ARCHON
AUTONOMOUS
D R O N E S

Fully autonomous drones
providing inspection, monitoring, surveillance
services to the industry

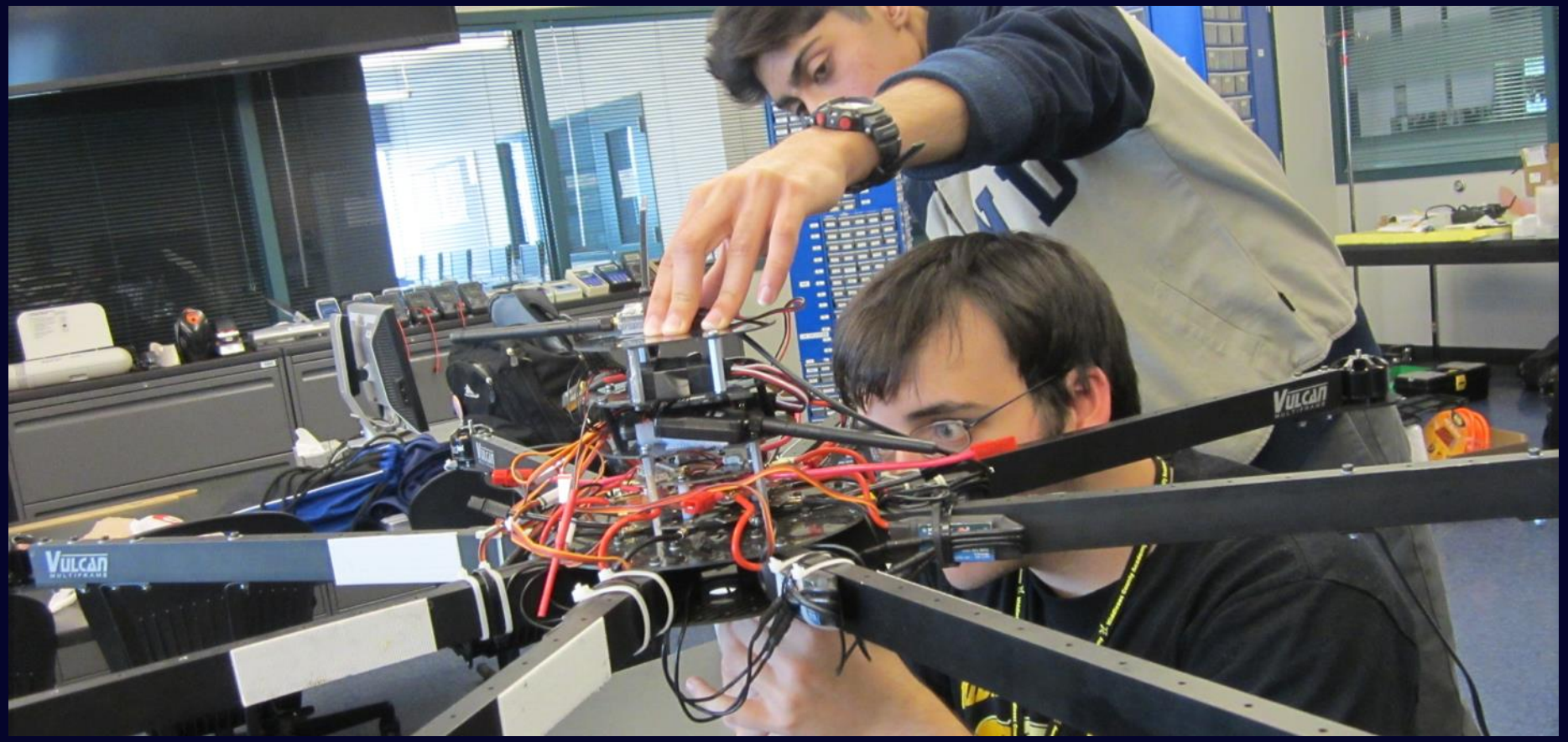
Davide Ghezzi
Cofounder

Drones are not robot yet. They need a pilot.

Or they need careful programming

```
usage: module load <na
STABILIZE> module load
DroneAPI loaded
Loaded module droneapi
STABILIZE> api list
API Threads:
STABILIZE> api start s
Arming and taking off
STABILIZE> Got MAVLink
timeout setting ARMING
Waiting for arming...
Waiting for arming...
Waiting for arming...
Waiting for arming...
APM: ARMING MOTORS
APM: GROUND START
Waiting for arming...
APM: Initialising APM.
Got MAVLink msg: COMMA
Waiting for arming...
ARMED
Taking off!
```

And their battery needs to be recharged often



What is a truly gamechanging solution?

Fully autonomous, robotized drones, intelligently auto-recharging

Drones

Reliable products available in the market + wheels

Wheels for autonomous, non-precise landing

Fully autonomous, robotized drones, intelligently auto-recharging

Drones + **Landing / recharging stations**

Reliable products available in the market + wheels

Autonomous, non-precise landing even under adverse weather conditions

Recharging station: docking 4 to 8 drones

Archon

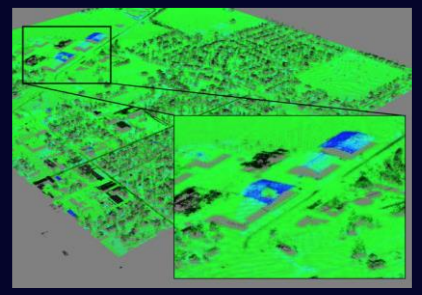
Fully autonomous, robotized drones, intelligently auto-recharging

Drones + **Landing / recharging stations** + **Artificial Intelligence**

Reliable products available in the market + wheels

Autonomous, non-precise landing even under adverse weather conditions

Optimized Flight Randomized patrols Automatic drone switching



Lidar 3D Map Integration Real-time video Response to alarm

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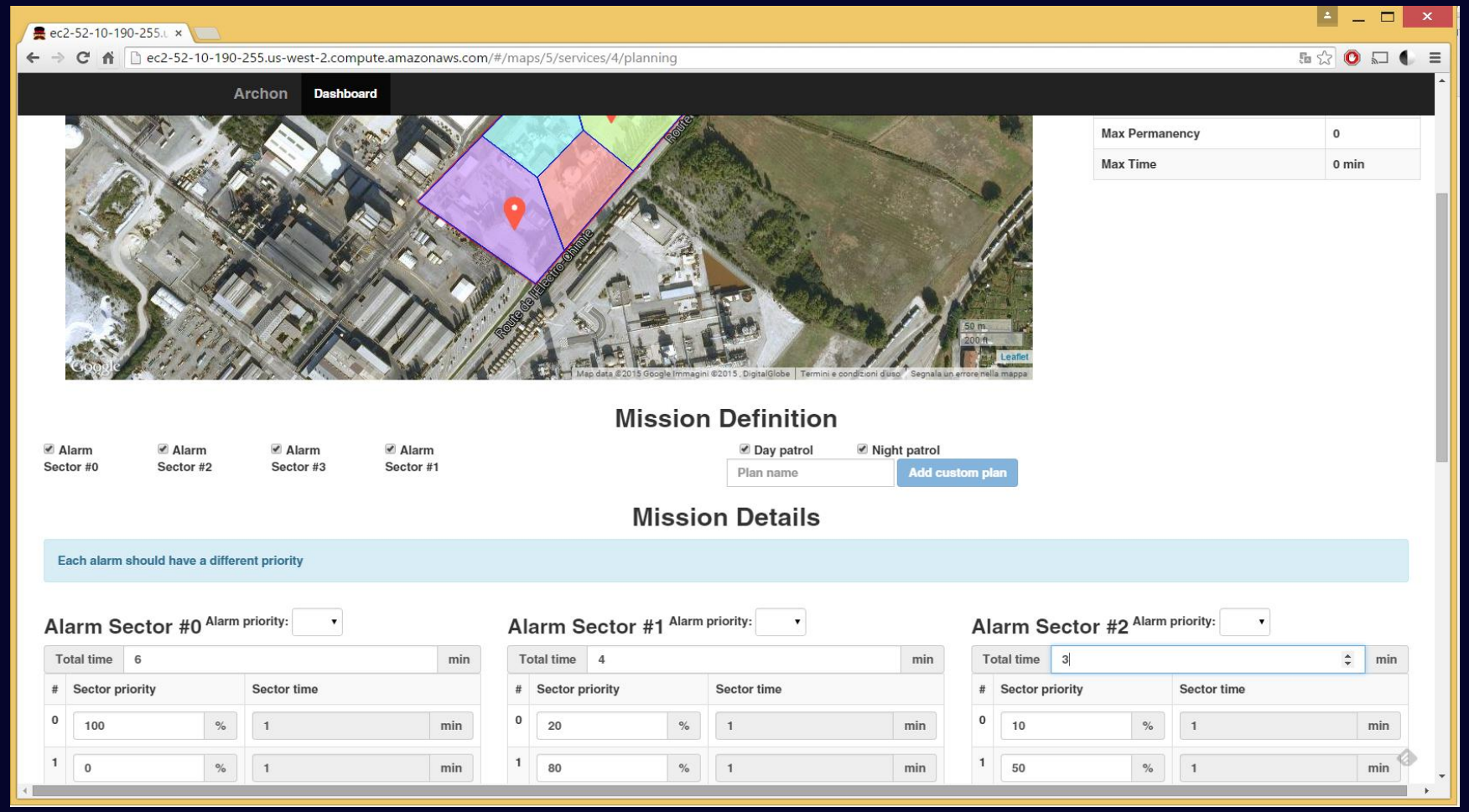
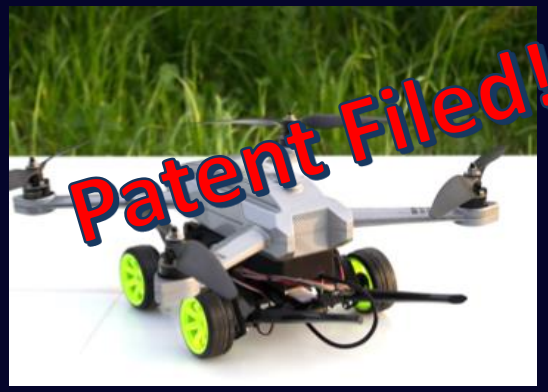
Mission planner for non-experts, non-pilots



Intellectual Property

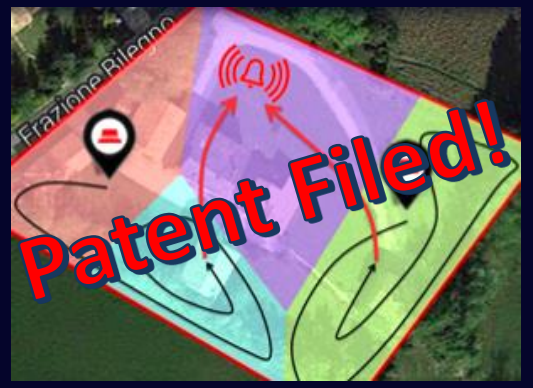
Control of fleet of Drones

Auto Land & Recharge



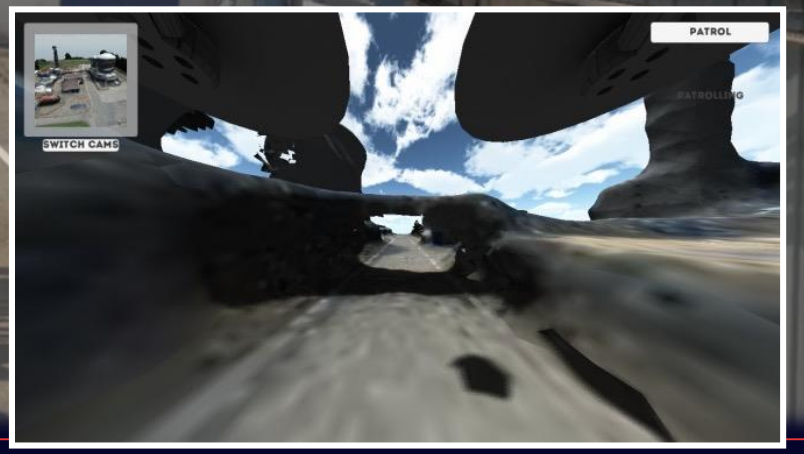
+

Flight intelligence



Data analysis & report

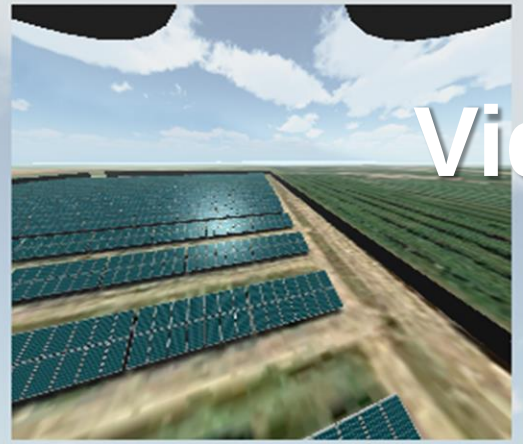
Automatic inspections (chemical)



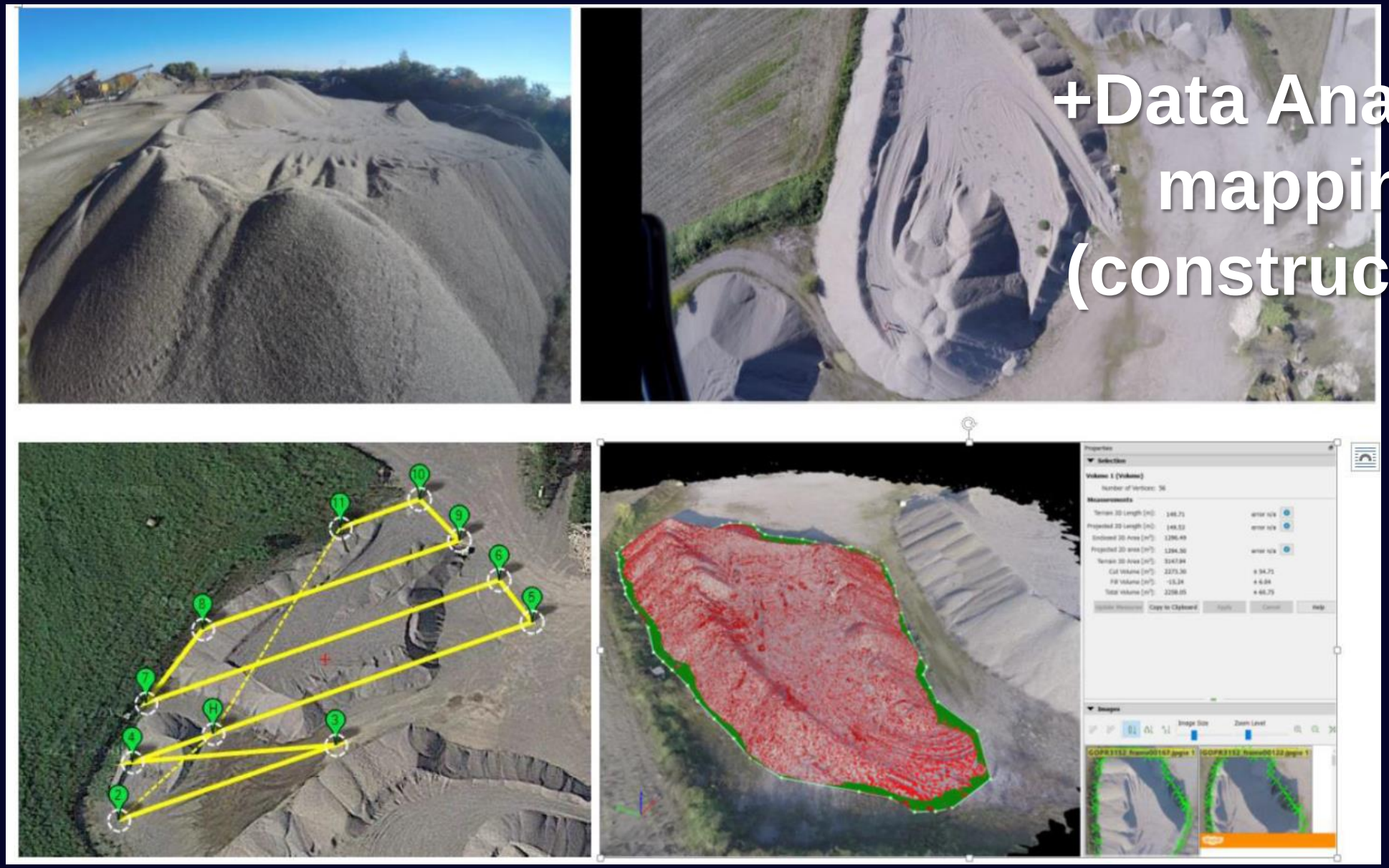
+Automatic inspections (energy)

+Automatic inspections (dams)

Videosurveillance (solar)

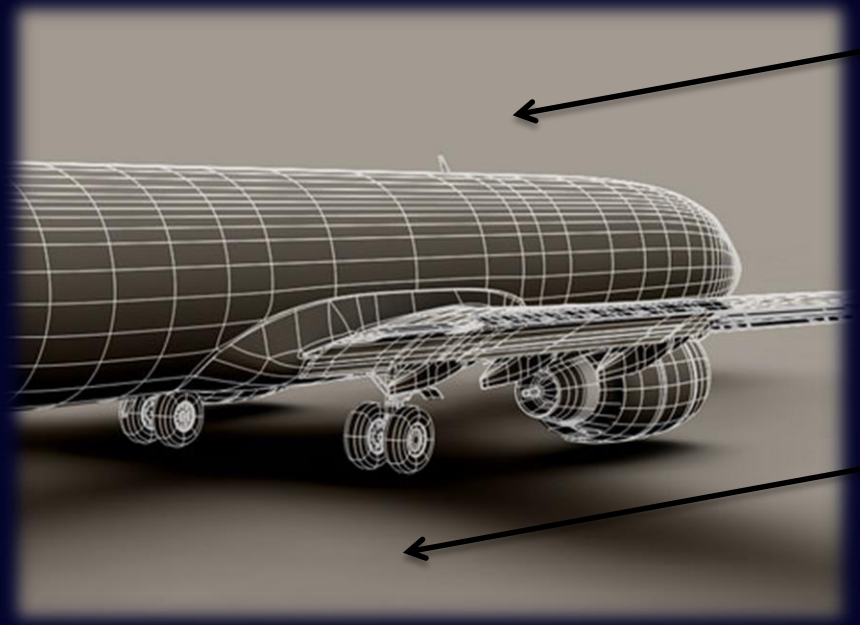


SWITCH CAMS



+Data Analysis mapping (construction)

Aircraft inspections



Pre-existing 3D model

Flying Drone

Mobile Recharge Station and Robot

- **Move the system close to the aircraft**
- **Press a button, the AI understand where it is**
- **Get a quality report after 20-30 min**

Business Model

Pre-contract engagement

- Feasibility study
- Virtual simulation
- Simple manned operations
- Collaboration with service providers

Test-bed experimentation

- Hardware installation and integration
- Different tests and models of interaction with personnel
- Set-up control room
- Set up reporting system

Deployment at scale

- Contract for 10+ installations for 3+ years
- End-to-end control of the solution, incl. maintenance
- Non-exclusivity deal (possible co-investment)

TOTAL

LAB

enel

AIR LIQUIDE

INGV

Archon

Team

Davide Venturelli

Cofounder, Acting CEO
PhD Physics & Simulations
Quantum AI international expert
20+ publications, 200+ citations
NASA Scientist & Manager

Roberto Navoni

Cofounder, CTO, Hardware PM
Lead company with 10+ engineers and with **20+ years experience in robotics** and **mechatronics**
International reputation in drone tech.

Giovanni Landi

CXO, 3D Programming, UX
Advanced computer Graphics and Animations
Researcher Virtual Reality
International VR awards

Davide Ghezzi

Cofounder, BuzDev.
MBA Columbia,
JP Morgan London,
Mediobanca, Solar PE fund.
2 start-up exits

Daniele Stanzani

Software PM
Senior Software Engineer,
10 years experience
Reliability Engineer **Ferrari** GP
Computer Security Expert

Ciro Farinelli

R&D Program Manager
Aerospace Engineer (Polytech MI)
Previously **Project Manager Airbus**
Jr. Researcher at KAIST (Korea)
Entrepreneurial startup experience

Fundraising plans

€ 500k bridge with “strategic angels” - now

€ 3.0m Round A - by end 2016

- Plan of attack of a large market **waiting to be disrupted** (security/inspection services $200B+)
- **Near-term plan**: recruiting, patenting, tests, feasibility studies, experimentations. Target: **First deployment of the system on a customer site by Q4 2016**
- Layered flexible business model, **several revenue streams**, ready for regulation changes.
- **Valuable IP**: robust drone landing with wheels, multi-uav strategy, station, virtual control room.

Thank you

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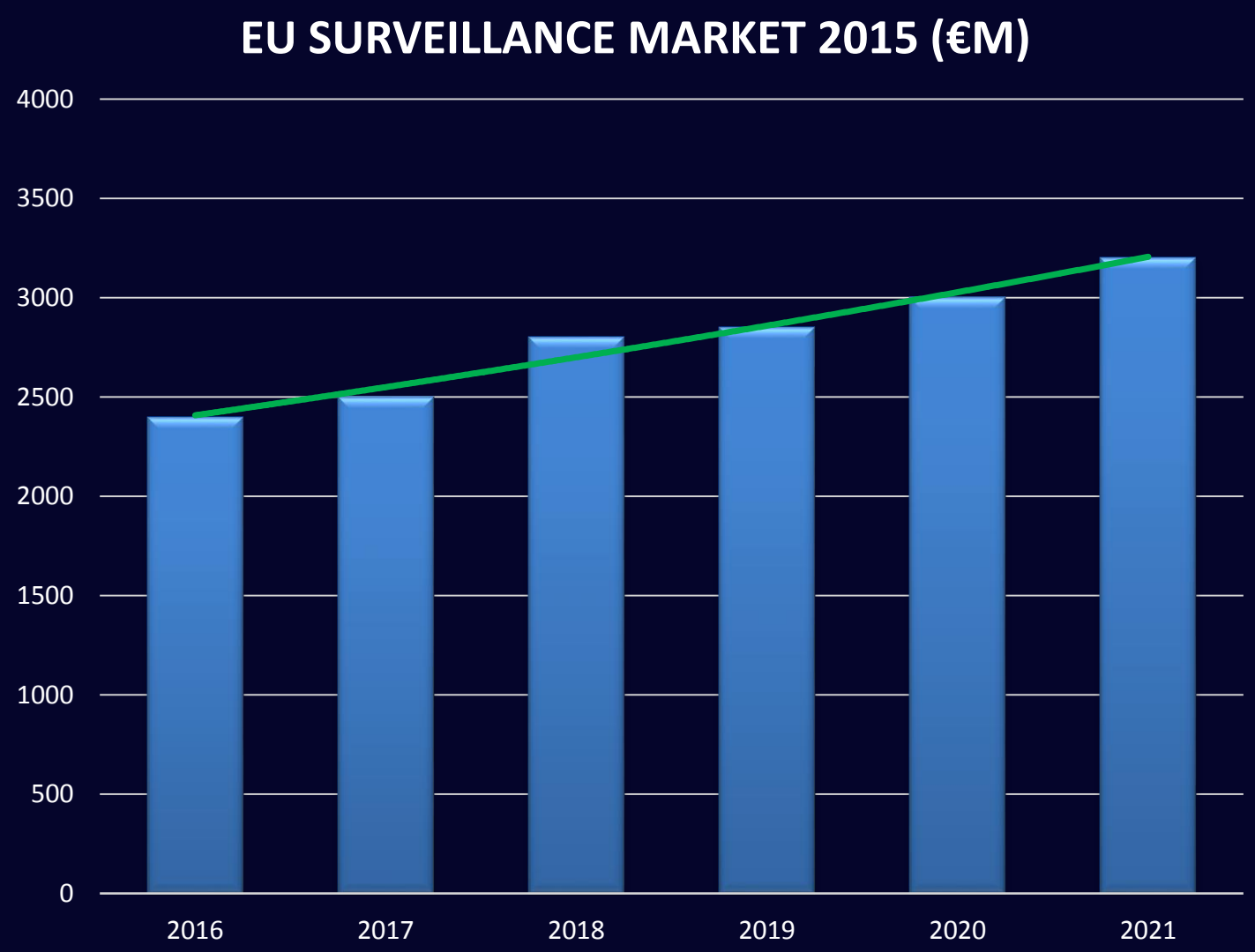
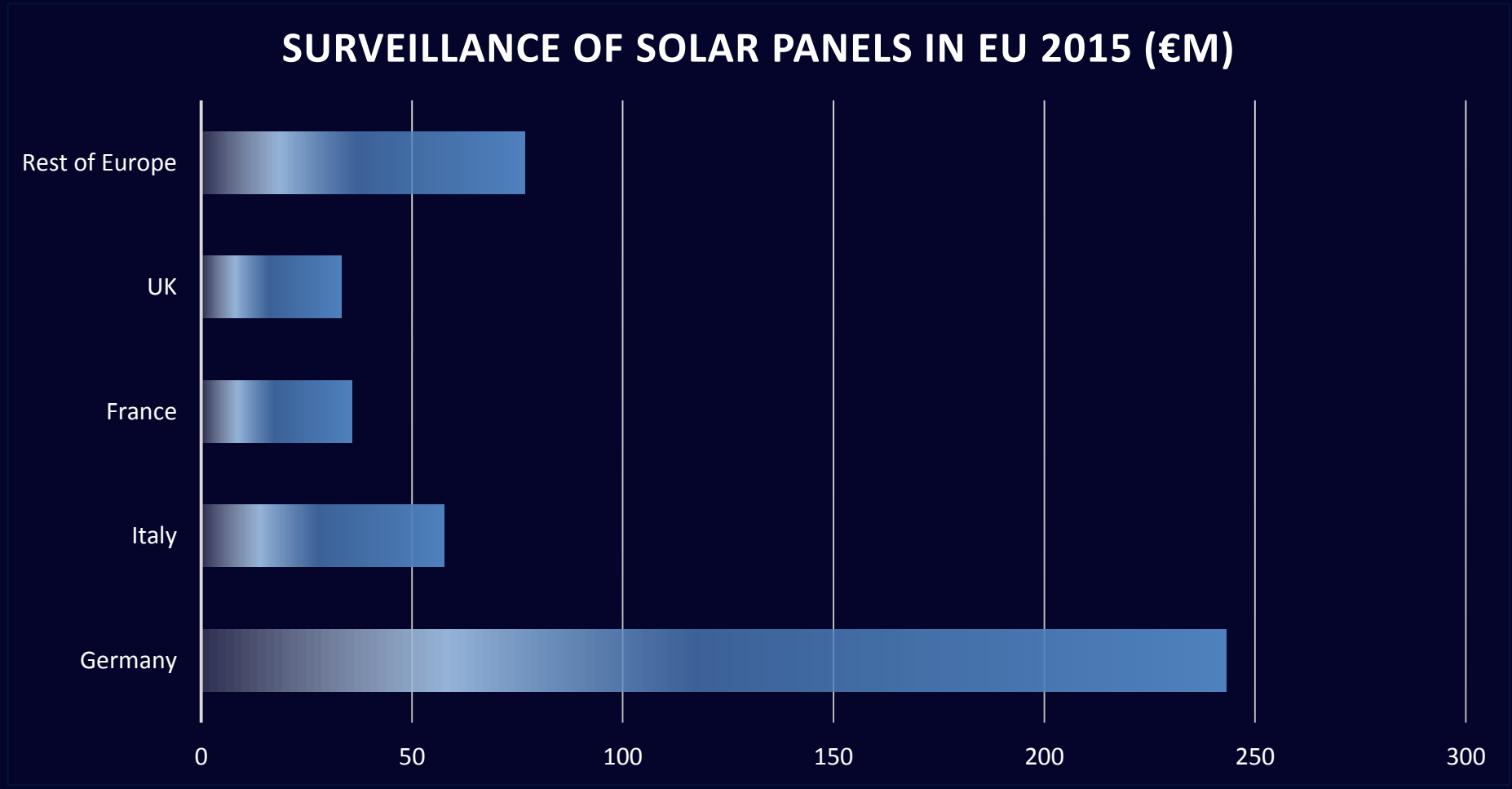
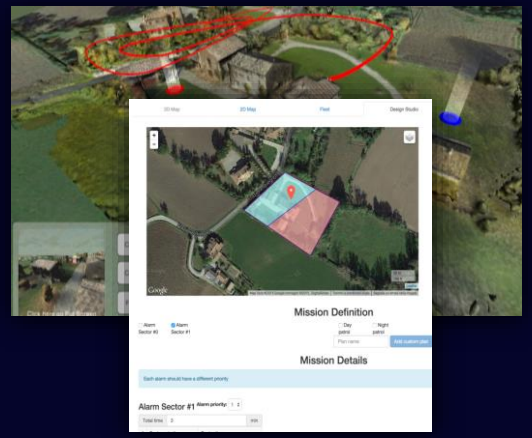

EU SURVEILLANCE MARKET 2015 (€M)
4000
3500
3000
2500
2000
1500
1000
500
0
2016
2017
2018
2019
2020
2021


SURVEILLANCE OF SOLAR PANELS IN EU 2015 (€M)
Rest of Europe
UK
France
Italy
Germany
0
50
100
150
200
250
300

Archon



- A.I. to plan fault tolerant missions
- GUI to design the service
- 3D Simulations of the service
- Landing and recharging modules
- Filed 2 provisional patents

- Mostly targeting photovoltaic and inspection of industrial assets
- Basic autonomous drone system with 2 drones and 2 stations for false alarm verification.

Significant traction with:

INGV, Enel, ENAV, AIR LIQUIDE, GREEN UTILITY

- Test different case studies with large value customers
- Increase the power of technology (interactions, artificial vision, Virtual Reality)

2016 2017

- Unique technology for auto-management of coordinated drones, using **state-of-art (drones API, 3D virtual reality) and beyond (NASA-like AI)**.
- Plan of attack of a large market **waiting to be disrupted** (security/inspection services $200B+)
- Secured funding from grants for tests and initiated more grants. No equity given, collected money will go to **new hires and better product**.
- Precise **near-term plan**: recruiting, patenting, tests, feasibility studies, experimentations. Target: **First deployment of the system on a customer site Q1-Q2 2016**
- Layered flexible business model, **several revenue streams**, ready for regulation changes.
- **Valuable IP**: robust drone landing with wheels, multi-uav strategy, station, virtual control room.

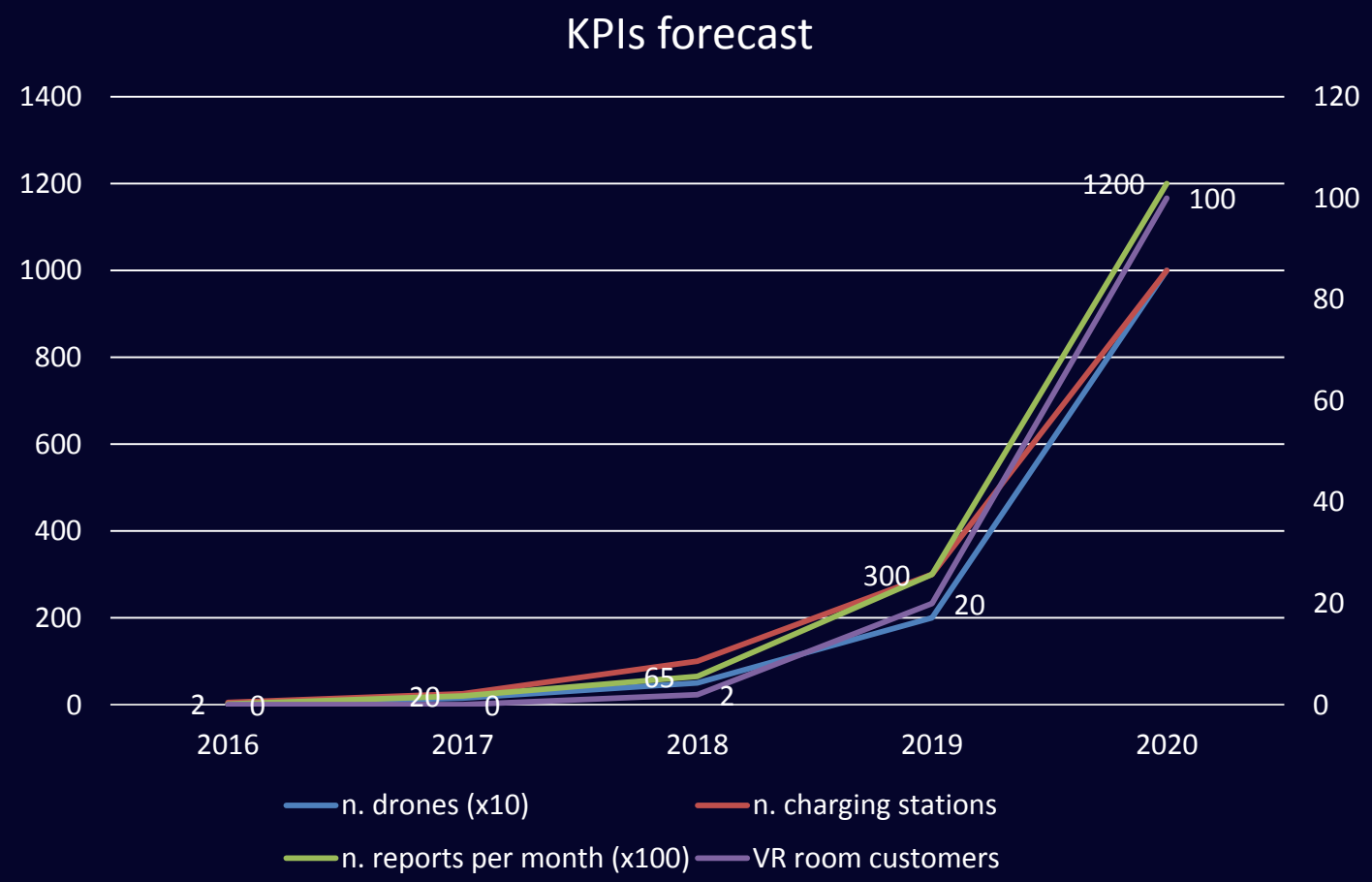
Projections: round A investment €3M

- Assumption of getting 1.5M€ grants for R&D, with LaserNav
- Sought valuation: 20-30M€ depending on the agreement with LaserNav

	Total	2016 (Q3-Q4)	2017	2018 (Q1-Q2)
Grants/Revenues PIRD Project	€1,500,000	€250,000	€750,000	€500,000
Acceleration PIRD Project	€300,000	€100,000	€200,000	€0
Indirect Costs	€540,000	€10,000	€30,000	€500,000
Additional workforce	€250,000	€50,000	€100,000	€100,000
Management	€420,000	€90,000	€150,000	€180,000
San Francisco (USA operations)	€400,000	€100,000	€100,000	€200,000
Legal / IP / Internationalization	€160,000	€40,000	€50,000	€70,000
Travel costs	€70,000	€10,000	€20,000	€40,000
Hardware Production Investments	€400,000	€50,000	€200,000	€150,000
Complementary QA and testing	€110,000	€0	€35,000	€75,000
Demos, experim. and marketing	€350,000	0	€50,000	€300,000
	€4,500,000	**€700,000**	**€1,685,000**	**€2,115,000**

KPIs

- Number of flying drones and charging stations
- Quantity of Data going through Archon Sentinel Cloud
- How many customers the Virtual Reality Room is serving



Go To Market Plan

2016

- ✓ Sentinel Software Cloud Architecture Validation
- ❑ Artificial Intelligence Architecture
- ✓ Commitment from 2 big customers (Revenue more then 100MEUR)
- ✓ Pre Contract Engagement by 2 or more customers
- ✓ Commitment by Small Customers

2017

- ❑ Test Bed Experimentation for 2 or more Big Customers
- ❑ Virtual Control Room implementation
- ❑ Commitment by 3 more Big Customers
- ❑ Commitment by Small Customers
- ❑ Autonomous Flight Launch in South Africa

2018

- ❑ Full Running Technology within the energy sector
- ❑ Virtual Reality Operator Room fully working
- ❑ Autonomous Flight Launch in Europe
- ❑ Launch California offices

2019

- ❑ Break into the Aerospace MRO market
- ❑ Acquisition of 2 Big Customers

2020

- ❑ Fully implementation of the technology within Aerospace Sector