



LoRaSi

Innovative AIoT solutions



Power grids in 2024/2025



Balkans hit by blackouts as heatwave persists

21 June 2024 12.25pm

Albania, Bosnia, Montenegro and large areas of the Croatian coast were hit by the afternoon blackouts, brought on by surging demand for power after households switched on air-conditioning to combat the high temperatures.

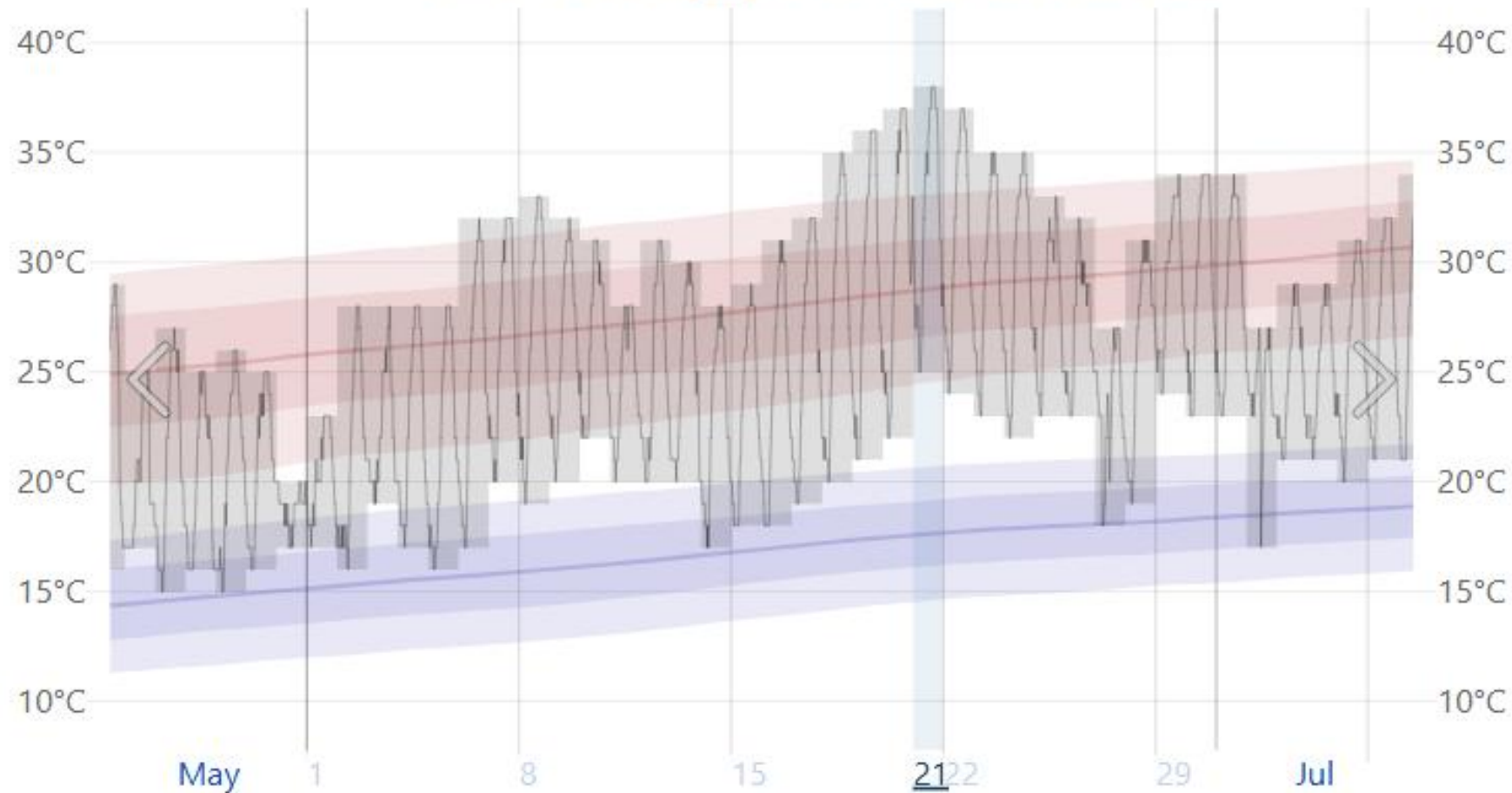


21 June 2024 12.25pm

Podgorica Airport Temperature History June 2024

← Summer 2024 [Link](#) [Download](#) [Compare](#) [Averages](#)

History: 2025 J F M A M **Jun** J A S O N D 2023 2022 2021

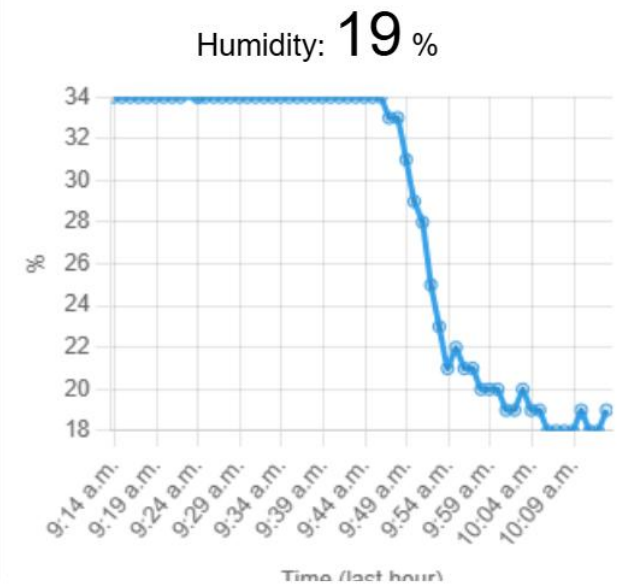
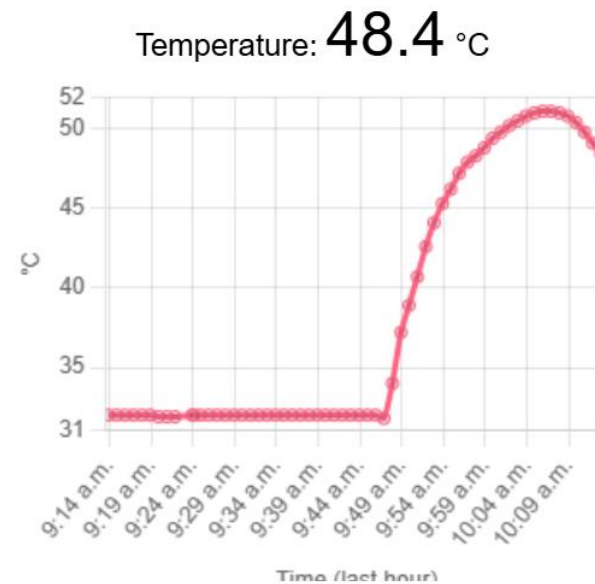


Temperature humidity sensor on NTP window

03. July 2025 10.09 am



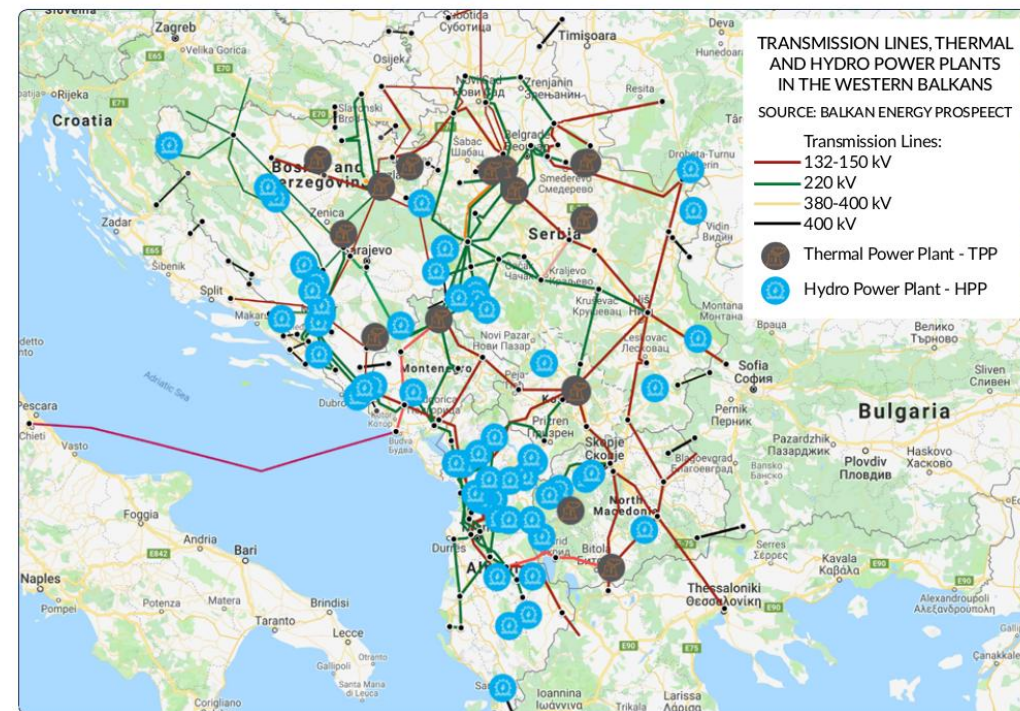
Sensor Data: LORASI HQ





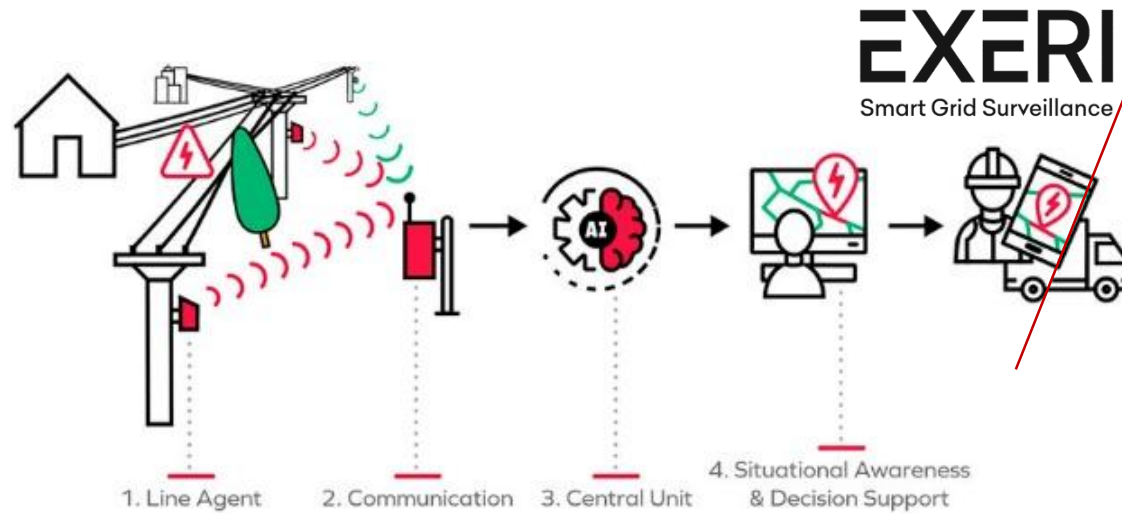
SAMST Cloud AI Monitor

- Digital Twin of the Power Grid
 - Power grid data analyzed in real time
- AI monitor runs predictive maintenance, based on sensor data
 - Anomaly detection based on Isolation Forest algorithms
- The Goal: Regional Energy Network
 - National energy operators communicating in real time





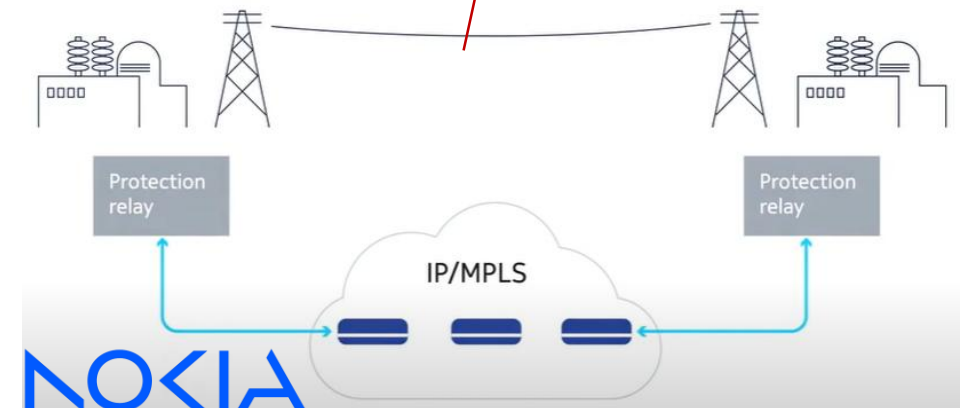
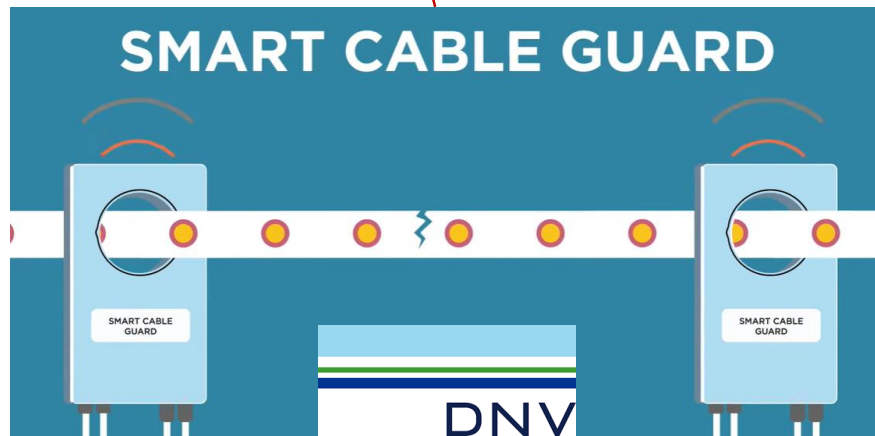
Competition



**No tower
environment
monitoring!
Proprietary
architecture!**

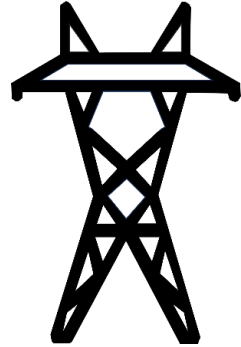
**No tower
monitoring!
Slow real time
fault localization!**

**Failure
localization &
identification
missing!**





Black out power companies cost



>15K Eur damage for a single tower



>150K Eur wire damage per km



JP ELEKTROPRIVREDA BiH
d.d. - Sarajevo

Blackout est. cost
325 K Eur



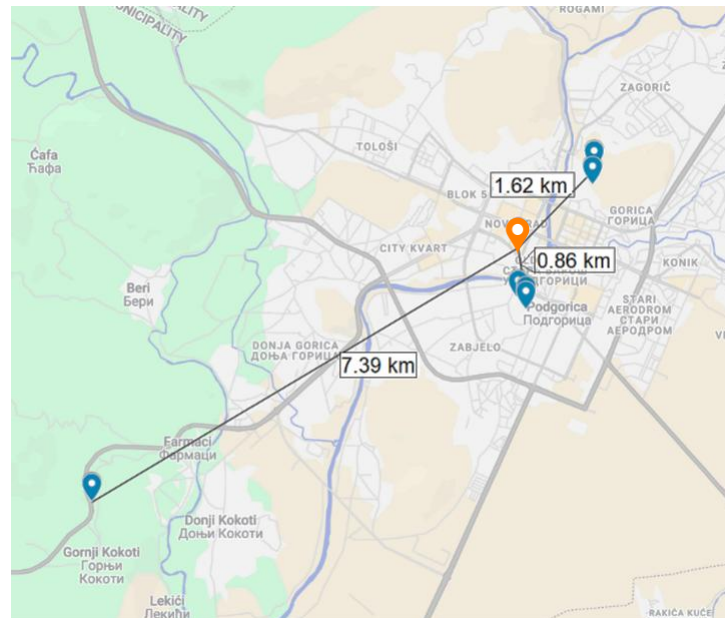
Income lost
220.85 EUR / min





Achievements

- Mentoring partnership with Italian company Astreo
- SAMST scientific paper presented at MIPRO, accepted at CIGRE
- LoRaWAN communication tested at many points in Podgorica, Montenegro
- Members of Scientific Technological Park (NTP) Montenegro
- Website with live data from LoRaWAN smart office





The Team



- Danilo Maric, CTO
- M.Sc in Electronic Engineering, University of Bologna
- Software Team Leader
 - Smart cameras and barcode scanners
 - Medical ventilators
- Start-up Enthusiast (Belgrade, Graz...)



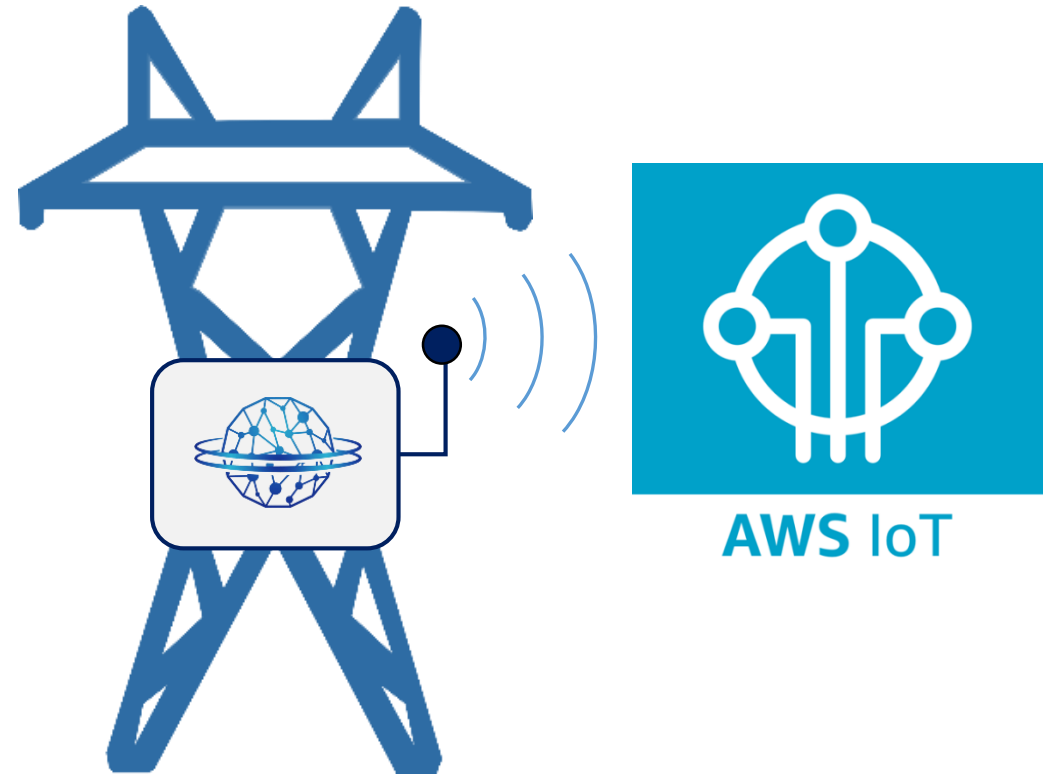
- Milan Maric, CEO
- M.Sc in Electronic Engineering, University of Montenegro
- Project Manager for e-Chamber, eGovernment portal, Visa management software, Electronic identification at polling stations... and many more





Future

- Presentation and SAMST marketing activities at CIGRE
- Prototype Outdoor sensor measuring temperature, vibrations and EMF
- First contacts with CGES, prototype sensors installation approved
- LoRaWAN integration with AWS IoT TwinMaker





Power grids in 2035



Western Balkan countries key
energy partner of EU



SAMST Pilot 1st year

- LoRaWAN sensor mounted on 10 transmission/distribution tower
- LoRaWAN gateway on every 1st and 10th tower
 - Distance between 1st and 10th = 3.5km
- Cloud offers visualization of the 3.5 km power line map and the state of the towers
 - Popup messages from AI monitor in case of anomalies
- Failures accurately located and identified before the field inspection
- Learning AI 12months by collecting sensor data
- Predictive maintenance to avoid failures and infrastructure maintenance costs

