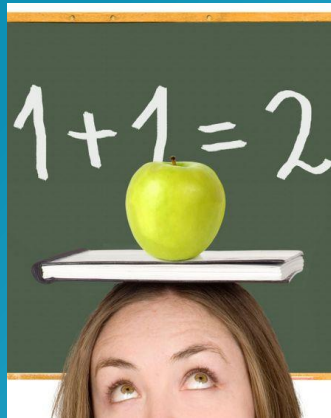


# Cooperation with the education sector



I've learned a lot about current technologies and solutions, met many interesting people and companies and it is pleasure for me to connect right people. I also coordinate marketing activities, manage events, connect partners, write IoT articles, make promo-tech videos, and interviews. I am a fan of new technologies and as a contact for schools in the IQRF Smart School program, I always try to transfer knowledge to them and connect them to the business fields.



## **Career**

- 2015 – now – MICRORISC s.r.o., IQRF Alliance z.s.
- 2014 – 2015 – Microsoft
- 2001 – 2014 – Smíchovská secondary technical school
- 2005 – Cisco courses at CESNET Prague
- 1999 – 2001 – SPUŠ a VOŠ Hodonín

## **Education**

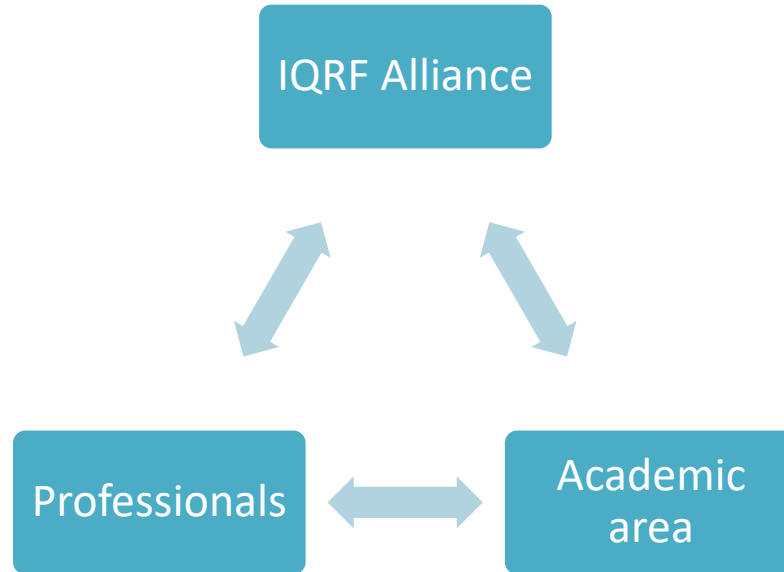
- 1994 – 1999: Masaryk University Brno, Faculty of Science, Mathematics and Descriptive Geometry
- 2014 – 2016: Charles University Faculty of Education - approbation extension - Computing

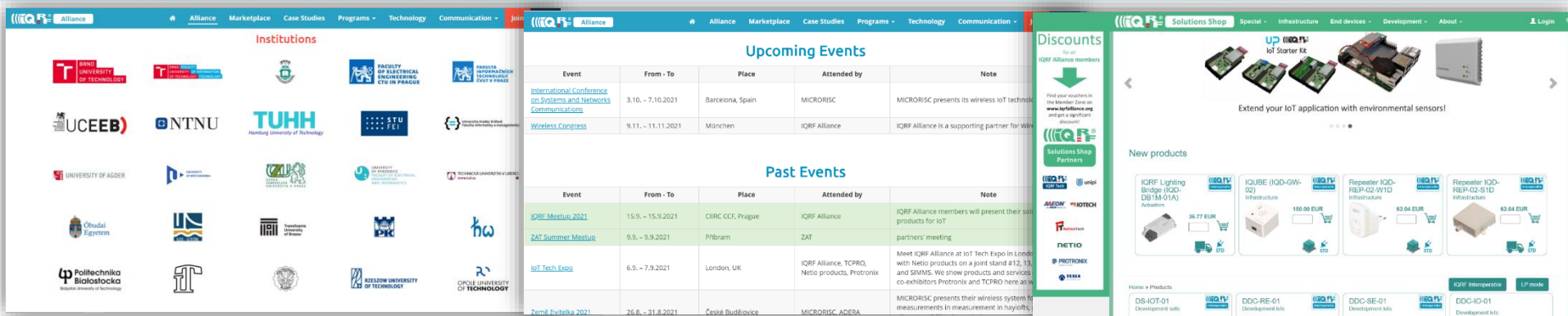
## **Publications**

- 2013: 50 examples in MS Word
- 2011: Descriptive geometry
- 2010: Computer networks – guide for network administrators

# You will learn...

- Relationship between the educational and commercial sector
- Conditions of IQRF Smart School program
- Examples of successful projects at universities
- IQRF Start Up program
- Examples of successful products and solutions of selected startup companies





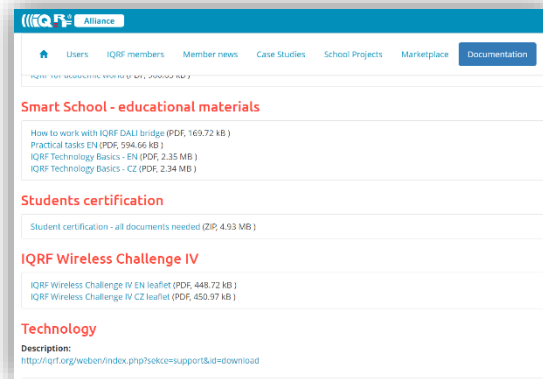
Networking with other members at alliance events

Joint projects and practice

Sponsored teaching and research equipment  
- discounts at [www.iqrf.shop](http://www.iqrf.shop)



Free training and certification of IQRF instructors  
Free students certification



Free access to educational materials



Promotion of school projects

## SmartCAMPUS UWB | Future Concept



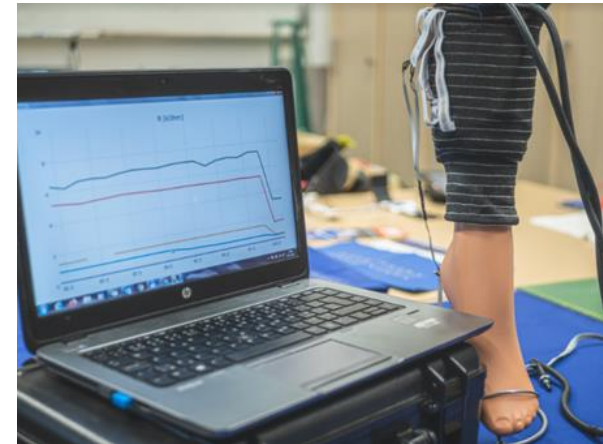
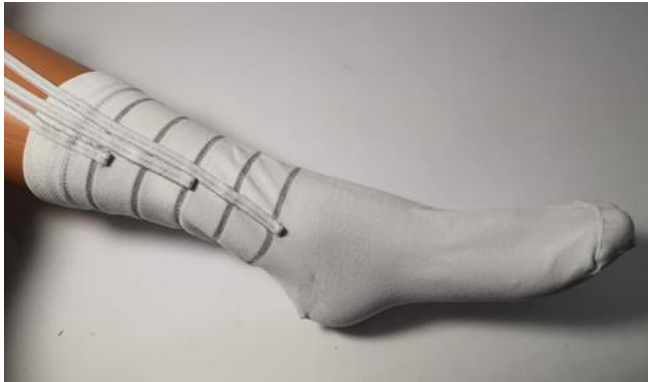
- microcosm of a city
- living laboratory
- test polygon

01. Parking
02. Parking
03. Caffeteria
04. Bibliobox
05. Scooters
06. Benches
07. Lecture Halls
08. Café
09. Informational Panel
10. Smart Bin
11. Weather Station
12. Sport Field
13. Sport Hall
14. Charging Station
15. Charging Kiosk
16. LoRaWAN Gateway



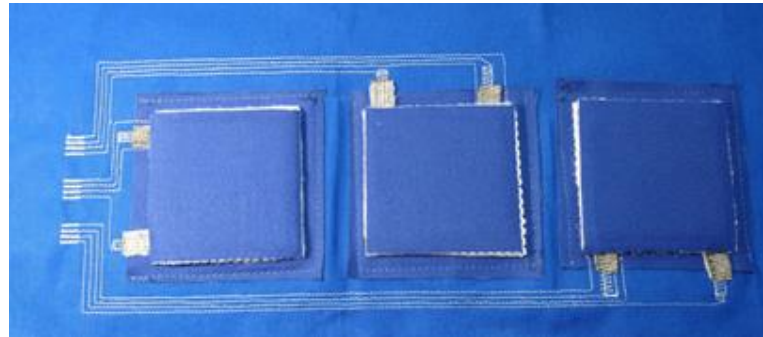
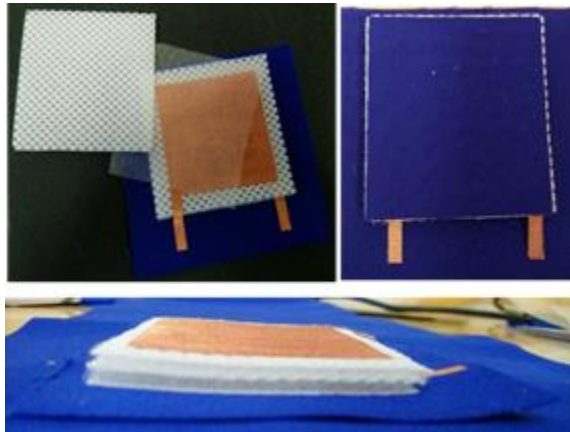
## Knitted socks for monitoring of patients with edema

- Seamless integration of sensor threads into knitted structure
- Developed strain sensor thread based on stappled stainless steel fibers
- Changes in the electrical resistance of the sensor due to changes in limb swelling
- Data wirelessly transferred to the cloud storage using IoT technology for further processing



## Textile pressure sensor system for measuring swelling or pressure therapy for problems with leg ulcers

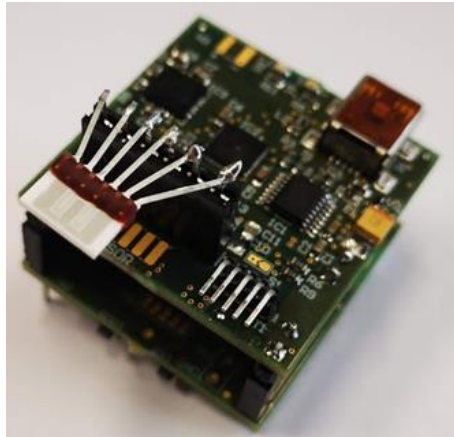
- Textile capacitors used as pressure sensors
- Data transferred via IoT network to web application
- Long-term monitoring
- Warning when limit states exceeded
- Remote patient monitoring





## Hazardous gas detection system - $\text{NH}_3$ , $\text{CO}_2$ , $\text{CH}_4$

- Sensors based on modified carbon nanotubes
- Modular system - interconnection, easily interchangeable
  - Module of measuring and evaluation circuits
  - Communication circuit module (LoRa, IQRF)
  - Power supply module
- The dimensions of the electronic system do not exceed 32 x 32 x 32 mm



# IoT sensor for explosive environment

(ATEX)



Main features:

- Temperature, flow, pressure, digital IO
- monitoring of gas distribution stations
- ATEX certification in progress
- **IQRF**, Wireless modbus, NB

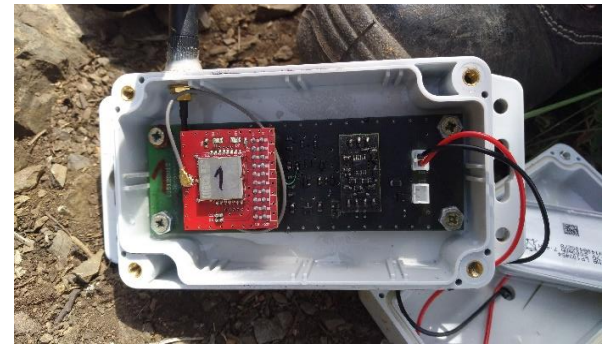
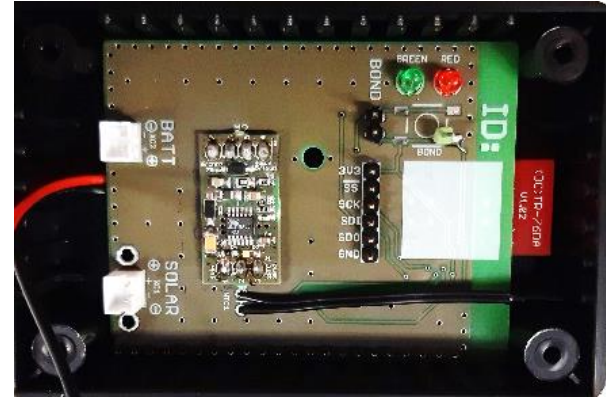
Cooperation ZČU FEL RICE / ZAT a.s.



# Other wireless sensors

## Measuring devices with wireless data transmission:

- accelerometer,
- dynamometer,
- Environmental quantities (temperature and relative humidity, precipitation),
- Carbon monoxide(CO),
- Methane ( $\text{CH}_4$ ),
- Temperatures,
- Dustiness.





# Our results

## Mokr  Lazce – dynamometer installation

- Monitoring of 4 dynamometers using two wireless sensors
- Continuous operation from March 2019 until now





# Our results

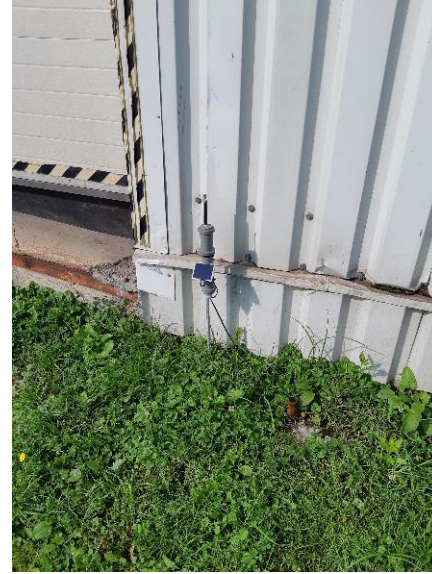
**Zbraslav – installation of accelerometric sensors**



# Our results

## Mining dump Hevika

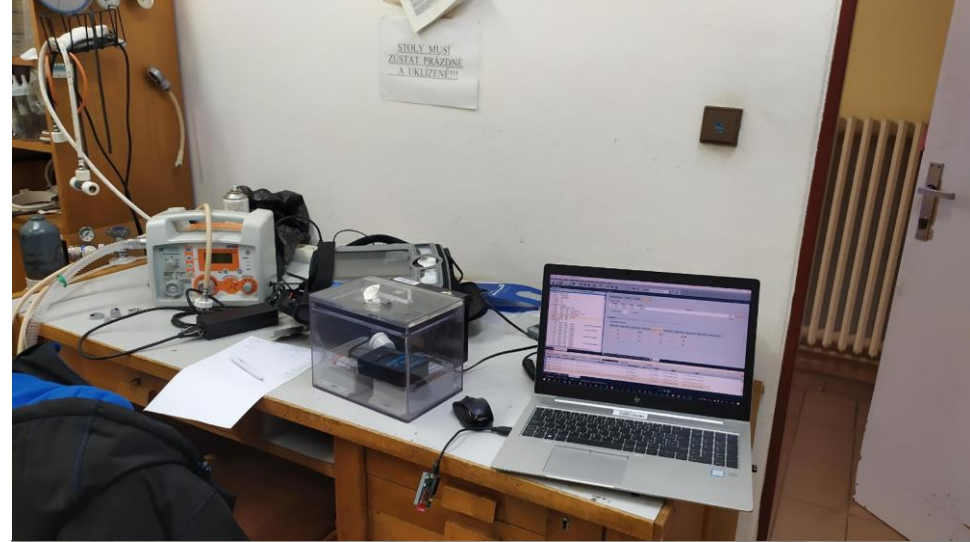
- Monitoring of low and high temperatures (up to 300 °C)
- Tilt monitoring
- Monitoring of carbon monoxide concentration





# Our results

- Due to the situation Covid-19 developed a wireless sensor for measuring the concentration of  $O_2$  on covid units
- Deployed at the ICU of the Ostrava University Hospital
- Measurement of  $O_2$  concentration in a room during oxygen therapy - the threat of an explosion - has already occurred abroad in several cases
- The solution is protected by an utility patent



- In cooperation with universities, we organize IQRF technology training.





Program for young IoT companies

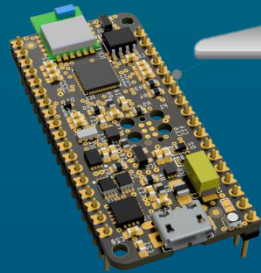
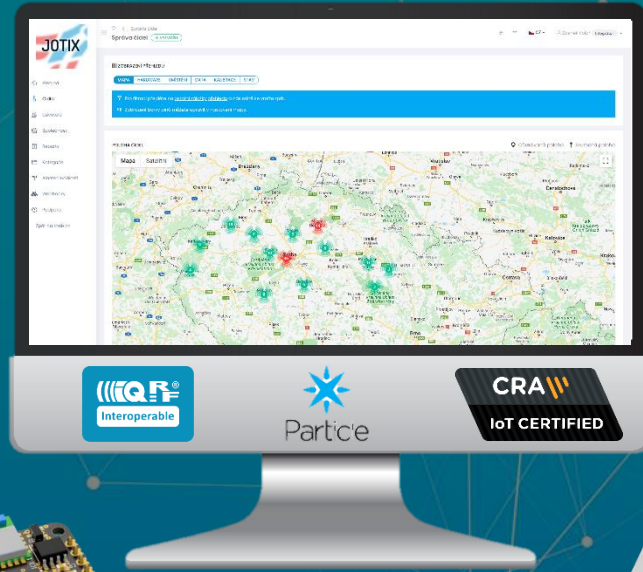
- Adopter membership free of charge
- Meet business partners on IQRF Alliance events
- Get training on IQRF free of charge
- Promote your product on IQRF Alliance Marketplace
- Sell your product on [www.iqrf.shop](http://www.iqrf.shop)



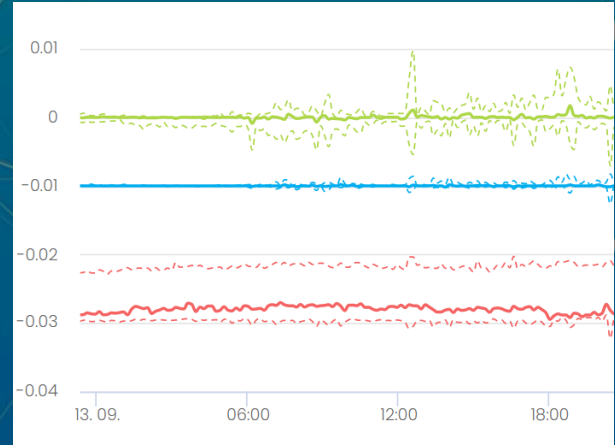
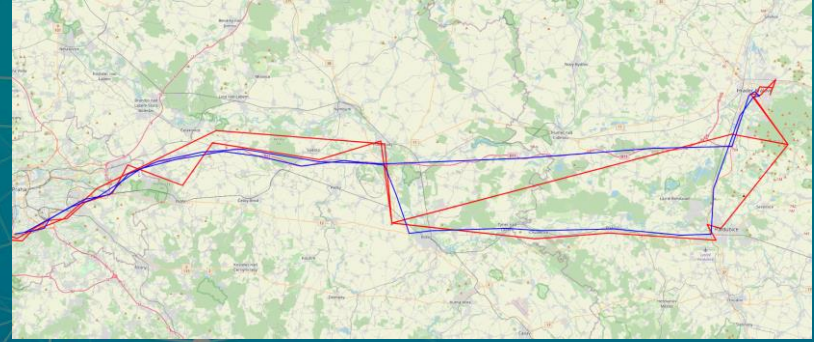


Integrator of useful solutions





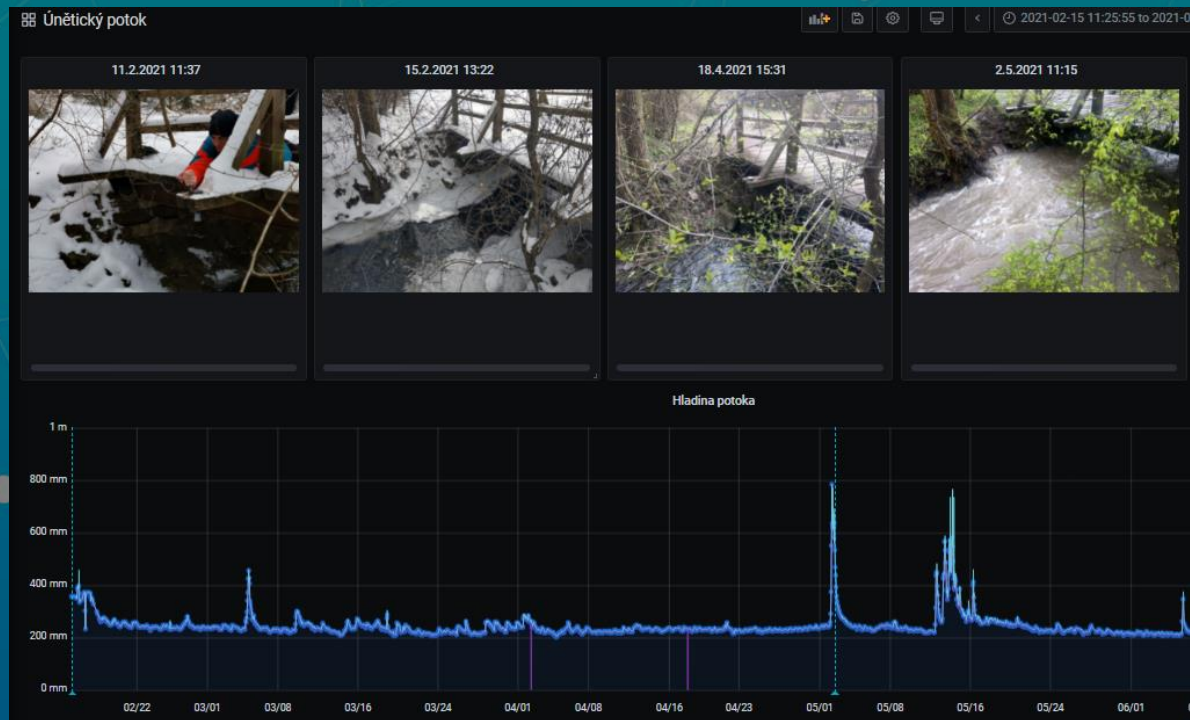
# JoTio IoT platform







Edge analytics



System integration

Data analysis



VUZV

Stájový obojkový indikátor

VÚŽV

Výzkumný ústav živočišné výroby, v.v.i.

1) Zvolte požadované číslo obojku  
2) Potvrďte OK  
3) Vyberte akci z níže uvedených možností

OBOJEK ČÍSLO: --- START

OBOJEK ČÍSLO: --- STOP

OBOJEK ČÍSLO: --- BLIKNI

Volba obojku:

0

1	2	3
4	5	6
7	8	9
CLR	0	OK

Globální monitoring a konfigurace

Interval komunikace obojku 0 : 21 s  
Interval komunikace obojku 1 : 57 s  
Interval komunikace obojku 2 : 25 s  
Interval komunikace obojku 3 : 39 s  
Obojek\_0 - stav baterie: 58.4%  
Obojek\_1 - stav baterie: 90.2%  
Obojek\_2 - stav baterie: 90.2%  
Obojek\_3 - stav baterie: 90.2%  
intenzita blikání

Consulting

Custom HW & SW

Monitoring





**BIG THANKS to**

**the Czech Ministry of Industry and Trade for financial support of the project FV40132**



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[www.iqrfalliance.org](http://www.iqrfalliance.org)  
[www.iqrf.org](http://www.iqrf.org)