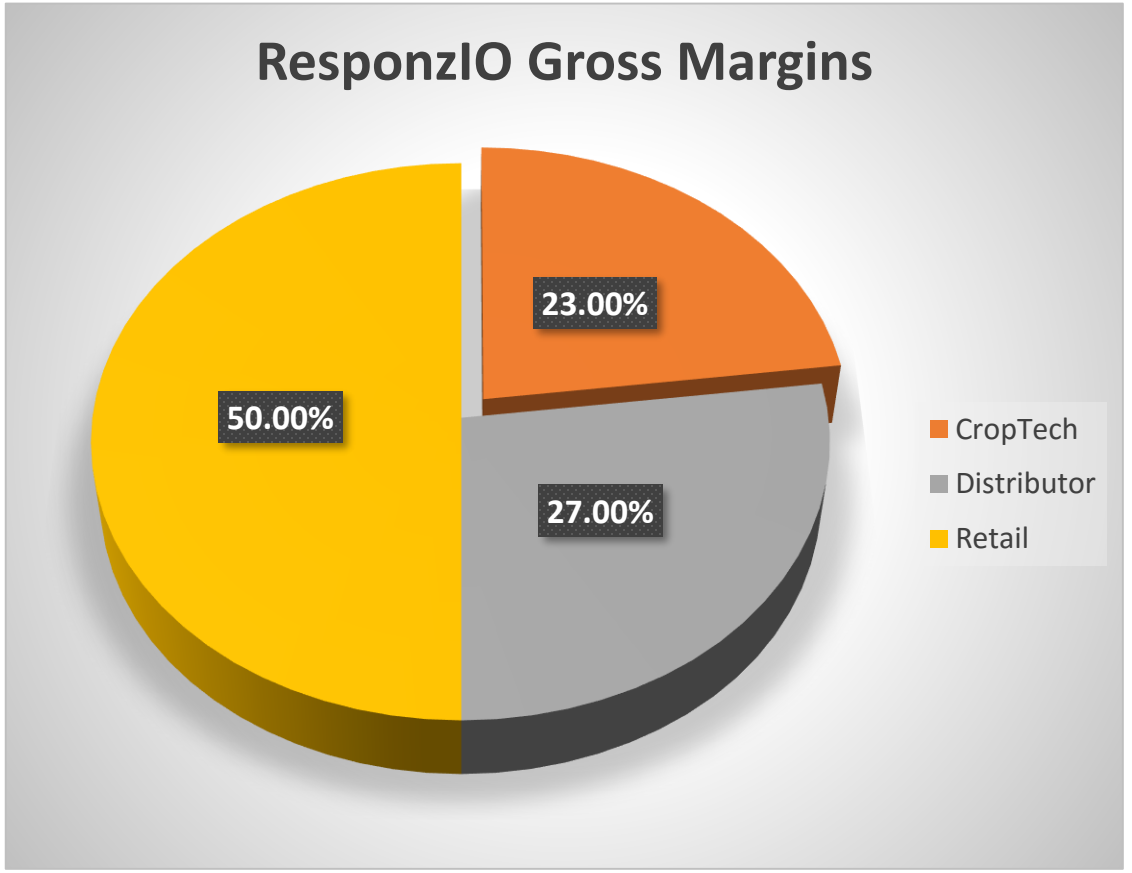
Pricing, sales, funding and other financial related analysis

Distributor	Country	Orders/Month
Naarden		5
NaiaFarm		5
PlantyMe		5
ABC House		5-10
WlochPL		5-10
Drehandel		10-15
Distro #1		10-15
Distro #2		10-15
Distro #3		10-15
Distro #4		10-15

Product Pricing Strategy

Pricing, sales, funding and other financial related analysis





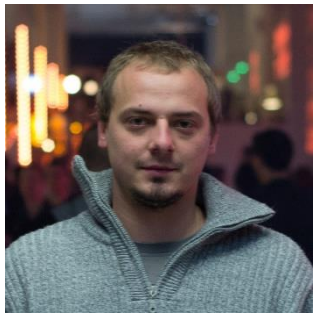
Production Cost might be lower (10-25%)considering mass production of more than 1000pcs.

Running Costs

Pricing, sales, funding and other financial related analysis

The Team Behind the CropTech Technology

Making hydroponics easier, more effective and even more profitable



MARTIN **PAĽA**

Control architecture and optimization

*Background in **Artificial Intelligence** R&D projects, SOSA, GECK, HAPI*

LADISLAV **MIŽENKO**

Programmer cloud technologies research

*Background in **Artificial Intelligence** R&D projects, GECK, HAPI*

RADOSLAV **BIELEK**

Physical modeling, front-end development

*Background in **Cybernetics** R&D projects, GECK, HAPI*

PETER **TKÁČ**

Mechanical engineering construction & design

*Background in **Robotics** R&D projects, ZTS VVU, GECK, HAPI*

JAKUB **SZÁSZ**

Electronics development

*Background in **Intelligent Systems** R&D projects, GECK, HAPI*

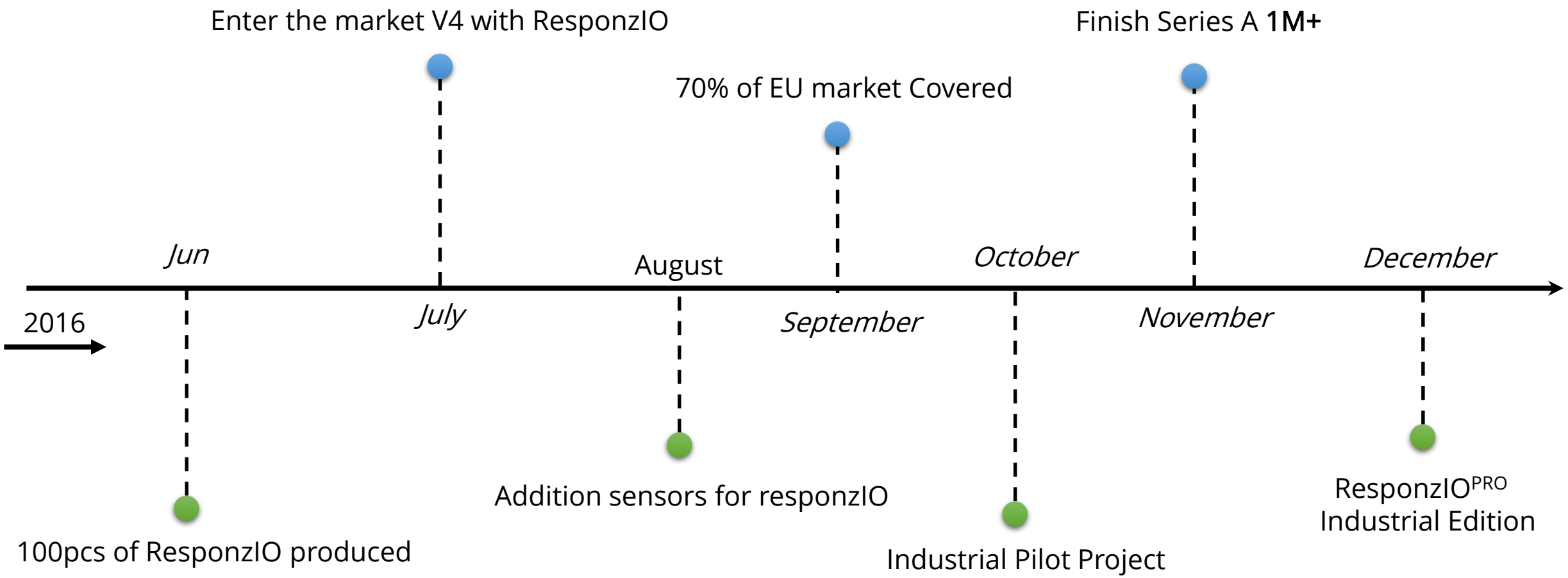
MARIÁN **Dandul**

Brand evangelist

*Background in **Sales Management** Sales projects, Slovakia*

ROADMAP

Pricing, sales, funding and other financial related analysis




responzIO launches on July 2016

Growing plants has **never** been so **easy!**

www.croptech.com