



Interoperable IoT Solutions

BASED ON EDGE COMPUTERS

COMPANY PROFILE

JUNE 2020



WHO WE ARE

Innovative SME, established in 2007 by skilled people with R&D and industrial experiences:

- **Embedded Electronics (HW/FW)**, Wireless Sensors Networks, rapid prototyping,
- **ICT** (edge computing, web, cloud, communication protocols, IoT open-source Software Frameworks)
- **IoT enabling technologies**, Sensors → Edge → Cloud Data Retrieval and Cloud → Edge → Sensors Command & Control
- **Energy modelling**, Thermography Certified Operator.

TERA has gained valuable experience in the development of **custom electronics** *delivered to several companies and has contributed to the development of **original high-tech solutions** by participating in national and European cooperative R&D projects.*

WHO WE ARE

Tera's **partner network** enables the best personalized solutions to customers belonging to different industries.

PARTNERS/CUSTOMERS



ENTERPRISE INNOVATION AND COMPETITIVENESS WORKING GROUP:



Exprivia, Italtel, Bosch, Engineering, IBM, Energenia, OpenWork, Enel, E-Distribuzione, Politecnico di Bari, CNR, Ansaldo Caldaie, British Research Establishment, Barcelona Digital, Isotrol.



**ANTONIO
SACCHETTI**
CEO



**LEONARDO
CICI**
*Administrative
Manager*



**DARIO
DAMBRUOSO**
*SW Engineer -
Head of SW
Department*



**ANGELA
PALMIROTTA**
*BDM & Digital
Strategist*



**GAETANO
CARBONARA**
*Software
Engineer -
Head of FW
Department*



**GIUSEPPE
CICI**
*HW/SW
Designer -
Haed of HW
Department*



**MIRCO
BELLACOSA**
*Lab
Technician*



**LARA
D'ARGENTO**
*GrowthHacker
& Digital
MarCom*



**DANIELA
PORCELLI**
*Energy
Efficiency
Engineer*



**NICOLA
PRUNELLA**
*Service Cloud
Developer*



**VITO
SANTORSOLA**
*HW/ SW
Engineer*

AWARDS & ACKNOWLEDGMENTS



2020 Finalist at «Next Energy4» competition, promoted by Terna, Cariplo Foundation and Cariplo Factory.



2016 Selected to be part of FIWARE success story at IoT Solution World Congress and Smart City Expo World Congress



2016 Selected to be part of Engie Lab at VIVATECH LAB - Paris



2019 Selected by ICE to be part of Italian Pavillon @ World Mobile Congress



2016 Seal of Excellence awarded by UE
2016 CRIBIS D&B rating 1



2017 Selected to be part of Pioneers 500 competition



2015 INCENSE - INternet Cleantech ENablers Spark project



2016 Selected to be part of GSMA Mobile IoT showcase (NB-IoT technology)



2015 Part of "100 ITALIAN ENERGY STORIES", issued by ENEL and Symbola Foundation presented @ COP21 meeting, Paris 19th April 2016



2016 Finalist at BNP Paribas Cardif Open-F@b Call4Ideas



2015 Finalist @ South Summit, greatest Spain competition for SMEs and startups



INTELLECTUAL PROPERTY AND PATENTS

- Italian Patent for Invention, BEETA “Sistema intelligente per la diffusione di fragranza di profumazioni in un ambiente confinato, N. 102018000007878, filed 06.08.2018, patent pending
- Community Registered DESIGN of Beeta Smart Fragrance Diffuser, N. 005485 , 9/7/2018
- Copyright of the rules of the game and the Ecosystem in the Beeta App «Gioco and Ecosystema Beeta»; SIAE OLAF N. 2018000233, 16.02.2018
- Community Registered DESIGN of Beeta App main graphic elements, N. 004716470 , 20/2/2018
- Community TRADEMARK BEETATM, no. 015228752, Figurative mark «BEETA BUILDING ENERGY EFFICIENCY TRUSTED ADVISOR»
- Community Registered DESIGN: “BEETATM : BUILDING ENERGY EFFICIENCY TRUSTED ADVISOR” - Num. 003322692-0002 and -001 , 28/07/2016
- National and international Patent for Invention, BEETA “Intelligent system for monitoring a reference environment, suitable for multisensory interaction with a user” PCT/IB2017/057047 , priority Italian Patent N. 102016000114194, filed 11.11.2016, patent pending
- Italian Utility Model: “LETTORE DI SEGNALAZIONI OTTICHE, MEDIANTE TRASDUTTORI FOTOELETTRICI, ADATTABILE A QUALUNQUE TIPO DI CONTATORE” -filed 31-07-2015, N. 202015000040858N
- International patent, WO2011074025 , “ANTITHEFT SYSTEM FOR PHOTOVOLTAIC PANELS”, priority 14.12.2009 , GRANTED in: USA, US 8,736,449, Europe: No. EP 2513879, Italy: N. 0001397463
- ITALIAN Patent for Invention “SISTEMA UNIVERSALE DI ADATTATORI MODULARI PER INSTALLAZIONE RAPIDA DI SCHEDE ELETTRONICHE PER L'IMPIANTISTICA CIVILE E LA DOMOTICA» , granted, 20.04.2012, N. 0001393288.

WHAT WE DO

HOME and ENERGY PRODUCT LINE

End-to-end IoT solutions for monitoring & controlling



BEETA™ Ecosystem (HW/SW)*

- Beeta KIT
- Beeta Box, GloE (Edge Computers)
- BeetaPower (smart meter reader)
- Beeta Premium
- Beeta Game
- Beeta Moco
- *patent pending

R&D and ON-DEMAND PROJECTS

Strong HW and SW R&D Capabilities



Product's Life Cycle Mgmt

- New Products Design, Prototyping, Make
- Product Customizations
- Testing New Technologies e.g. Machine Learning/AI, 5G Comm,
- Algorithms Update, Make

EDGE COMPUTING PRODUCT LINE

HW Tools to link the Field and the Cloud



BEETA™ Box and GloE

- GloE DIN Rail mounting
- Beeta Box smart design case for Indoor
- Communication Protocols (10+ embedded, wireless and wired)
- Open-Source SW Tools and Frameworks

framework

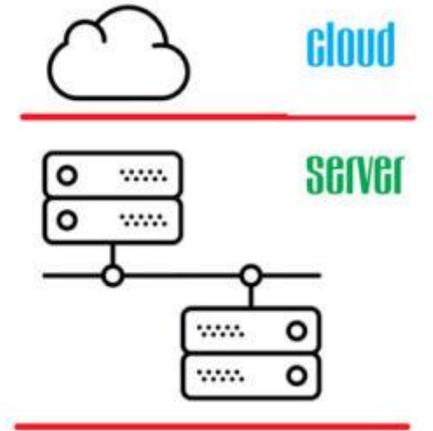
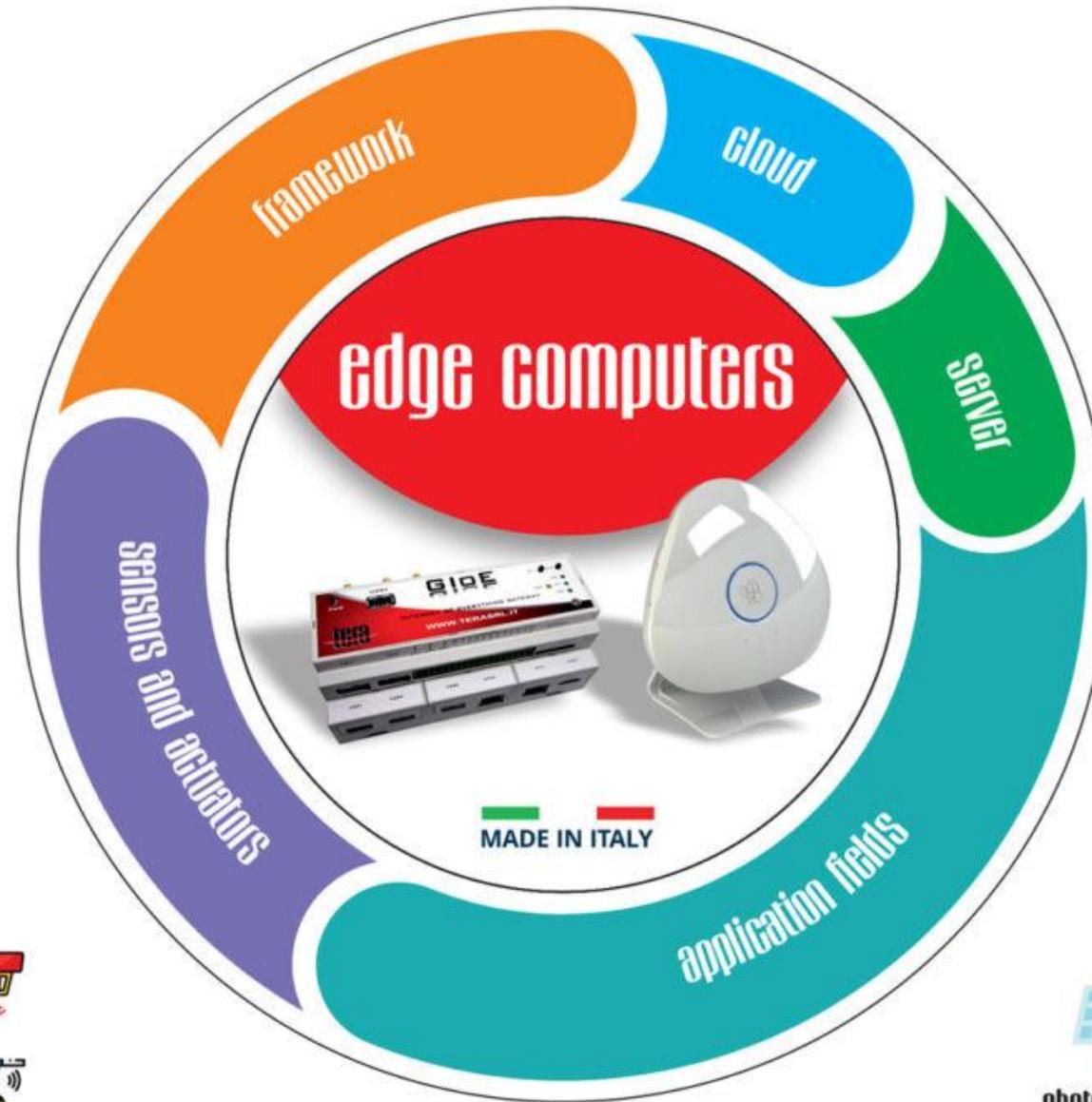
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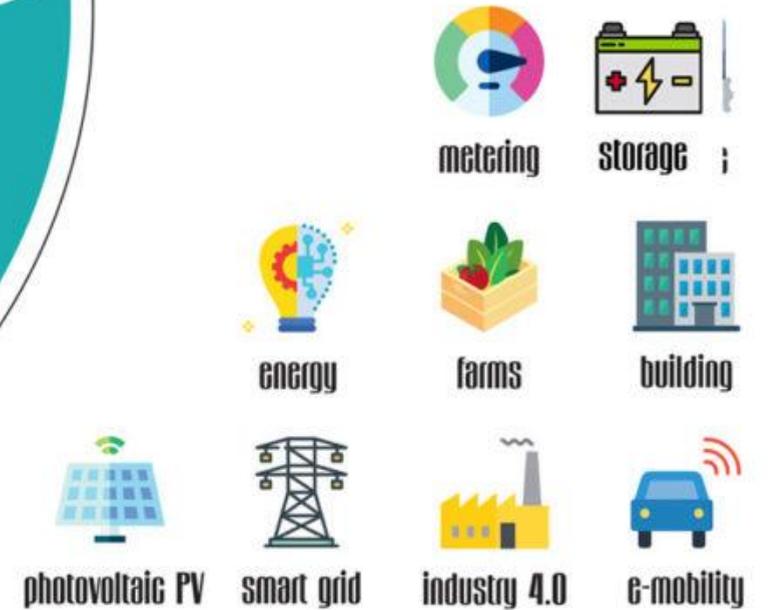
Interoperable with:



third parts sensors and actuators



application fields



Communication protocols: ZigBee, THREAD, LoRaWAN, Bluetooth, Wi-Fi, Z-WAVE, M-Bus, RS-485, adfms, LoRa, Modbus, BACnet, UMTS, GPS LOCATION, lte, NB-IoT, KNX, C-Bus

INTEROPERABLE EDGE COMPUTERS AND IOT DEVICES



Beeta Box

Edge computer for indoor, multisensory interface, OTA upgradable, sensors and actuators on board.



GloE

Industrial edge computer, DIN rail mounting for outdoor, multiprotocol, OTA upgradable, customizable.



Beeta MoCo

Modulation Controller managing bi-directional energy flows of battery storage inverters and other electrical equipments and loads, also in retrofit.



Beeta Reader

Plug&Play Smart Meter Reader, it reads 1G and 2G fiscal smart meters from e-distribuzione and FV production.

ADDRESSED MARKETS

SMART HOME/SMALL BUILDINGS

- Make Building Smart means enable Energy, Comfort, Security Measurements to analyze Inefficiencies and adopt Countermeasures
- Make Building Smart means engaging users

IoT, Artificial Intelligence, Machine Learning, Big Data Analytics are the enabling technologies to Smart Building



TERA PRODUCTS FOR SMART BUILDING & HOME



BEETA™ Game App
and
BEETA™ Premium
App for Home
+
Third Parties
Building Mgmt SW
Platforms



BEETA™ Box
and GloE™
Smart Multiprotocol
Gateway / Edge
Computer



BEETA™ Power
+
Sensors Suite
from Marketplace

ADDRESSED MARKETS

SMART HOME/SMALL BUILDINGS PRODUCT DETAIL

-  THERMOSTATIC VALVE
-  SMART METER READER
-  SMART PLUG
-  TEMPERATURE / HUMIDITY
Water Leakage
-  AIR QUALITY
-  PRESENCE MOVEMENT /
BRIGHTNESS
-  CONTACT SENSOR



DISPLAY



CAMERA



WEATHER STATION, CRACK METER, STRAIN GAUGE,
SOIL HUMIDITY, INCLINOMETER



THERMAL ENERGY



SMOKE DETECTOR



WATER/ENERGY
GAS METER



ADDRESSED MARKETS

DIGITAL ENERGY

Distributed Energy Resource's Smart Grid

- EU Clean Energy Package requires *Smart Grids* and new *Supplier-Consumer relationships*, opening the era of the Digital Energy Mkt
- DR (Demand-Response) technologies for Balancing Services required by Energy Communities and Prosumers' Aggregation (UVAM, Unità Virtuali Aggregate Miste) setting-up: **this is Tera's playground**
- *Privately Held Distributed Renewable Energy Plants* equipped with Storage Systems (BESS) and low-cost Electronic Systems emerging players for the aggregation and energy balancing
- Tera's Customers: BSPs ("Aggregators", energy players delivering services for grid balancing and energy community)
- Tera's Products:
 - Beeta Box/GloE (edge computers)
 - Beeta Power (meter Reader)
 - Beeta MOCO (energy flows controller)
 - Software Package

TERA PRODUCTS FOR DIGITAL ENERGY



BEETA™ BOX



GLOE™



UPM



BEETA™ MOCO



SOFTWARE PACKAGE



BEETA™ POWER

MODULATION CONTROLLER
Implementing dispatching and demand response orders on existing assets

INTEROPERABILITY
with third party Software platforms

ELECTRIC SMART METER READER



OTHER ADDRESSABLE MARKETS

ADDITIONAL INDUSTRIES



Building/Asset Management



Transportations/ Logistics



Powertrain Control



Salesforce MGMT



Agriculture



Manufacturing



Telco & Energy Operator

TERA PRODUCTS FOR ADDITIONAL INDUSTRIES



Edge Computer GloE



Remote Monitoring
and Atmosphere
Control System for
Agrifood Logistics



Real Time
Hydraulic Power
Transmission
Controller



TERA4AGRI

Thank you!



Original Solutions for Energy Efficiency



Buildings Energy Efficiency Trusted Advisor



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