Powering the next generation of indoor devices

Partner Testimonials

The rapid growth of ioT combined with the high requirement of data storage, processing and transmision will become a big concern for the sustainability of the project. As such, any type of energy harvesting solution is welcome, if not absolutely mandatory.

ON Semiconductor

If a battery will provide sufficient power to operate a sensor product for its desired operating lifetime, then that will probably be the best design choice. If it can't, though, a good alternative design approach is to use an energy-harvesting device to supplement a rechargeable battery.

RENESAS

Solutions exist that are logical more than just ecological, that can create jobs and generate profit while also reducing polluting emissions and preserving natural resources.

SOLAR IMPULSE EFFICIENT SOLUTIONS 1000

How we are powering IoT today

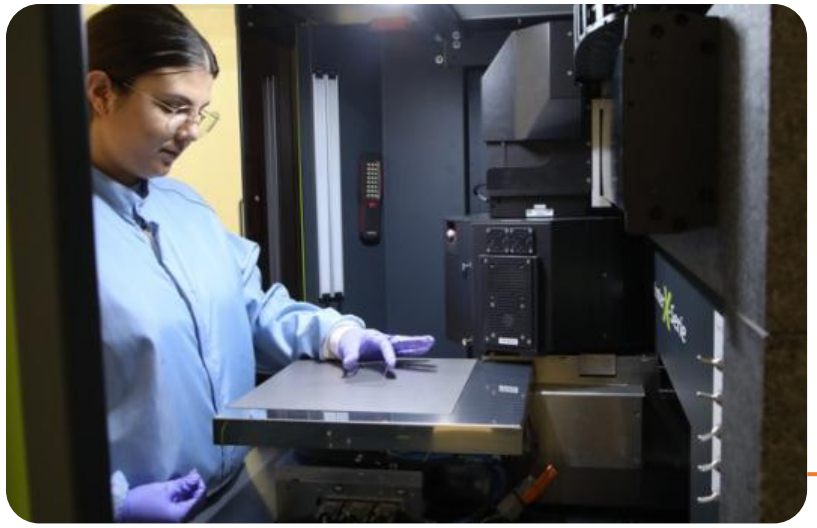
Billions of IoT are expected to be installed over the coming years with almost half connected in indoor environment.

Currently, the use of batteries to power these devices places significant constraints on this development.

- Maintenance
- Environmental footprint
- Development constraint

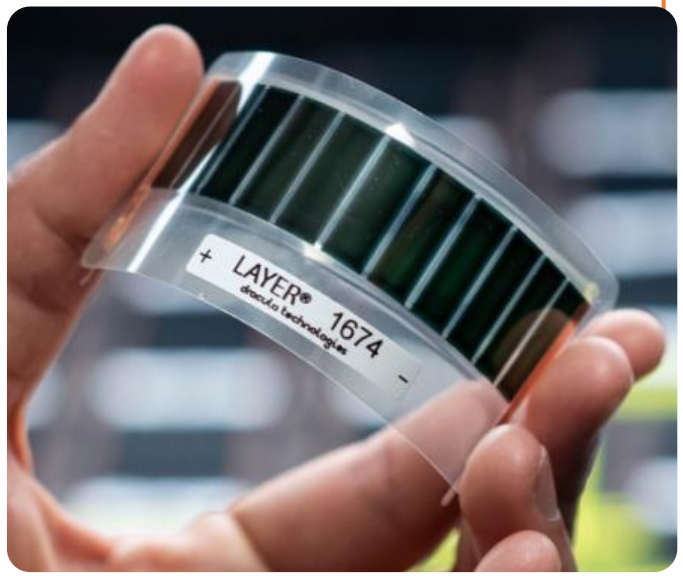
Energy harvesting has the potential to solve these hardware issues, providing greater reliability and operational lifetimes in wireless sensor networks.

Dracula Technologies relies on organic photovoltaic



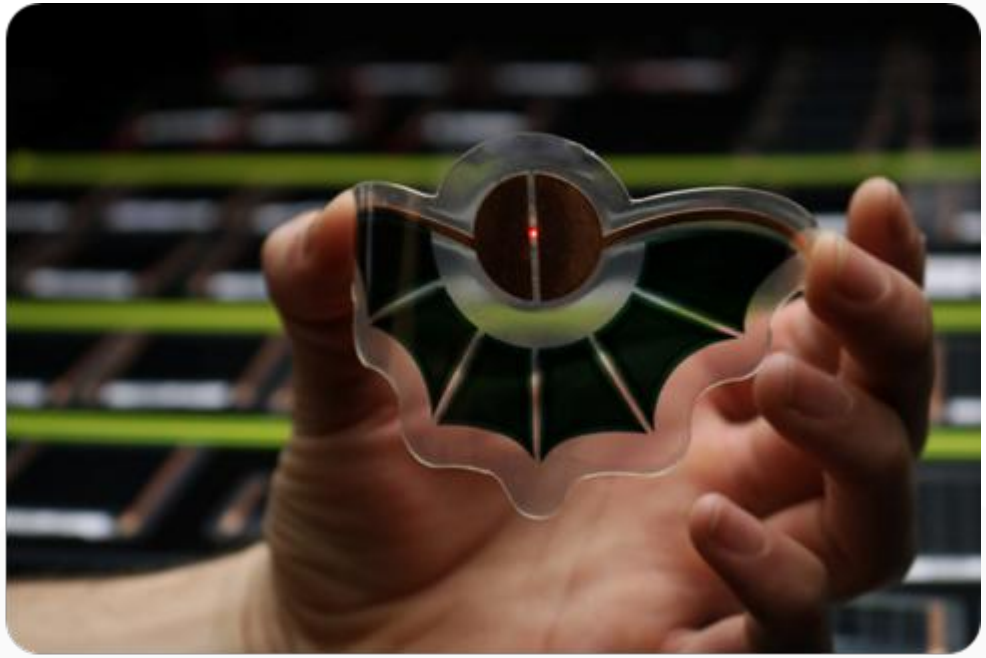
Our Mission

Using ambient light to power the next generation of indoor devices using inkjet printed technology :
LAYER® (=Light As Your Energetic Response).



SOLARIMPULSE EFFICIENT SOLUTIONS
OUR CHALLENGE
1000

LAYER® : Organic Photovoltaic Cells by Inkjet Printing



Energy from Ambient Light

Can power industrial devices in low light (natural or artificial) conditions.

35 µW/cm2
under 1000 lux

Adaptable & Customizable

Free shape design and on demand electric features.

GreenTech

No rare earths or heavy metals such as lead are used. Mainly carbon based material.

0,35 years energy payback time
10,7 g C02-eq/kWH

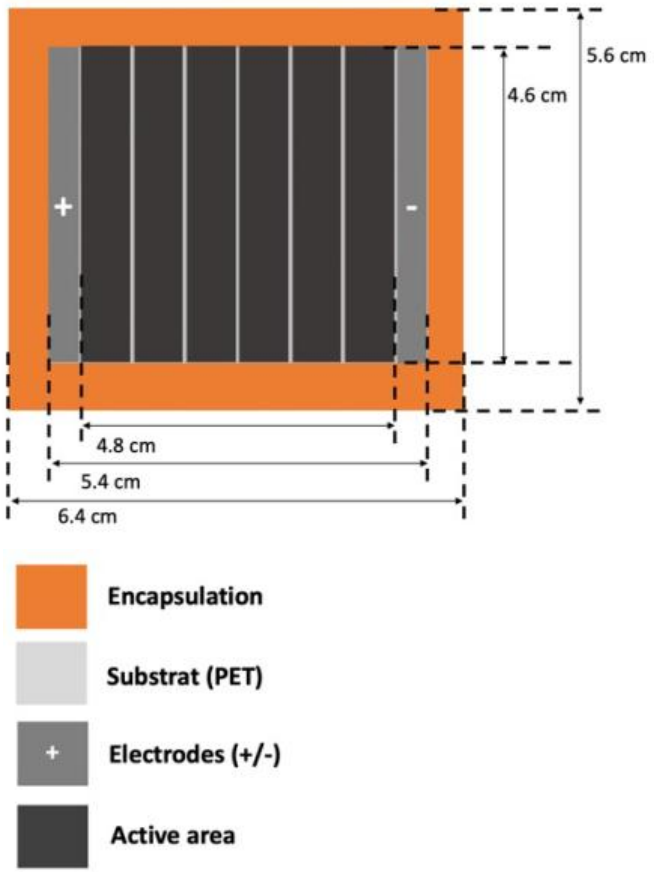
Low Cost

Low TCO (Total Cost of Ownership) due to a significant reduction of maintenance costs.

LAYER® module

Organic Photovoltaic (OPV) standard module

6 interconnected cells in series



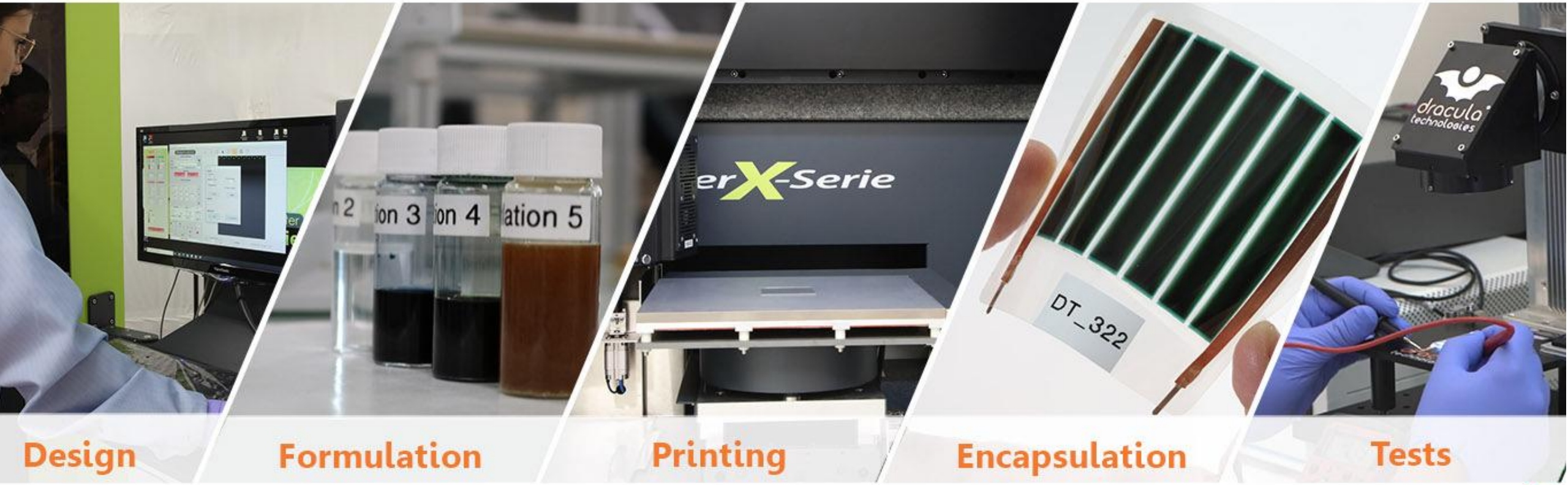
Illuminance(lux)	Voc(V)	Isc(µA)	Vmax(V)	Imax(µA)	Pmax(µW)
50	3 - 3.2	13 - 15	2.35 - 2.45	10 - 11	23 - 27
100	3.25 - 3.3	30 - 35	2.55 - 2.65	24 - 27	61 - 72
200	3.4 - 3.5	55 - 65	2.7 - 2.75	45 - 55	121 - 151
300	3.55 - 3.6	75 - 85	2.80 - 2.85	65 -75	182 - 214
400	3.6 - 3.65	100 - 110	2.85 - 2.9	85 - 95	242 - 275
500	3.65 - 3.68	130 - 140	2.80 - 2.85	105 - 115	294 - 328
1000	3.7 - 3.8	245 - 255	2.85 - 2.9	200 - 210	570 - 609

Luminosity	Best Performance	Standard performance
AM1.5* (+/- 100 000lux)	13,2%	10,2%
1000 lux	26%	22-24%

* Exactly 100 mW/cm² equivalent to 100 000 lux

Measure imanp

LAYER® Process



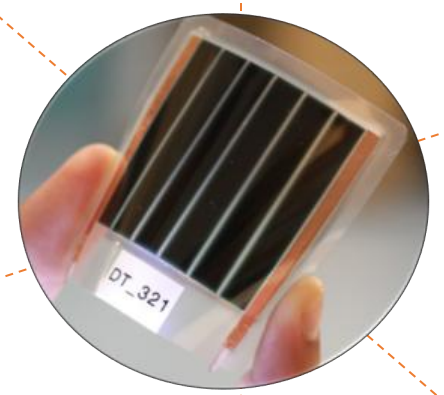
Design | Formulation | Printing | Encapsulation | Tests

Active materials — Conductive ink

Characterization

Materials & Ink
Substrates
Printed layers
Cells & Modules

Targeted market



- Tracking
  - Asset geolocalisation
  - Shipping monitoring
- Smart home
  - Home automation
  - Ambiance control
  - Remote control
- Smart building
  - Security and surveillance
  - Energy management
- Smart cards
  - Access badge
  - Connected credit cards
- Industrial IoT
  - Air pollution detection
  - Security and surveillance
  - Workers safety
- Healthcare
  - Integrated portable sensor
  - Beacons
  - Bike/Motorbike active helmet

Reduce by 4 times your Total Cost of Ownership (TCO)

↘80%
Battery Maintenance

>10
Years Lifetime

Autonomous sensor powered by LAYER®.
Provide temperature and humidity information

Why LAYER® to power smarthome device ?

Reduced TCO
(Total Cost of Ownership)

Environmentally friendly

Free-form design

Better performance than other PV technology in low-light condition

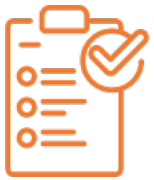
Want to work with us ?

We offer you collaboration and supply to develop and produce next-generation IoT.

LAYER® Labs

LAYER® Factory

1 Analysis and Recommendations



2 Project Orientation and Feasibility

3 Design/Prototyping Detailed options

4 Pre-industrialization

5 Production

€ 5K

€ 10 - 20 K

€ 20 – 35 K

Price according to the number of pieces produced **€ 35 – 50 K**

Price according to the number of pieces produced **€100 - 500 K**

20 Members

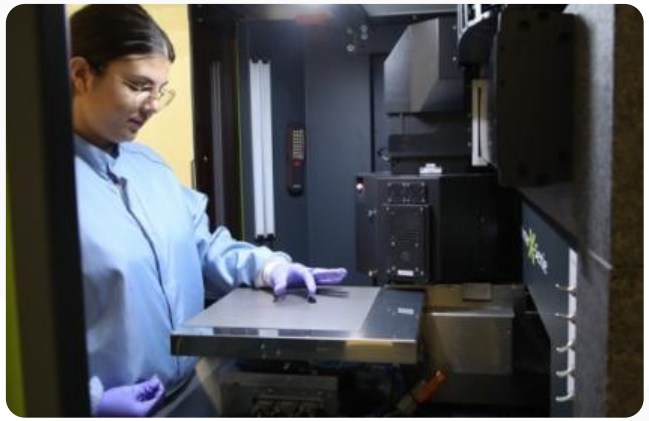
6 +4 Patents

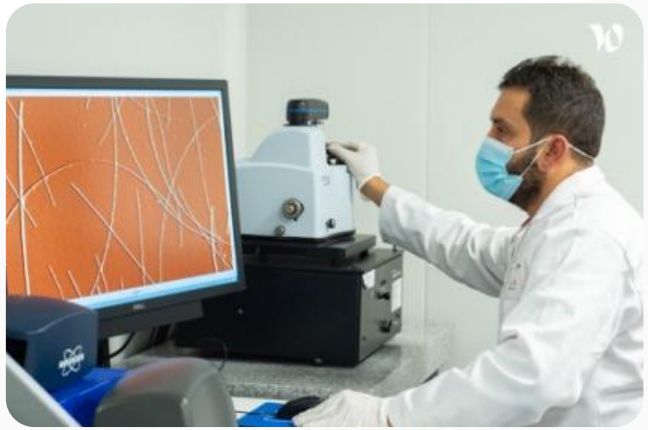
80% Tech

64 Publications

4 PhD

Our Team





From Lab to Fab

First POCs
Powering auonomous IoT devices with LAYER®

2 patents filed
Concerning materials and modules

1st OPV module all-inkjet
Conception of the 1st OPV modules with all the five layer inkjets

Round A €2.4M

First Pre-Series

R&D
New raw materials

International network
Distributor partner for US and Asian Market

2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024

TRL 4 | TRL 5 | TRL 6 | TRL 7 | TRL 8 | TRL 9

Initial investment €2M FoF

LAYER® line
Installation of the new pilot line for the POC conception in VALENCE (26)

2 patents filed
Concerning materials and modules

LAYER® line V2
Installation of the pre-industrial line in collaboration with MGI Digital Technology

1 patent filed
Concerning the structure of the modules

3 patents pending
Concerning structure and application

Pre-Industrialization
1000K pcs

Industrialization
5000K pcs

You can find us on :

Youtube Channel

We explain our technology in some videos and more :

The Harvesting Revolution

Want to know more about Energy Harvesting tech and market ? Join The Harvesting Revolution, the newsletter launched by our CTO Sadok Ben Dkhil.

Our blog

We talk about corporate and tech news in detail

Social Media

Our latest news in few sentences

LAYER®,

Be your own sustainable energy

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