SMART DIASPORA 2025

De la cercetare la impact: Proiecte europene în sprijinul tranziției energetice și al decarbonizării – rezultate obținute în Centrul de Cercetare în Tranziție Energetică –ENTREC - UTCN

Mihaela Crețu, Associate Professor

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REN+HOMES

https://renplushomes.eu/

more (+) energy,

less (-) emissions = a

new method for

positive buildings

Renewable Energy-based Positive Homes

Project coordinator from TUCN: Mihaela CREȚU , PhD Eng.

Time: 42 months (1st June 2023 – 30th November 2026)

Project value: 5.999.983 EURO

RINA
GreenFlex
ICONS
SocialFare Centro per l'Innovazione Sociale
CERQUAL QUALITEL CERTIFICATION
cea
HELLENIC PASSIVE HOUSE INSTITUTE
CERTH CENTRE FOR RESEARCH & TECHNOLOGY HELLAS
ITeC
EVOWALL TECHNOLOGY
WORLD SENSING
TAL TECH
matek MODULES - PLUG AND PLAY
Roofit.Solar
PRISTIS
NHT
GKN HYDROGEN
universität innsbruck
TECHNICAL UNIVERSITY OF CLUJ-NAPOCA
ROMANIA GREEN BUILDING COUNCIL
SERVELECT Energy is money! We save both.
Passive House Institute

REN+HOMES

https://renplushomes.eu/

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positive buildings

OBIECTIVE

✓ Stabilirea unei **metodologii universale pentru proiectarea** locuințelor cu energie pozitivă – POSITIVE ENERGY HOMES

✓ Sprijinirea **tranziției către clădiri rezidențiale neutre din punct de vedere climatic și cu energie pozitivă**

✓ **Dezvoltarea** uneor **tehnologii hardware și implementarea** în patru locații pilot situate în Austria, Spania, Estonia și România

✓ Aceste site-uri pilot vor evidenția **potențialul clădirilor cu energie pozitivă (PEB) în reducerea consumului de energie**

VELIXIA

BUILDINGS AS ACTIVE UTILITY NODES

Smart Grid-Efficient Interactive Buildings

Project coordinator from TUCN: Prof. Dan D. MICU, PhD Eng.

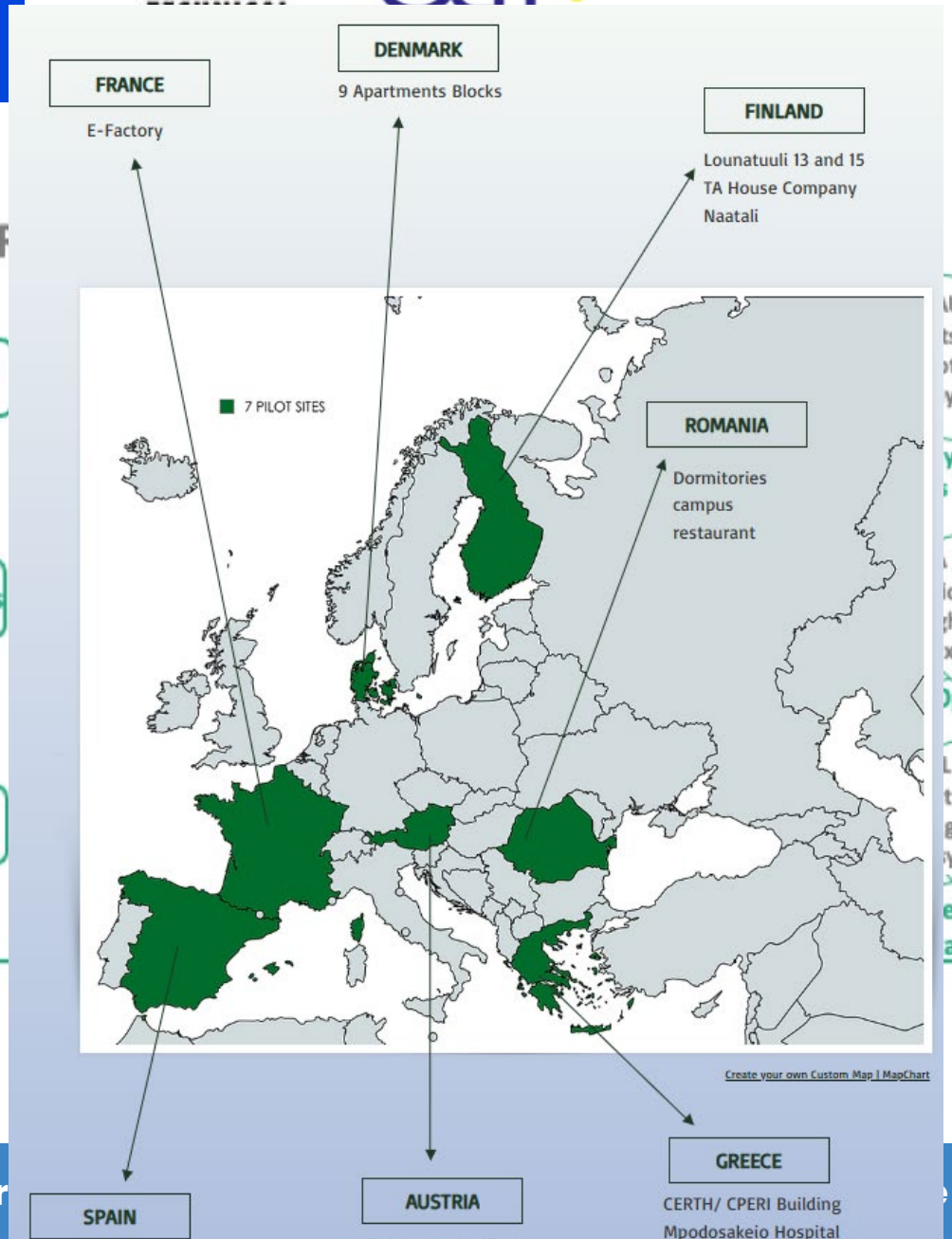
Time: 48 months (1st October 2023 – 30th September 2027)

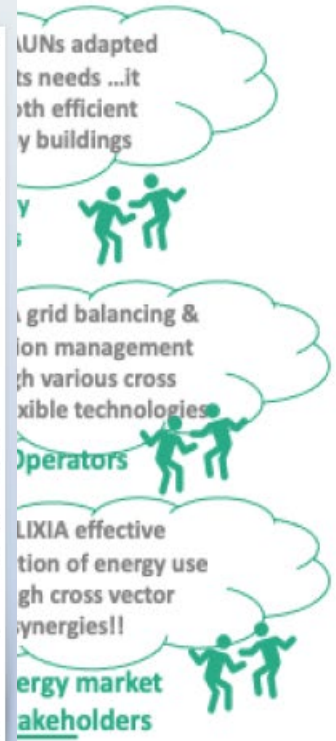
Project value: 8.189.865 EURO

https://www.evelixia-project.eu/

EnTREC
Energy Transition Research Center

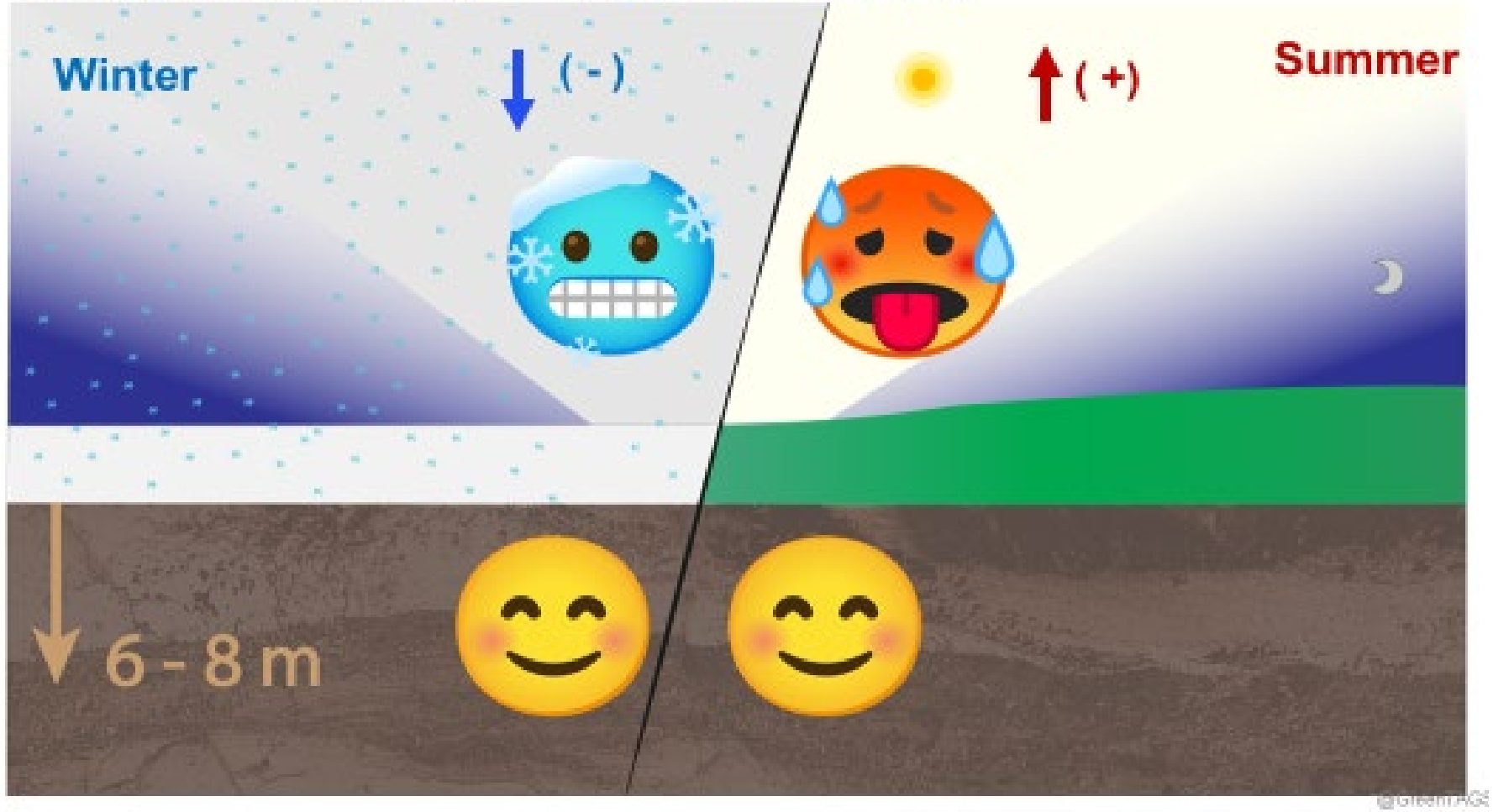






Geothermal energy wall system

Principle behind: Soil - Magnificent Shelter



Crearea unei noi surse de energie regenerabilă, non-convențională, pentru încălzire și răcire

Geothermal energy wall system

Stabilitate și rezistență + Sursă de energie regenerabilă

↓

Structuri geo-energetice

REN+HOMES

UTCN GeoWALL

Pereții exteriori existenți ai subsolului

Sursă de energie regenerabilă locală

Reabilitare clădiri

Soluție Inovativă 2 in 1

Damaged PV modules

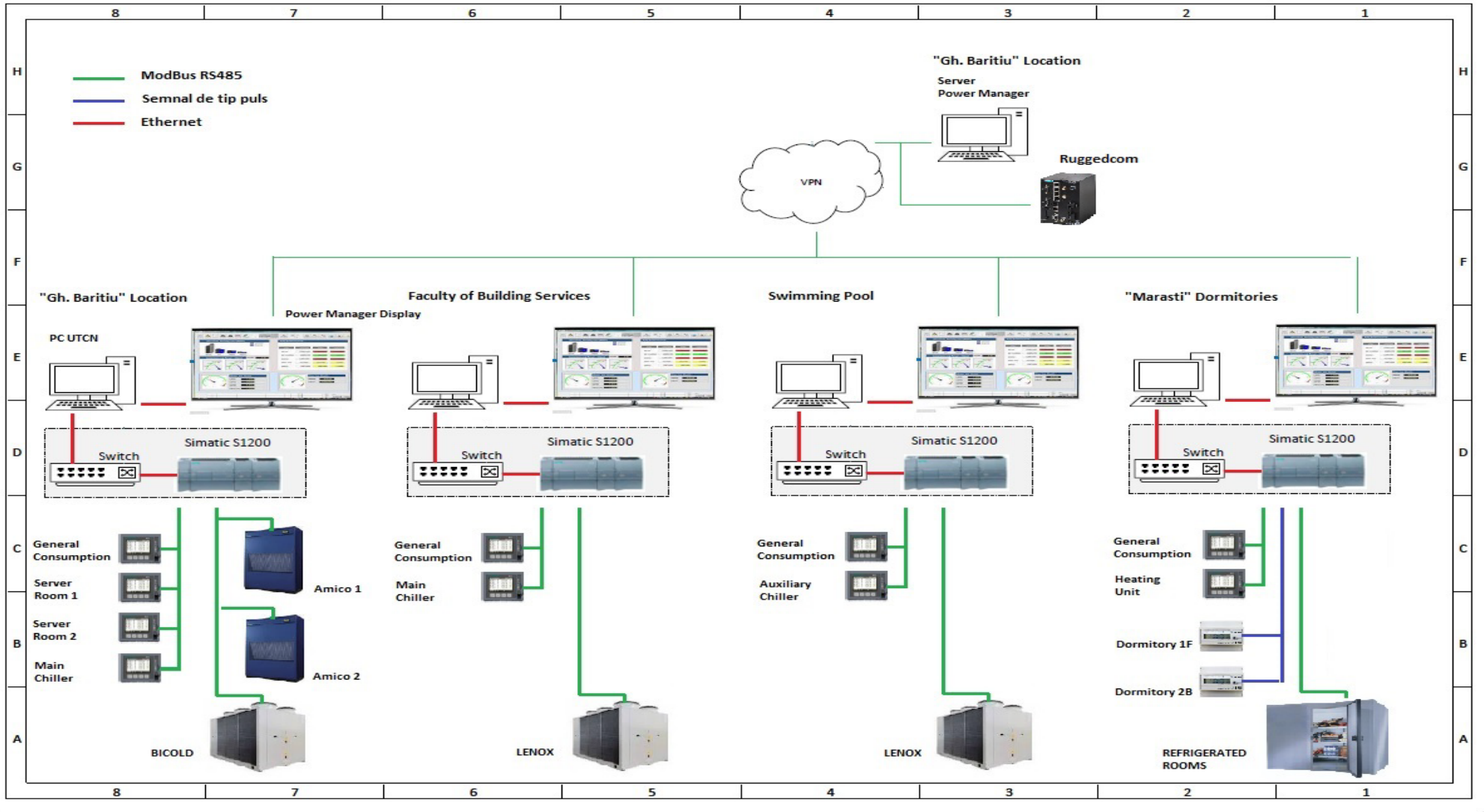




Integrarea de module BIPV în fațada clădirii, fabricate din panouri fotovoltaice deteriorate, și reutilizarea celulelor recuperate

BIPVs designed integration into the building facade




ModBus RS485
Semnal de tip puls
Ethernet
"Gh. Baritiu" Location
Server
Power Manager
VPN
Ruggedcom
"Gh. Baritiu" Location
Power Manager Display
PC UTCN
Switch
Simatic S1200
General Consumption
Server Room 1
Server Room 2
Main Chiller
Amico 1
Amico 2
BICOLD
Faculty of Building Services
Switch
Simatic S1200
General Consumption
Main Chiller
LENOX
Swimming Pool
Switch
Simatic S1200
General Consumption
Auxiliary Chiller
LENOX
"Marasti" Dormitories
Switch
Simatic S1200
General Consumption
Heating Unit
Dormitory 1F
Dormitory 2B
REFRIGERATED ROOMS

BEMS

Energo ESCO

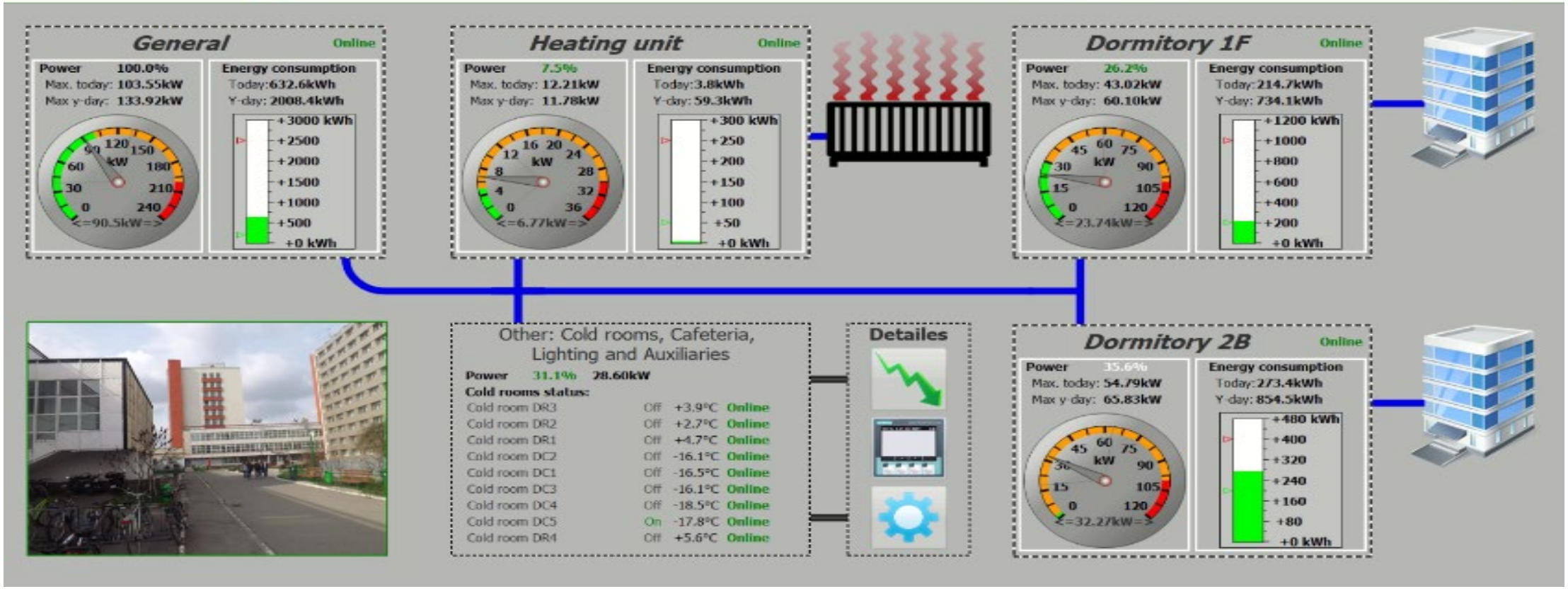
DR-BOB

2. "Marasti" dormitories

SERVELECT Energy is money! We save both.

TECHNICAL UNIVERSITY OF CLUJ-NAPOCA ROMANIA

10:07:00 AM 6/17/2022



BEMS

SMART DIASPORA 2025

TECHNICAL UNIVERSITY OF CLUJ-NAPOCA ROMANIA

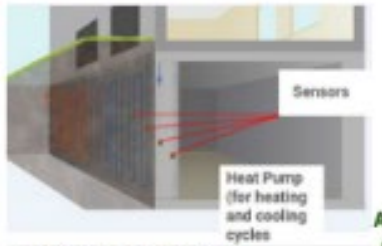
EUROPEAN UNIVERSITY OF TECHNOLOGY

EnTREC Energy Transition Research Center



BIPV SYSTEM

- Voltage and current sensors
- Mechanical shock sensors
- Temperature sensors



GEOTHERMAL WALL

- Embedded temperature sensors
- Embedded vibrating wire sensors

HEAT PUMP

- Inflow and outflow sensors
- Thermal agent input/output temperature sensors



EV CHARGING STATION

- Energy measurement system
- Proximity sensors

ANALOGUE SENSORS





CR6

Automated Monitoring Platform

GATEWAY

- Data Filtering
- Mapping (sunSpec)
- Data conversion

JSON

LOCAL SERVER

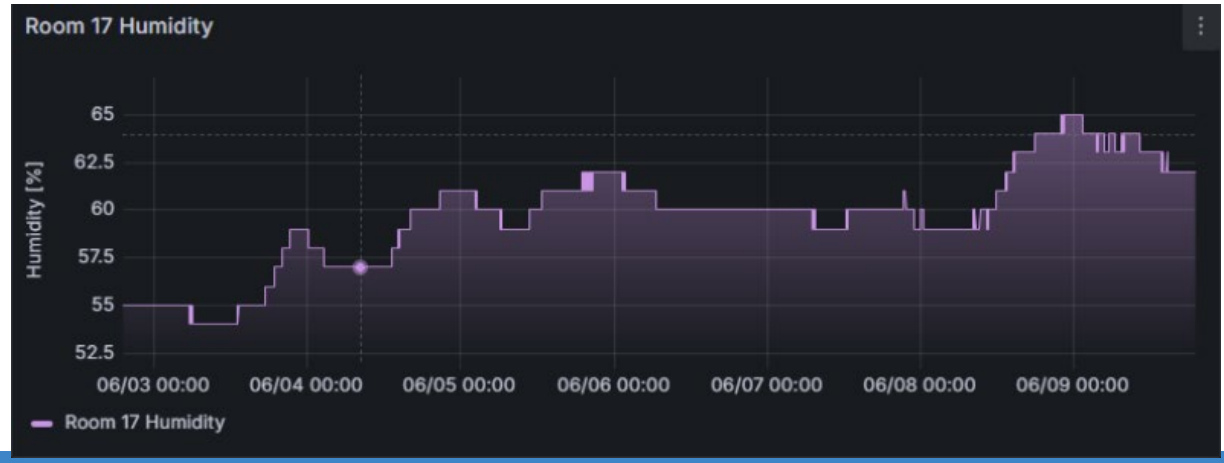
API

SQL

VELIXIA

POSTGRES database





Vă mulțumesc !

