DunavNET

ekoNET Service for Environmental and air Pollution Monitoring

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Boris Pokric - Short Bio

- CTO and co-founder of DunavNET last 8 years
- PhD degree in Artificial Vision Sciences
- 20+ years experience, 10 years in UK
- Working previously for large customers such as Motorola, Sagem, LG and Samsung
- Business and product development in DunavNET
- Managing R&D activities

About the Company

- Established in 2006, in Novi Sad, Serbia
  - Office in Dublin, Ireland
- Number of employees: 50
  - of which
    - 90% with university degrees
    - 20% with PhD
  - average experience: 5 years
- Founder member of International IoT Forum
  - www.iotforum.org

DunavNET

Smart Lab active in EC co-funded FP7 and H2020 programme
Focus on Internet of Things, smart cities, Future Internet and AR. Currently 12 running EU projects

DNET game studio develops complex mobile games
Own titles
Consulting services to clients in Germany and UK
More than 2mill downloads

Spin-off
Development of novel mobile and web solutions
mTicketing, Augmented reality

Main focus areas

- Smart city technology and services
  - Smart transport
  - Environment monitoring
  - Cloud based solutions
- Mobile services and applications
  - mTicketing and mPayment
  - Augmented reality
  - Games, Serious and Fun

ekoNET - introduction

- ekoNET service - Internet of Things (IoT) concept
- IoT - Smart environments connecting with the citizens
- Cities occupy 3% of the world's area
- But generate about 80% of CO_2 emission
- Important to address this issue – start with monitoring
- ekoNET system is developed for a real-time monitoring of air pollution and other atmospheric condition
- Low cost – raise awarness, deploy more devices

AIR QUALITY MONITORING

- Convential - networks of static measurement stations
- Usually operated by the public authorities
- Large, expensive and require significant amount of maintenance
- Low-cost solid-state gas sensors have started to be used for measuring the pollutants in the atmosphere.
- ekoNET system contains 11 sensors
- Can be at static location or mobile (with GSM)

EKONET SERVICE

- The ekoNET service is designed in such a way to provide:
  - a complete end-to-end solution for the environmental monitoring
  - following the design concepts used within the IoT domain.
- The system comprises all necessary components:
  - devices (EB800, RPi800)
  - back-end infrastructure
  - client applications (web and mobile)

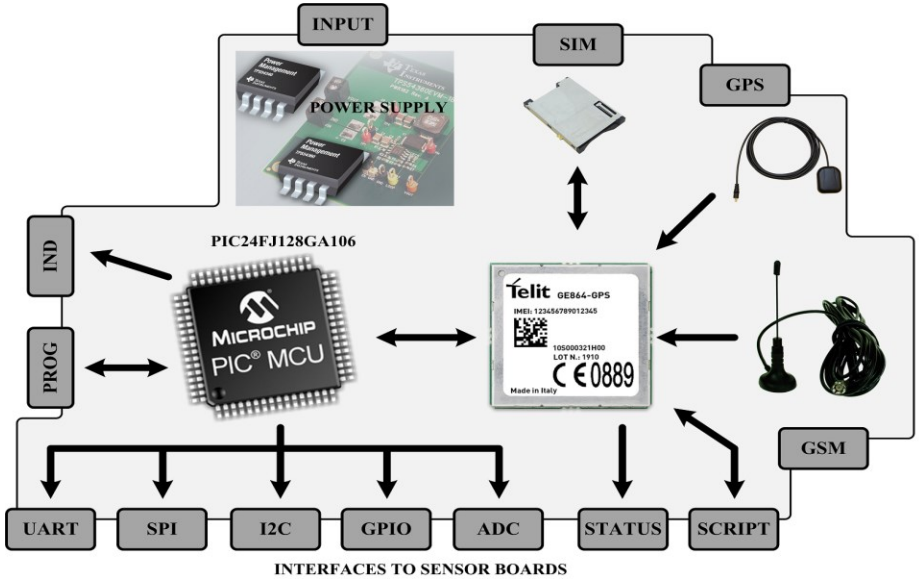
EKONET SERVICE

- The device is designed in modular fashion
- Can use different sensor packs on top of base design
- Adapt to suit different industries and associated use-cases
- The device can be mounted on the fixed location or on vehicle
- End users can access the data using web and mobile applications

SENSORS

- The ekoNET device is equipped with the following sensors:
  - Temperature, pressure, relative humidity
  - CO, CO2, NO, NO2, O3, SO2
  - Noise masurements
  - PM 1, PM2.5 and PM10 particles sensor

EKONET DEVICE



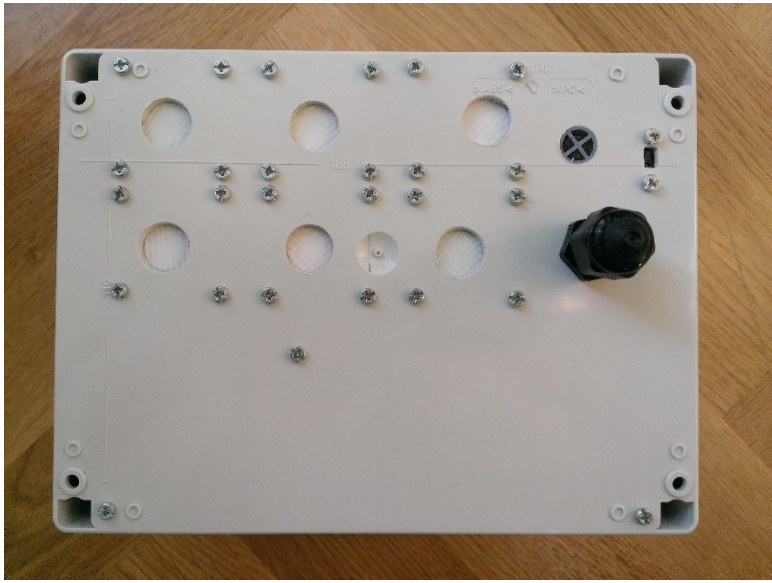
INTERFACES TO SENSOR BOARDS

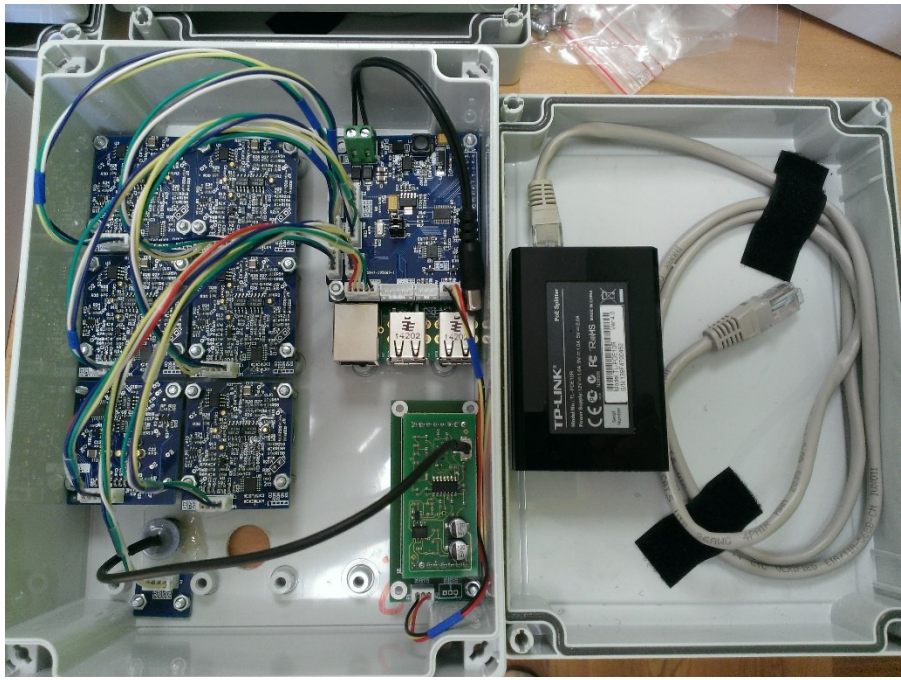
EB800

- GSM data transfer
- Mains or battery operated
- Can use PV panels
- Main board proprietary

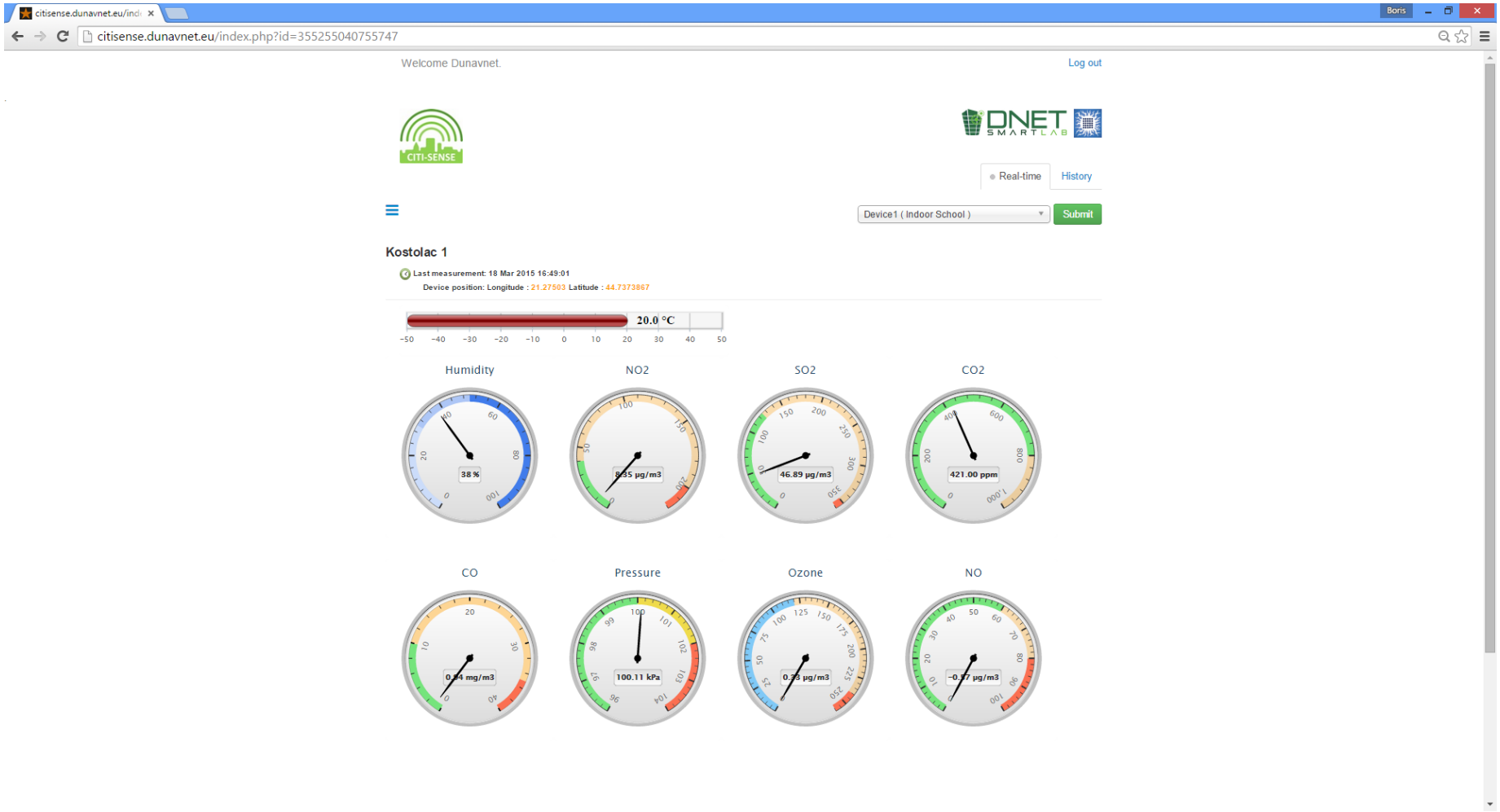
RPi800

- Ethernet data transfer
- POE
- Based on RPi





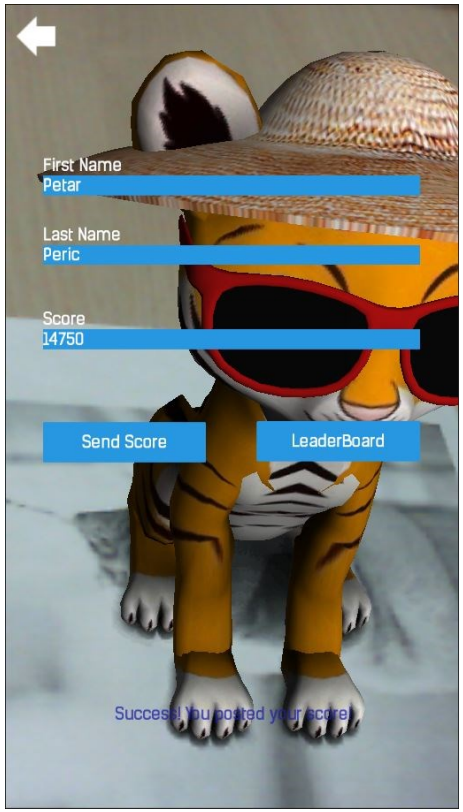
Web application for ekoNET data visualisation – real-time

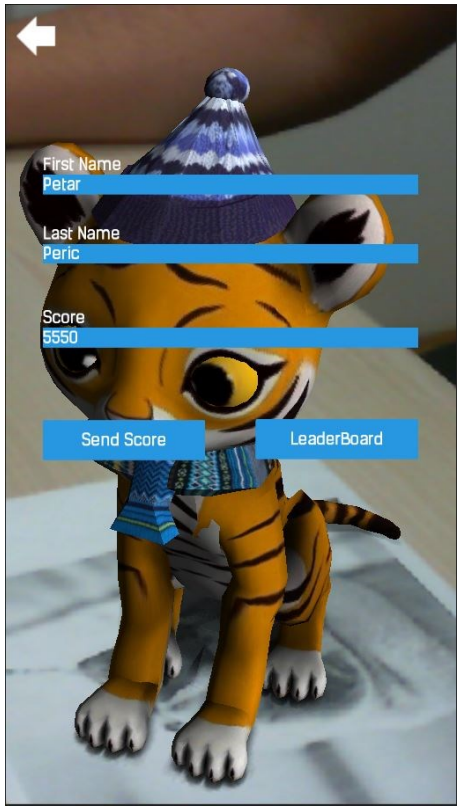


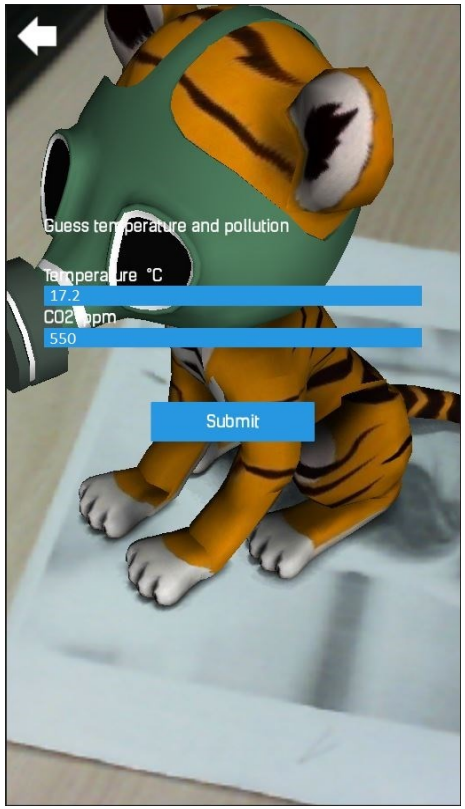
Historical


Welcome Dunavnet.
Log out
CITI-SENSE
DNET SMARTLAB
Real-time
History
CO values
CO values
CO value (mg/m3)
Very low
16. Mar
18. Mar
20. Mar
22. Mar
24. Mar
CO
Custom
1h
Last 7 days
Device
Kostolac 1
Start
2015-03-16 12:15:49
End
2015-03-23 12:15:49
no2
co2
tmp
hm
no
o3
co
so2
pm2.5
pm10
pm1
aud
Display

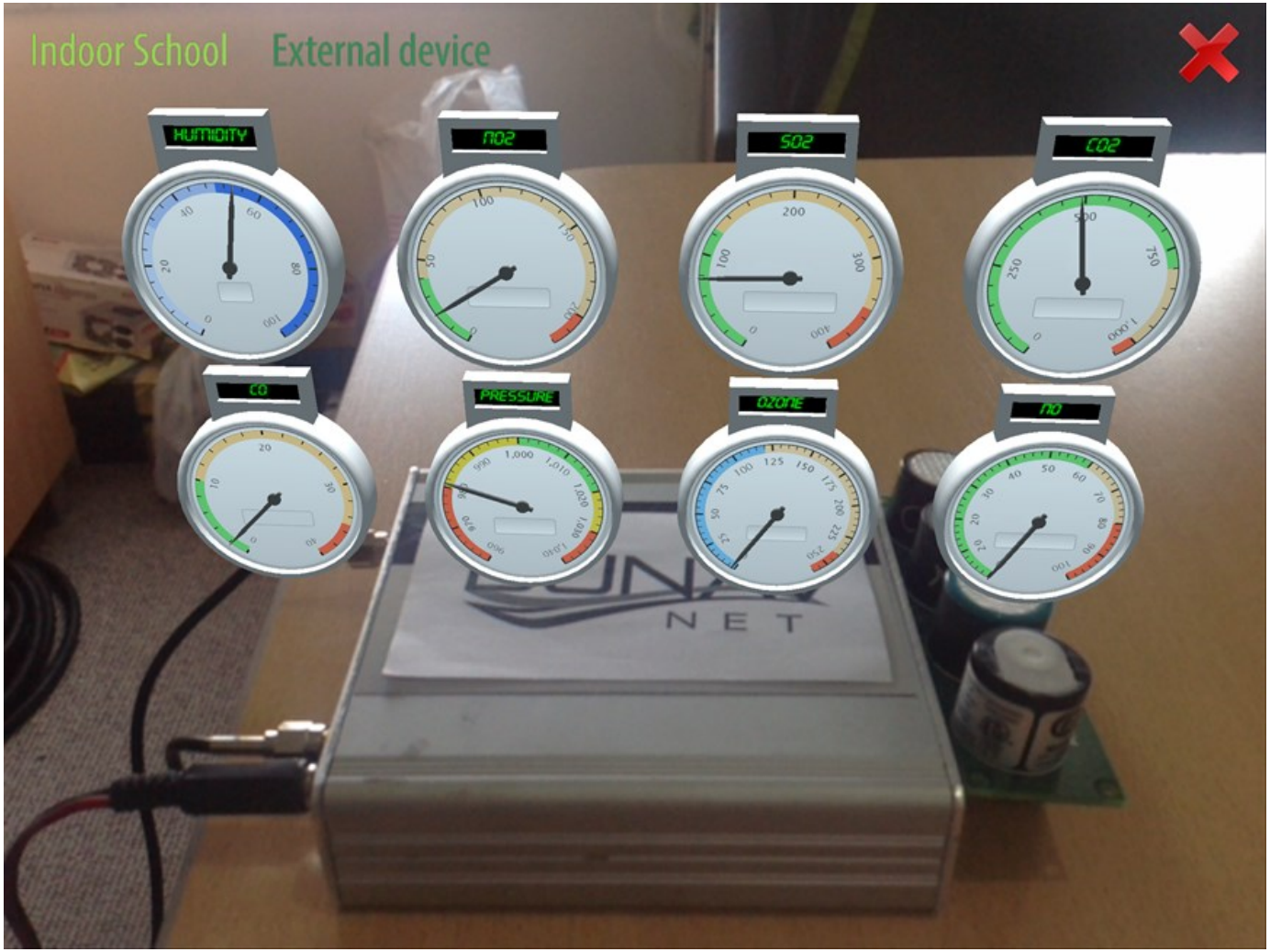
ekoNET and AR



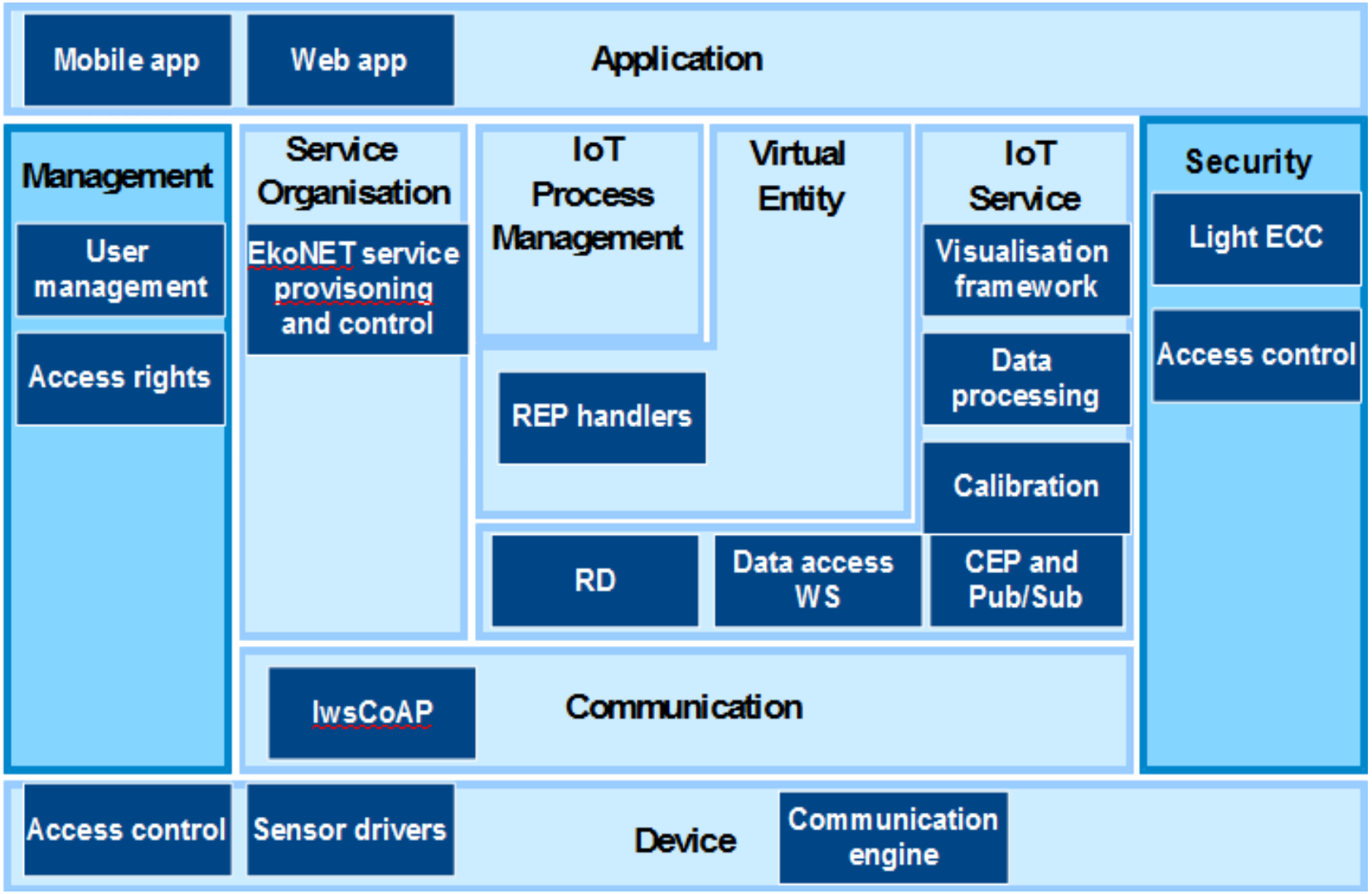




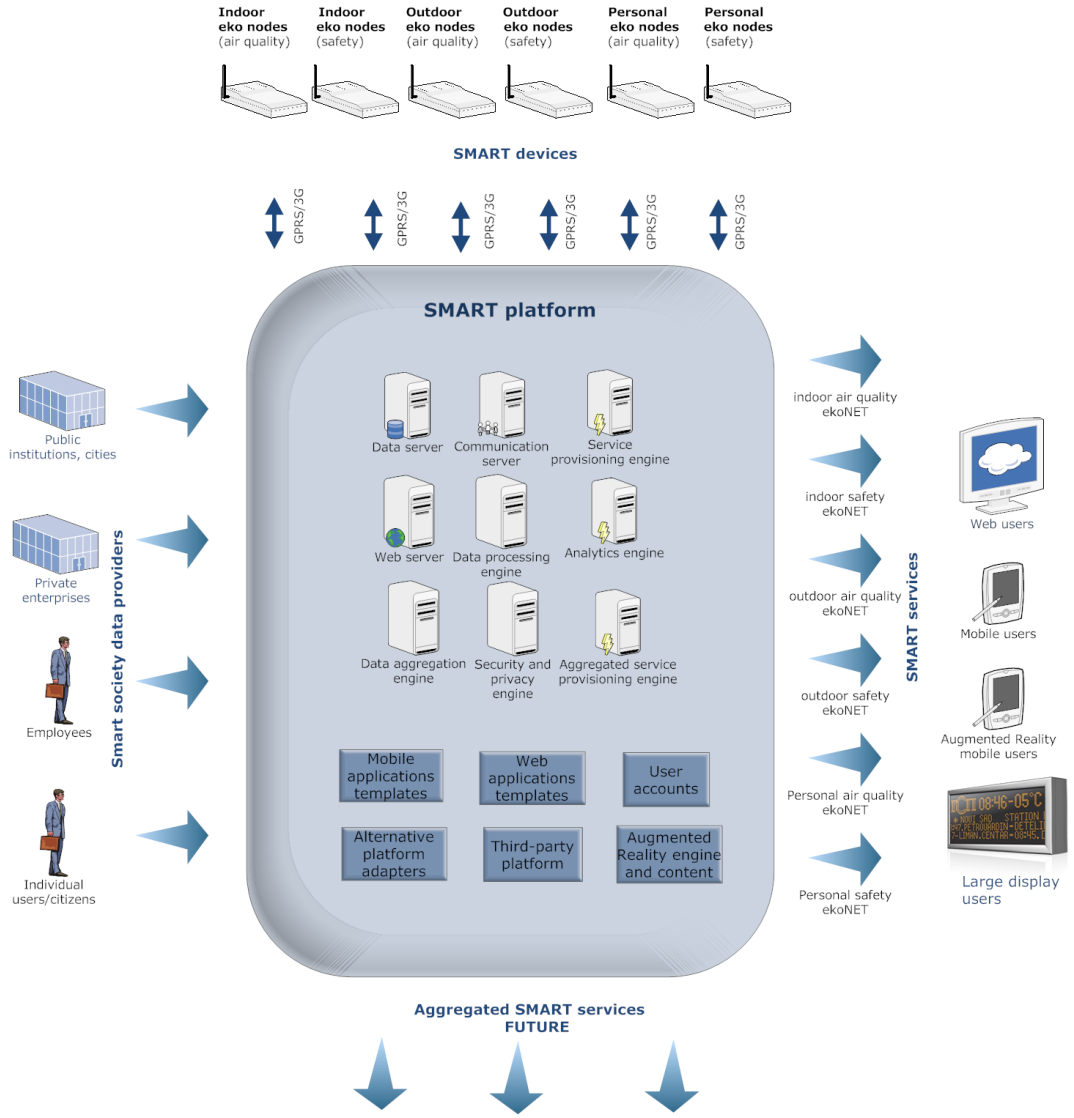
ekoNET and AR



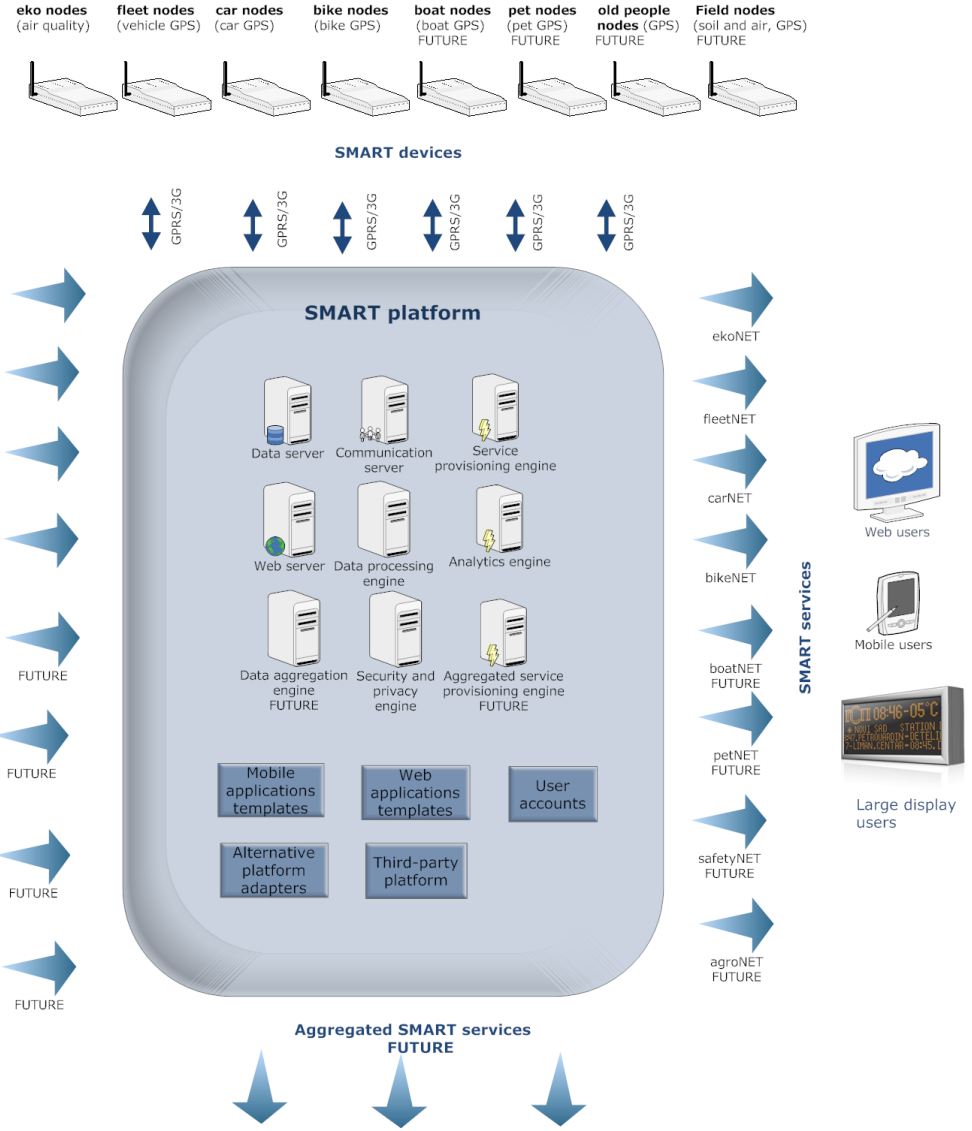
EKONET SYSTEM ARCHITECTURE



DEPLOYMENT


Indoor eko nodes (air quality)
Indoor eko nodes (safety)
Outdoor eko nodes (air quality)
Outdoor eko nodes (safety)
Personal eko nodes (air quality)
Personal eko nodes (safety)
SMART devices
GPRS/3G
SMART platform
Data server
Communication server
Service provisioning engine
Web server
Data processing engine
Analytics engine
Data aggregation engine
Security and privacy engine
Aggregated service provisioning engine
Mobile applications templates
Web applications templates
User accounts
Alternative platform adapters
Third-party platform
Augmented Reality engine and content
Public institutions, cities
Private enterprises
Employees
Individual users/citizens
Smart society data providers
indoor air quality ekoNET
indoor safety ekoNET
outdoor air quality ekoNET
outdoor safety ekoNET
Personal air quality ekoNET
Personal safety ekoNET
SMART services
Web users
Mobile users
Augmented Reality mobile users
Large display users
Aggregated SMART services FUTURE

FUTURE EXPANSION



SUMMARY

- ekoNET – low-cost real-time monitoring of air pollution and other atmospheric condition parameters
- ekoNET to be used within the IoT domain of smart cities and smart enterprises
- Provides a complete end-to-end solution
- Expansion into different domains (agriculture, medical, smart homes)

http://dunavnet.eu
http://ekonet.solutions

Thank you!

Q&A