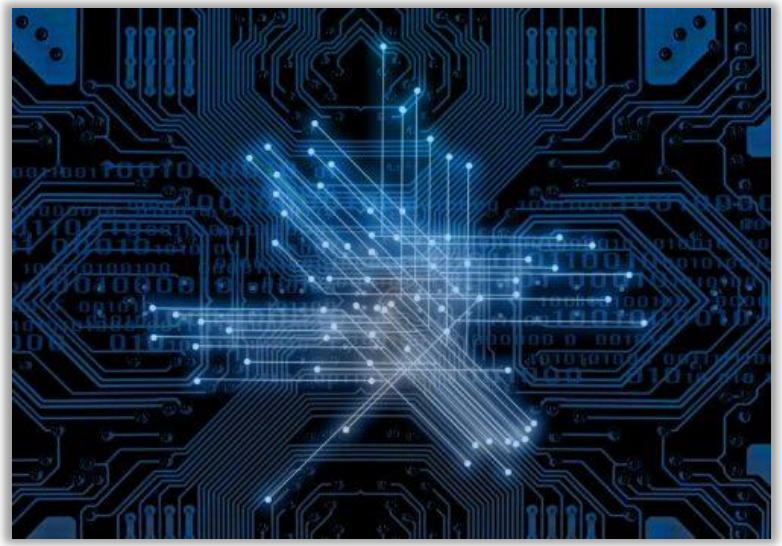
METABUILDING 1st GROW / HARVEST CALL : MEET THE WINNERS !

metabuilding

Unleashing the Innovation Potential of EU Construction SMEs

Construction + ICT Challenge



- Monitoring and managing building energy / comfort / health performance in buildings
- New BIM and digital tools for SMEs

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Digital MECODI

Improve Safety and Operations in Underground Construction of Tunnels

SECTORS INVOLVED : Construction · Digital Industry

tailored:systems
SPAIN

GEOCONTROL desde 1982
SPAIN

DFM
CONSEIL . EXPERTISE . INGENIERIE
FRANCE

"Applying all these new technologies, the underground construction sector will have a new way to make more secure its projects, with alarm and warning signals in real-time, at a cheaper cost, and more safety for its workers, reducing the need of on-site visits to retrieve data and maintenance of equipment located in risky areas."

David Gomez
Tailored:Systems · Chief Sales Officer

"DFM-Europe's mission is to develop measurement sensor from its latest innovation IoT Prototype Smart One hardware platform (to design "tailor-made" IoT sensors currently embedding LoRa radio communication modes, BLE or NFC). Our teams will design these new functional sensors in temporary recordings, without compromising on quality and performance."

Frédéric Plourde
DFM-Europe · Président

DFM-Europe

In Brief

DFM
CONSEIL . EXPERTISE . INGENIERIE

IoT solution designer

Hardware | Firmware | Software

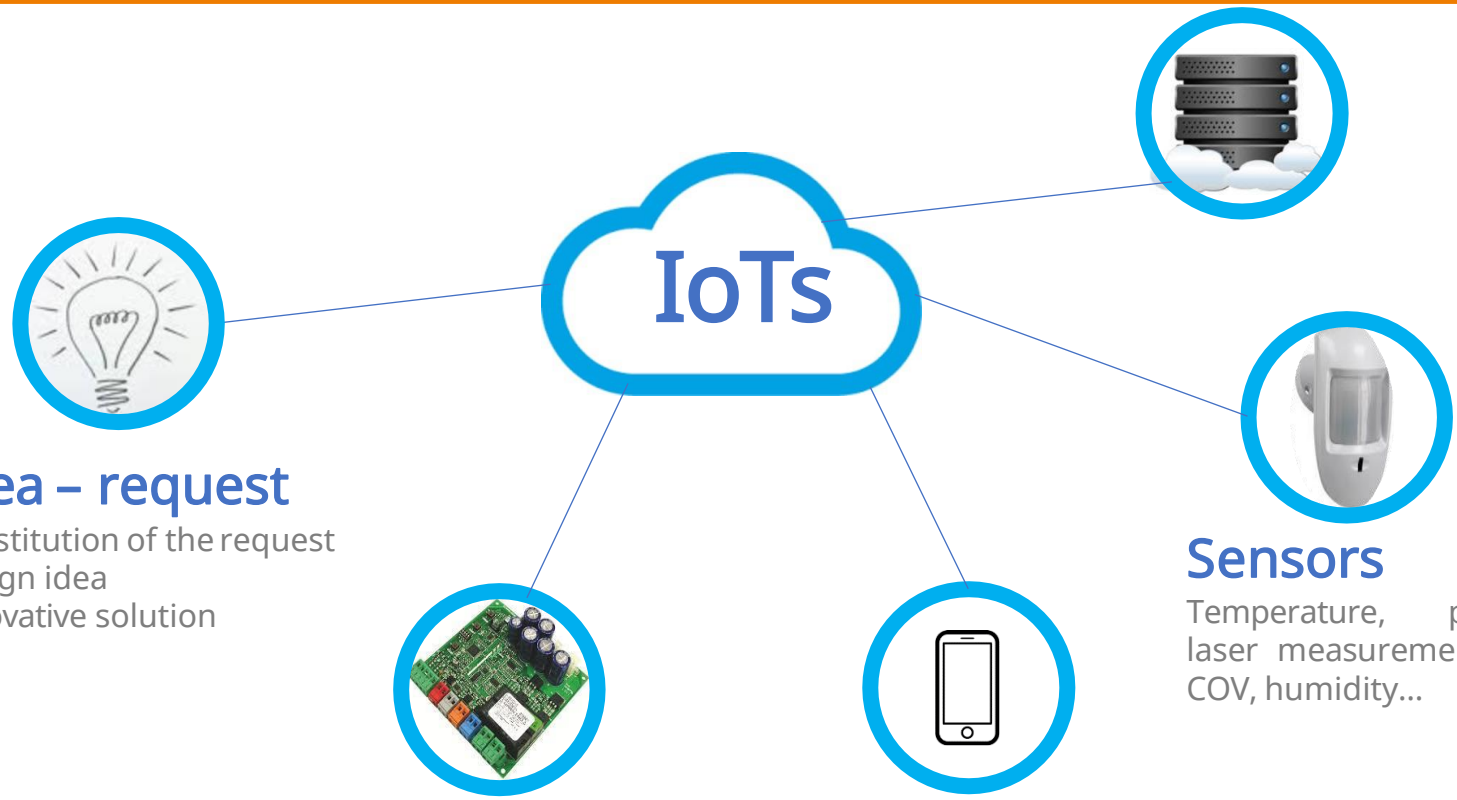
International network

presence in Europe (head office), Asia and South America

Innovative and R&D

DFM-Europe

Our Turnkey IoT solution



Idea – request

Constitution of the request
Design idea
Innovative solution

PCB + Micro processor

RF communication, Wi-Fi, Bluetooth, 4G
Autonomy solution
Design, Manufacture, Assembly
Testing and validating

Mobile app

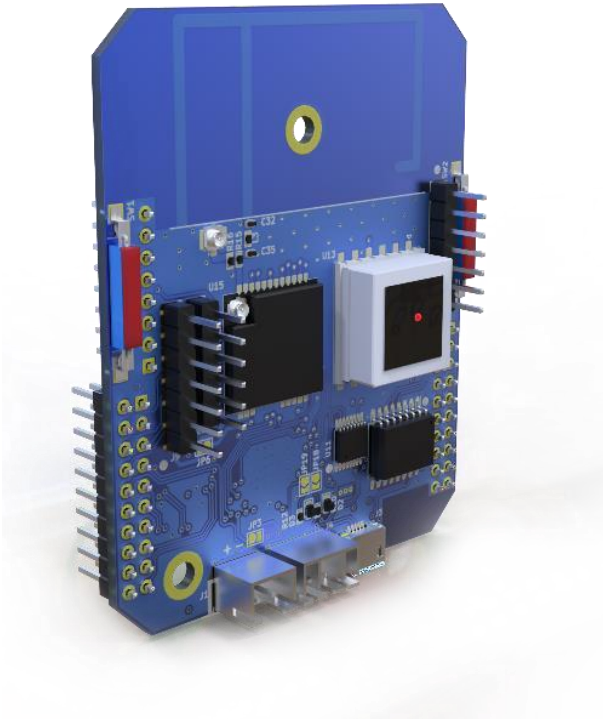
UX design
Coding
Test Validation
Communication with sensors

Sensors

Temperature, pressure, laser measurement, CO2-COV, humidity…

DFM-Europe

Prototype Smart One



- A complete IoT plateform solution
- Adaptative and connectivity
- 2 months for prototype – Ready for industrial process

Launched by DFM-Europe in 2022, PrototypeSmartOne lays the foundation for new IoT standards! From PSO, our teams offer new functional sensors in record time, without compromising on quality and performance.

Digital MECODI

Our group

DFM
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tailored:systems

GEOCONTROL

Product Definition

Laser sensor

M88B Module Specification 19.1

Accuracy	±1~3mm (0.04 ~0.11inch)
Measuring Unit	meter/inch/feet
Measuring Range (without Reflection)	0.03-40m or 60m
Measuring Time	0.3~4 seconds
Laser Class	Class II
Laser Type	635nm, <1mW
Size	45*25*12mm (±1 mm)
Weight	About 10g
Voltage	DC2.0~3.3V
Electrical Level	TTL/CMOS
Frequency	3Hz
Operating Temperature	0-40 ℃ （32-104 ℉ ）
Storage Temperature	-25~60 ℃ (-13~140 ℉)

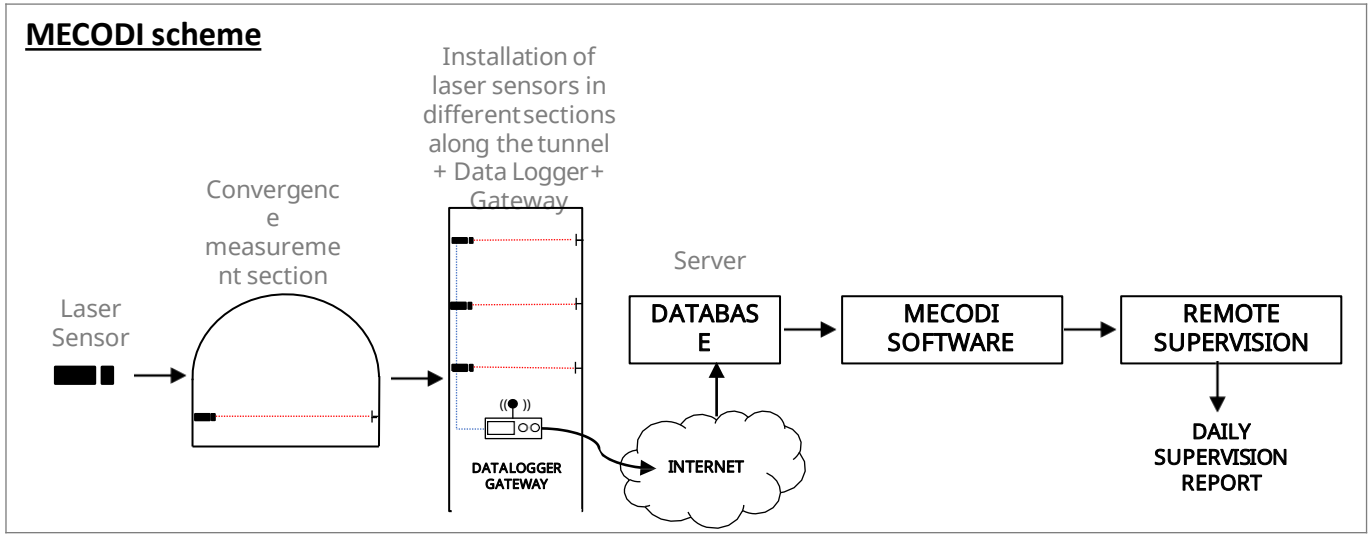
Repeatability of 40 ppm means 40 percent per million (40 ppm => 0.004%)

- for 60 m => repeatability is 2.4 mm
- for 40 m => repeatability is 1.6 mm
- for 20 m => repeatability is 0.8 mm
- for 10 m => repeatability is 0.4 mm

Product Definition

Selection of enclosure box

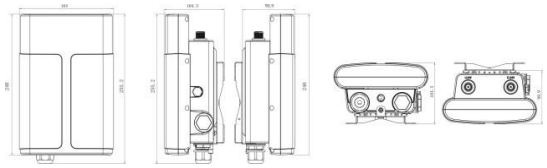
- Made of ABS
- 5 prototypes with casing
- DOWNLINK for changing frequency of measurement



Product Definition

Gateway

Milesight UG67 Outdoors



◆ Specifications

Hardware System	
CPU	Quad-core 1.5 GHz, 64-bit ARM Cortex-A53
Memory	512 MB DDR4 RAM
Flash	8 GB eMMC
LoRaWAN	
Antenna	2 × Internal Antennas + 2 × 50 Ω N-Female External Connectors
Channel	8 (Half/Full-duplex)
Power Supply and Consumption	
Power Input	1. 1 × 802.3 af PoE input 2. 12 VDC with M12 Connector
Power Consumption	Typical 3.6 W, Max 4.8 W
Physical Characteristics	
Ingress Protection	IP67
Dimensions	240 x 164 x 90.9 mm (9.45 x 6.46 x 3.58 in)
Installation	Wall or Pole Mounting
Environmental	
Operating Temperature	-40°C to +70°C (-40℉ to +158℉) Reduced Cellular Performance Above 60°C
Storage Temperature	-40°C to +85°C (-40℉ to +185℉)
Ethernet Isolation	1.5 kV RMS
Relative Humidity	0% to 95% (non-condensing) at 25°C/77℉
Approvals	
Regulatory	CE, FCC, RCM,TELEC, ANATEL
Environmental	RoHS

Frequency Band	CN470/IN865/EU868/RU864/US915/AU915/KR920/AS923-1&2&3&4
Sensitivity	-140dBm Sensitivity @292bps
Output Power	27dBm Max
Protocol	V1.0 Class A/Class B/Class C and V1.0.2 Class A/Class B/Class C
Ethernet Interface	
Port	1 × RJ45 (PoE PD supported)
Physical Layer	10/100/1000 Base-T (IEEE 802.3)
Data Rate	10/100/1000 Mbps (Auto-Sensing)
Interface	Auto MDI/MDIX
Mode	Full or Half Duplex (Auto-Sensing)
Wi-Fi Interface	
Antenna	Internal Antenna
Standards	IEEE 802.11 b/g/n, 2.4GHz
Mode	AP or Client mode
Security	WPA/WPA2 authentication, WEP/TKIP/AES encryption
Tx Power	802.11b: 18 dBm +/-2.0 dBm (11 Mbps) 802.11g: 15 dBm +/-2.0 dBm (6 Mbps) 802.11g: 15 dBm +/-2.0 dBm (54 Mbps) 802.11n@2.4 GHz: 14 dBm +/-2.0 dBm (MCS0_HT20) 802.11n@2.4 GHz: 14 dBm +/-2.0 dBm (MCS7_HT20) 802.11n@2.4 GHz: 13 dBm +/-2.0 dBm (MCS0_HT40) 802.11n@2.4 GHz: 13 dBm +/-2.0 dBm (MCS7_HT40)
Cellular Interface (Optional)	
Antenna	Internal Antenna
SIM Slot	1 (mini SIM-2FF)

Product Definition

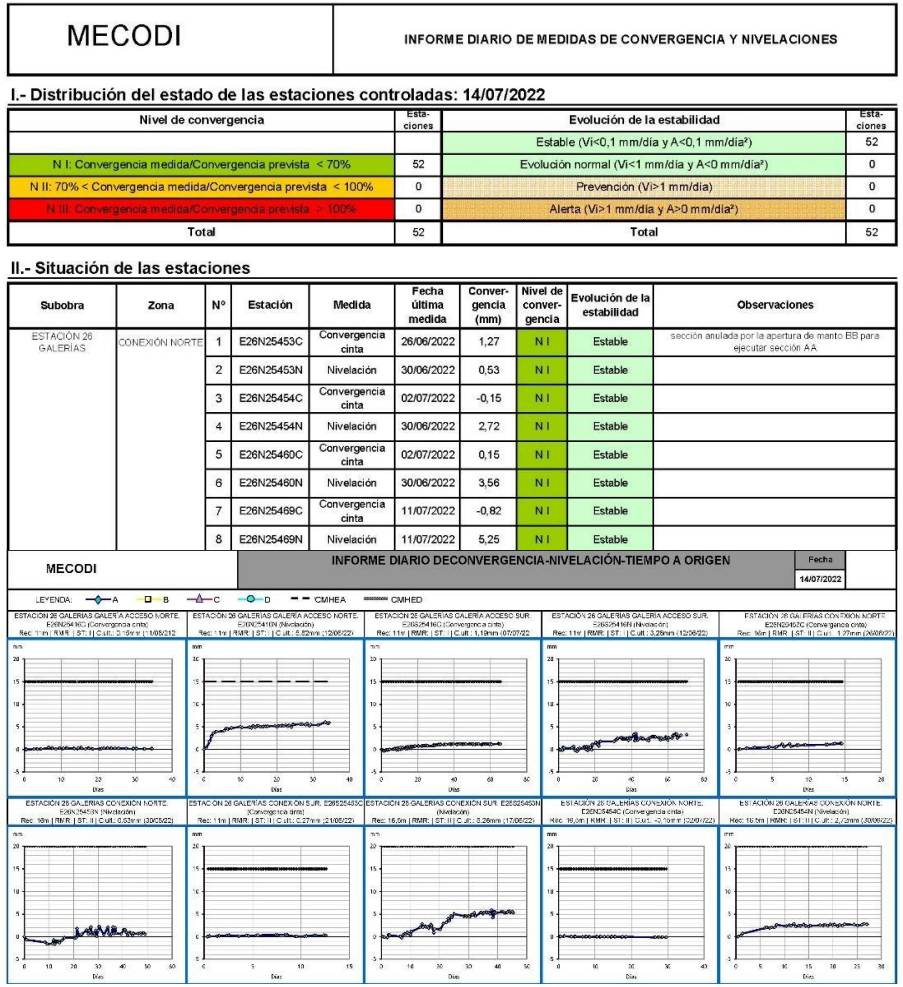
MECODI platform

MECODI Platform

- Import of readings.
- Management and analysis of convergence reading
- Alert and update system.

MECODI Supervision System

- System Performance Monitoring.
- Convergence Daily Report (See attached picture).
- Alarm Follow-up.



MECODI — INFORME DIARIO DE MEDIDAS DE CONVERGENCIA Y NIVELACIONES

I.- Distribución del estado de las estaciones controladas: 14/07/2022

Nivel de convergencia	Esta-ciones	Evolución de la estabilidad	Esta-ciones
		Estable (Vi<0,1 mm/día y A<0,1 mm/día²)	52
N I: Convergencia medida/Convergencia prevista < 70%	52	Evolución normal (Vi<1 mm/día y A<0 mm/día²)	0
N II: 70% < Convergencia medida/Convergencia prevista < 100%	0	Prevención (Vi>1 mm/día)	0
N III: Convergencia medida/Convergencia prevista > 100%	0	Alerta (Vi>1 mm/día y A>0 mm/día²)	0
Total	52	Total	52

II.- Situación de las estaciones

Subobra	Zona	Nº	Estación	Medida	Fecha última medida	Conver-gencia (mm)	Nivel de conver-gencia	Evolución de la estabilidad	Observaciones
ESTACIÓN 26 GALERÍAS	CONEXIÓN NORTE	1	E26N25453C	Convergencia cinta	26/06/2022	1,27	N I	Estable	sección anulada por la apertura de manto BB para ejecutar sección AA
		2	E26N25453N	Nivelación	30/06/2022	0,53	N I	Estable	
		3	E26N25454C	Convergencia cinta	02/07/2022	-0,15	N I	Estable	
		4	E26N25454N	Nivelación	30/06/2022	2,72	N I	Estable	
		5	E26N25460C	Convergencia cinta	02/07/2022	0,15	N I	Estable	
		6	E26N25460N	Nivelación	30/06/2022	3,56	N I	Estable	
		7	E26N25469C	Convergencia cinta	11/07/2022	-0,82	N I	Estable	
		8	E26N25469N	Nivelación	11/07/2022	5,25	N I	Estable	

MECODI — INFORME DIARIO DECONVERGENCIA-NIVELACIÓN-TIEMPO A ORIGEN — Fecha 14/07/2022

LEYENDA: A B C D CMHEA CMHED

metabuilding

Thank you for your kind attention

Project :
www.metabuilding-project.eu

Platform :
www.metabuilding.com

METABUILDING Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 873964. The European Commission and the European Innovation Council and SME Executive Agency (EISMEA) are not responsible for any use that may be made of the information it contains. The sole responsibility for the content of this document lies entirely with the authors.