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OPTIMIZING
SURFACE CONDITION MANAGEMENT

-S-I-R-W-E-C-

Smolenice, Slovakia
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OPTIMIZING SURFACE CONDITION MANAGEMENT

Surface Condition Management

Stationary

Mobile

Evaluation of surface condition

Surface treatment

Data collection, visualization and management

Efficient planning of resources

Risk reduction on the surface

Optimization

-S-I-R-W-E-C-

The Boschung group: 70+ years of innovative history

1947
Creation of body repair shop by Marcel Boschung

1955
Start of the development of own products

1964
Development of the first ice early warning system

1973
Launch of the Pony, the multipurpose carrier

1978
Foundation of Boschung Mecatronic

1979
Installation of the first fixed defrost spray system

1985
World premiere with the Jetbroom, the special high-performance vehicle

Ice early warning systems

Anticipated detection of freezing point temperature

- Time to take the right action at the right place
- Prevent unnecessary de-icing operations

GFS3000

Atmospheric sensors

Measuring unit

Pavement sensors

RCM500-NT

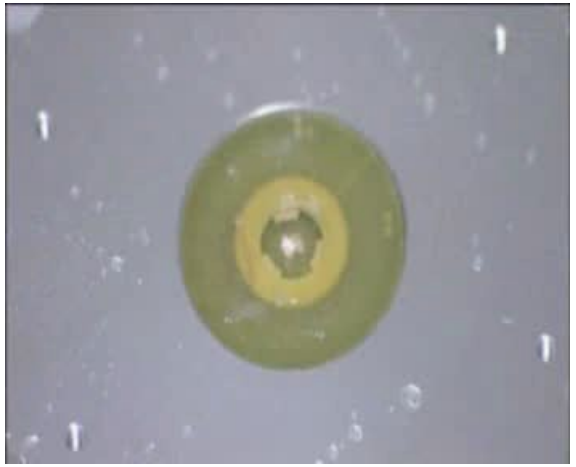
Ice early warning systems

Active pavement sensors

- Extensive experience all over the world
- High resistance and long life of pavement sensors

Active detection of the freezing point value up to 15°C under the actual ground temperature

Measured freezing point



Ice early warning systems

New developments

- r-weather
- r-condition
- RCD

Low maintenance

- Self-cleaning
- Heating system
- Radiation shield

All-in-one sensor

- Temperature
- Humidity, dew point
- Precipitation intensity, type and quantity
- Visibility
- Air pressure
- Wind speed and wind direction

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rcondition

- Easy installation
- Energy efficient
- Robust design

Non-invasive monitoring of current pavement conditions

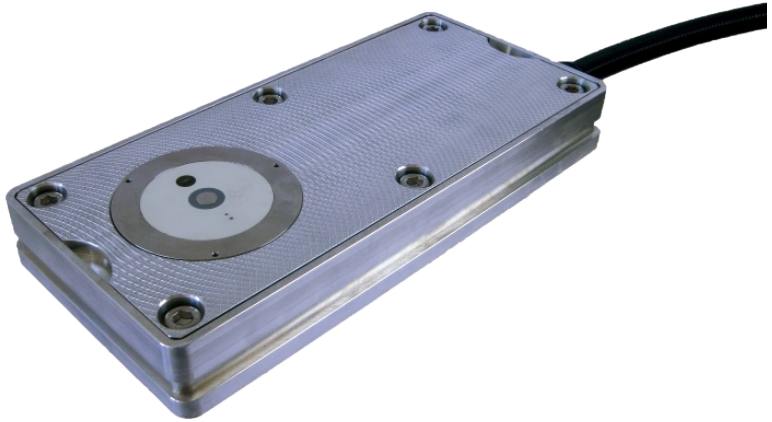
- Road surface condition: dry, moist, wet, ice, snow
- Water film thickness
- Road surface temperature
- Air temperature
- Grip

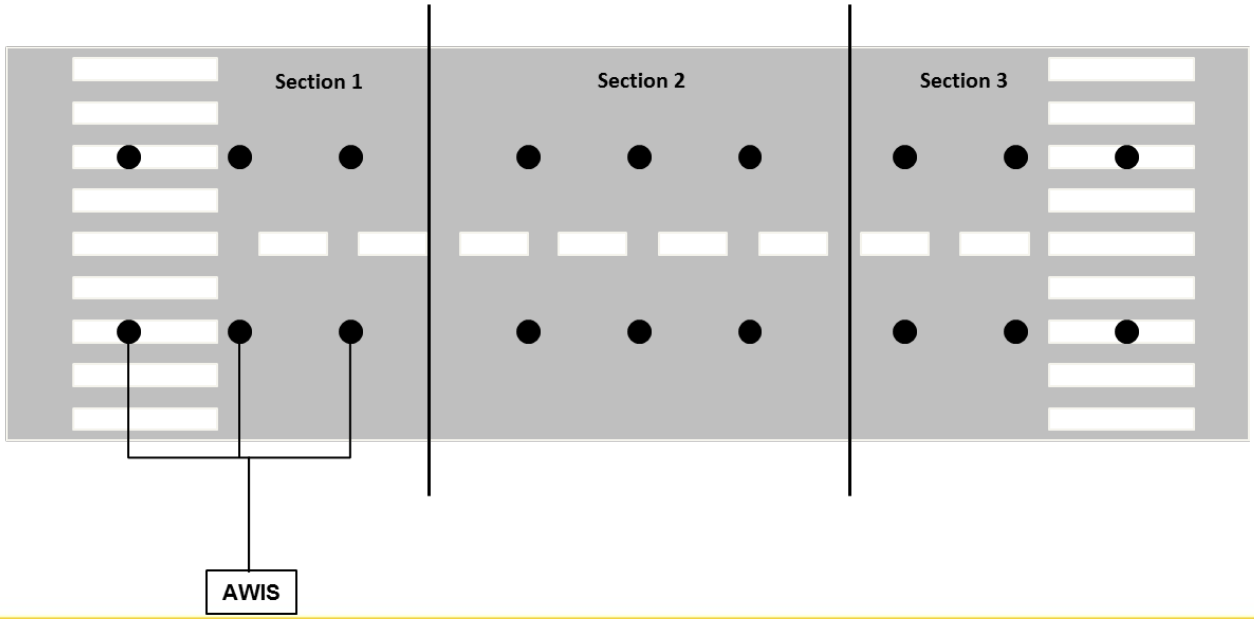
IT-Sens RCD – Runway Contaminant Depth

- Excellent resistance (mechanical stress, chemical agents)
- Sensor case for quick replacement
- Complement to friction tester – but available 24/7

Monitoring of contaminants on runway surface

- Runway surface condition (dry, contaminated)
- Contaminant type (water, slush, snow, ice)
- Contaminant depth (up to 18mm)



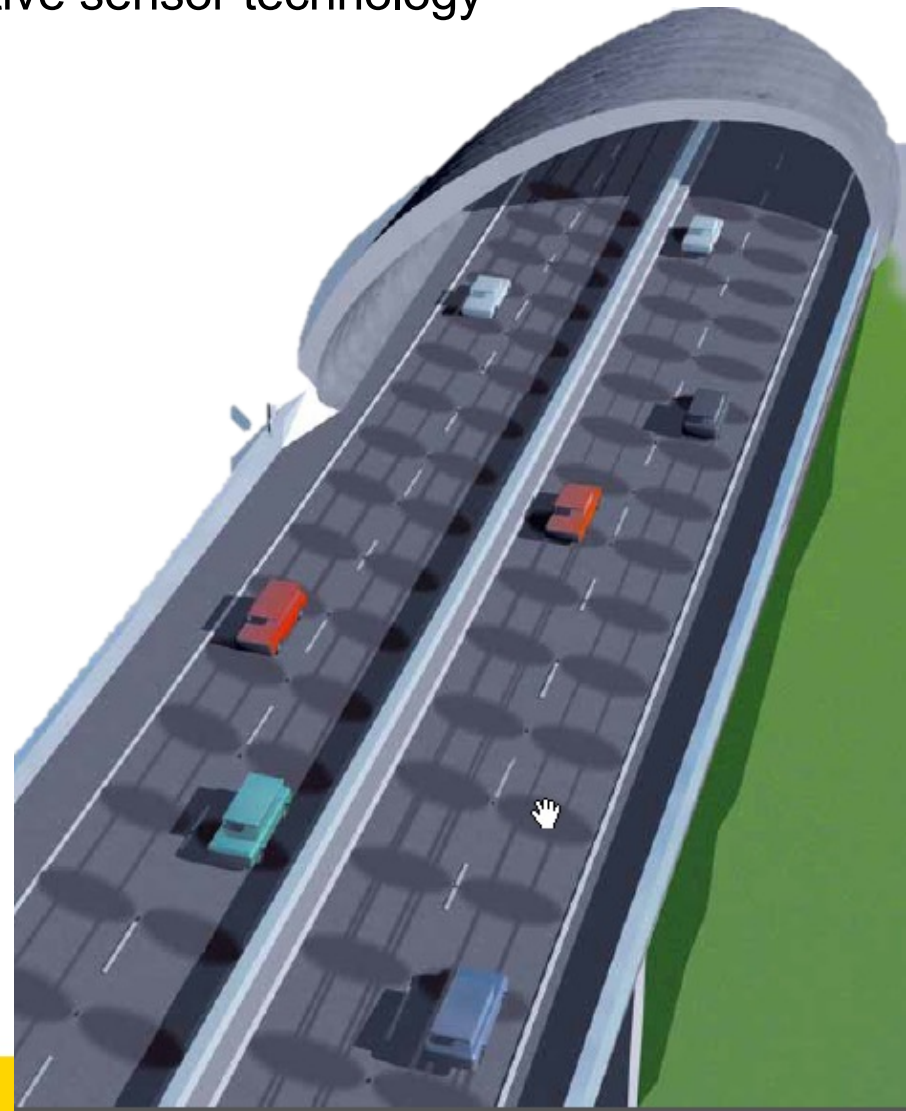


FAST – Fixed Automated Spray Technology Systems

- Risk reduction of ice-related accidents
- Operating cost 5x lower than with spreading vehicles
- Operating cost less than 10x lower than with heating system*

- Icing conditions detected by RWIS with active sensor technology
- Works with all liquid de-icing agents
- Fully automated operation

Typical strategic locations
- Bridges
- Roads with high inclines
- Ramps
- Tunnel entrances



*Reference: Ravera (2006). *Comparison of Cost-effectiveness of Different Stationary Ice-prevention Systems*.

FAST – Fixed Automated Spray Technology Systems

Spray nozzle

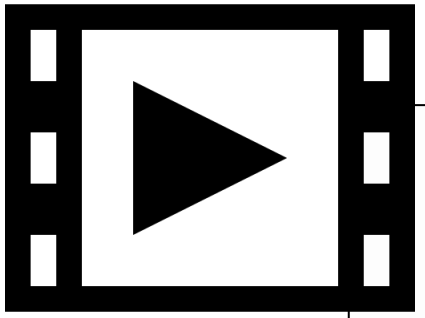
Spray disc

Micro-FAST

Practical case: presentation by Jan Szczerbinski

“Winter Season 2017/2018 – Selected Weather Facts on the Example of a Fixed Automated Spraying System in Pilisvörösvár (Hungary)”

FAST – Fixed Automated Spray Technology Systems



Fixed Automated Spray Technology System (FAST)

Spreading optimization

- Only the needed quantity of de-icing agent
- GPS controlled spreading

Security increase

- Ergonomic arrangement in the cabin
- Voice output

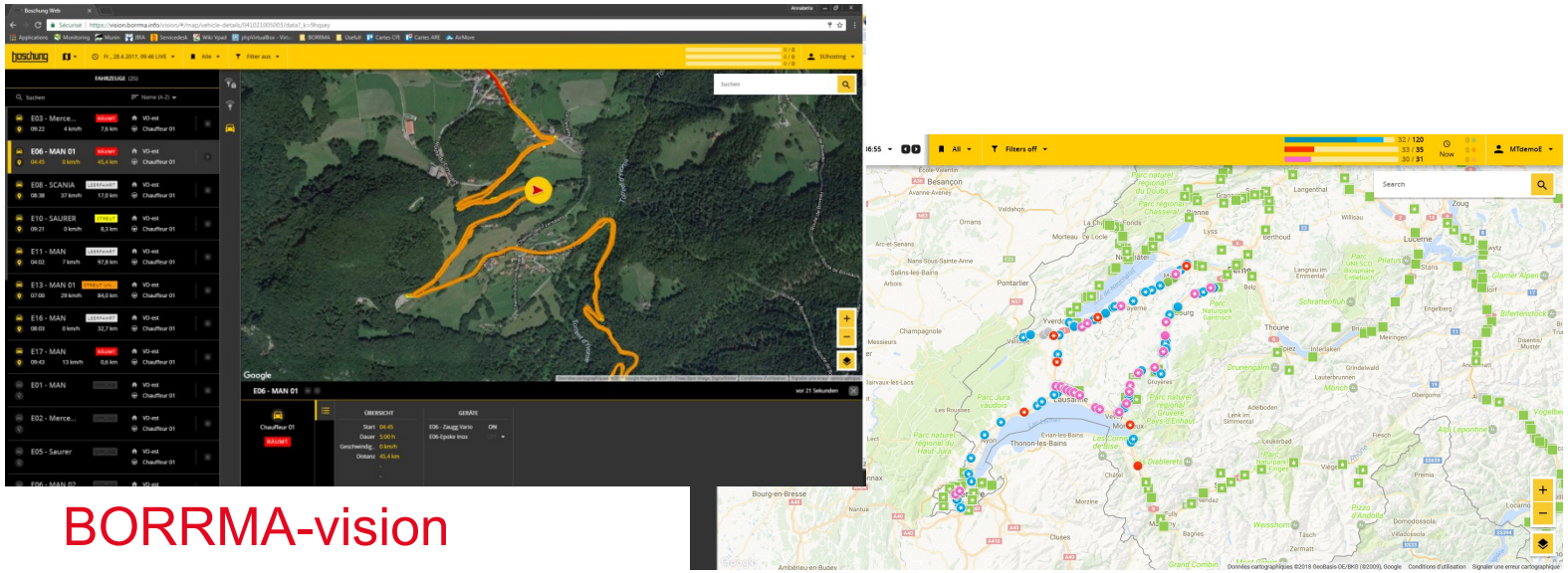
Control unit for the operation, regulation and monitoring of spreader with board computer

- Route navigation
- Setting of spreading width and pattern
- Control of snow ploughs and sweeping units
- Voice output for operation confirmation
- Real-time data transmission to BORRMA-web

BORRMA-web – Data management tools

Web-based solution

- No specific software to install
- Application for smartphones
- Access to real-time data while out of the office
- Historical data for analysis and reports

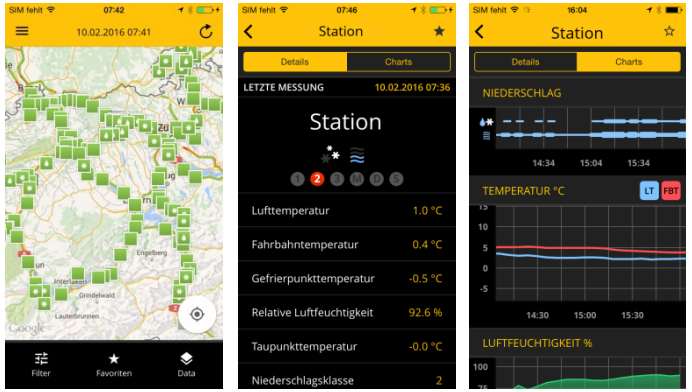


BORRMA-vision

Hosting services

- Cost can be planned.
- No infrastructure necessary and security guaranteed.
- No cost for maintenance. Support service 24/7.

RWIS App



Future? – Optimization through digitalization?

Another example of connected solution: SOBO3+

- Amount of salt on the road
- Pavement temperature

Smartphone app

- GPS tracked measures
- Measurement history
- Reports

THANK YOU

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